Altogether Archaeology
Digging our heritage in the North Pennines

Gueswick Hills, Teesdale:

Interim report on 2023 excavations (GH23)
(12 Aug to 3 Sept and 23 Oct to 27 Oct)

ALTOGETHER ARCHAEOLOGY

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Document compiled by **Martin Green**
It includes information from **Rob Young** (professional archaeological supervision), **Stephen Eastmead** (surveying, lidar, drone), and **Tony Metcalfe** (finds).

Archaeological Services Durham University reported on palaeoenvironmental samples and charcoal species.
Queens University Belfast 14CHRONO carried out the radiocarbon dating.
SWAAG (Swaledale and Arkengarthdale Archaeology Group) allowed use of their magnetometer and expertise in geophysical survey.

Version 2.7 (26 July 2024)

Site location: NZ 0036 2104, 1.5km north-west of the village of Cotherstone, Teesdale, in the parish of Hunderthwaite.

The Lidar Landscapes survey was a project of the North Pennines AONB Partnership http://www.northpennines.org.uk

Drone images and processing of lidar data by **Stephen Eastmead**, https://eastmead.com/

QGIS Free and Open Source Software was used: https: https://qgis.org

Please note: The features described in this report lie on private farm-land with no public access

Cover image: Excavating a lower context in Trench 4 after removal of part of the paving.

Contents

1 INTRODUCTION

1.1 The site

This is a report on excavations carried out over three weeks in summer 2024 and over five days in autumn 2024 by the community group Altogether Archaeology (AA) at a site on the Gueswick Hills (grid reference NZ 0036 2104), which AA has been investigating for several years. It lies on the plateau top of a low hill close to the River Tees, between Cotherstone and Romaldkirk. There is scanty surface indication that this is a significant site, just a small area of uncategorisable "lumps and bumps"; it was only AA's magnetometry survey that demonstrated the extent of the hidden archaeology. Excavation has shown that it is a Middle Iron Age settlement, which continued in occupation into the Romano-British period.

Investigation of the site started with a walkover survey, a magnetometry survey of the hilltop (extended in Spring 2022 to 1.1 hectares in total), and a brief evaluation excavation: all taking place in 2019. Subsequently, AA excavated the site for three weeks in both August 2021 and August 2022. Reports of these, plus the Project Design, are published on the AA website (Eastmead 2022, Green 2019, 2020, 2022a, 2023). As extensive background information was included in those reports, it will not be repeated here. Interim papers have also been published describing progress on the project (Green 2022b, 2024, Green & Metcalfe 2021, Green, Metcalfe & Young 2024).

Further magnetometry was carried out in May 2023 to extend the survey northwards to cover more of the summit plateau. The 2023 summer excavation took place from 12th August to 3rd September. A brief evaluation excavation was carried out later in 2023 (23rd to 27th October) on the small hummock at the south-east corner of the plateau (NZ00512096) where evidence of a structure was found, but adverse weather forced curtailment of the dig. Excavation of the site is planned to continue in August/September 2024, both at the main site and at the hummock where the trench will be re-opened.

Figure 1: Location of the Gueswick Hills site on farmland now used for grazing. Surrounding the nearby villages are medieval field-systems, fossilised in the hedge pattern. The River Tees flows in the deep valley to the east of the site. (Google Earth)

The Gueswick Hills are a line of terminal moraines across Teesdale, marking the position where the Teesdale glacier paused in its retreat up the dale at the end of the last Ice Age (Evans 2017, 2018). For a short period, the hills acted as a dam, causing the formation of a lake. Despite the glacial origin of the hills, the large terraces on their southern flank have a considerable depth of soil. Excavation in 2020 had to be cancelled due to the pandemic, but members of the TerrACE project team (www.terrace.no) were able to dig test-pits on the terraces below the site in September 2020. This international project is investigating the soils of agricultural terraces in several countries of Europe, using Optically Stimulated Luminescence (OSL), ancient DNA, and other techniques. The team is yet to publish results for this site, so the age and use of the Gueswick terraces are unclear. However, terraces in Northumberland seem to have been in use (though not continuously) from the early Bronze Age through to the Medieval period (Frodsham and Waddington 2004, Brown et al 2023).

1.2 2019 excavation

The evaluation excavation in 2019 had three small trenches:

Trench B1, over an area to the west of the hilltop cairn, found no significant features.

Trench A1, over the line of a probable ditch seen on magnetometry (but not visible on the ground), found a discontinuous flagstone and cobble surface extending across the line of the ditch, buried beneath 0.5m of topsoil. In the topsoil was a stony layer below turf level, covering the whole trench. The fill of the ditch itself was not excavated. Two pot-sherds were found in the soil above the paving. One was late medieval, the other of uncertain date.

Trench A2, was located at the west end of a rectangular feature visible on the ground, and seen on lidar and magnetometry images. This exposed a stony surface in the southern half of the trench, to the north of which was a gravelly deposit which contained three Iron Age (IA) or Romano-British (RB) pot-sherds, a stone spindle whorl, and an iron blade.

Thus, although the summit cairn and rock-art suggested a Bronze Age presence, and the surrounding ridge and furrow suggested occupation in the medieval period, the excavation finds were mainly of the Iron Age or Romano-British (IA/RB) period.

1.3 2021 excavation

The excavation in 2021 had two trenches:

Trench 1 was a re-opening and deepening of the 2019 Trench A1, investigating the ditch seen encircling the hilltop on magnetometry (but with no indication of it on the ground surface). The flagstone and cobble surface 50cm below ground level was re-exposed. Under it, a 1.5m deep ditch was excavated. This had a palisade slot in its base, full of butchered animal bones and stones. Radiocarbon dates for these were Late Iron Age, with radiocarbon dating of the upper ditch fill and pot-sherds from the paving showing the ditch was covered over around the start of the Roman period.

Trench 3 examined an area inside the palisade ditch, extending 2019 Trench 2 to the east and south, opening nearly all of the rectangular feature visible on lidar. This proved not to be a building. There was a wide low stony bank running across the southern half of the trench. Across the centre of the trench was a gravelled area, to the north of which was a band of stones and then an area devoid of structures and with only scanty finds. Most finds in the trench were in its western end, particularly the northern corner adjacent to 2019 Trench 2. Finds were largely Iron Age or Roman period, including pot-sherds, a spindle whorl, and a blue glass bead decorated with white spirals. A very

significant find, just under the turf on the stony bank, was a copper-alloy annular brooch from the post-Roman period.

1.4 2022 excavation

The excavation in 2022 had two trenches:

Trench 4 examined an area inside the palisade ditch, to the north-west of Trench 3. This area appeared "busy" with hints of circular structures on magnetometry. Excavation failed to define any building outlines, but two paved areas were uncovered, each of which incorporated two quernstones, and one of the areas also had a fire-blackened hearthstone. A spread of rubble, presumably from plough-damage, overlaid the paved surfaces and their surrounding cobbled areas. Finds were largely from the Roman era, with both "native" pottery and sherds of Roman-type wares (including mortaria). A spearhead of Roman military type was found in a context which included charcoal radiocarbon dated to the late 2nd century AD. A coin, c 300 AD, was also found.

Trench 5 crossed three ditches shown on magnetometry, none of which are apparent on the ground or on lidar images. Firstly (south), a ditch which appears to be an inner sub-rectangular ditch around the settlement area. This was cut 1m deep into the natural, and had fill radiocarbon dated to the 3rd century BC. Secondly (middle), a ditch similar in size (1.5m deep) and profile to the palisade ditch previously excavated in Trench 1 and, according to the magnetometry survey, cut in straight segments to form an outer circuit around the settlement. Its fill had a radiocarbon date of *c* 10 BC, but charcoal in the slot in the base of the ditch dated to *c* 1260 BC: probably due to re-use (as packing material) in the late Iron Age of stones from the Bronze Age occupation of the site. Thirdly (north) a shallow (0.5m) ditch with a stony fill containing little organic material, dated (like the middle ditch) to c 10 BC. Environmental samples from the south and middle ditches contained charcoal from a wide range of species (including heather), barley and spelt wheat.

1.5 Aims for the 2023 excavation

Previous years' excavations have proved that there was an Iron Age / Romano-British presence on the site, with the settlement itself showing evidence (pottery, coin, spearhead, radiocarbon date) of occupation in the Roman period. The inner ditch had fills dating to the 2nd century BC, whereas the outer (palisade) ditch had fills suggesting it was later in date, around the start of the first century AD.

Thus, occupation at this site was clearly long-lived, covering at least 500 years from the middle Iron Age to the late Roman period, although the dating evidence was too sparse to confirm that this occupation was continuous. Aims for the further examination of the site in 2023 were:

- to enable further clarification of the chronology of the site
- to examine structures (including a ditch) to the north of the settlement, outside the palisade ditch, which could be elements of an associated field system and/or industrial areas.
- to attempt to locate more structures in the occupation area.
- to examine the lower contexts of the settlement area, to see if these were pre-Roman.
- to examine the hummock at the south-east corner of the settlement to assess if it is natural and to check for the possibility that this was a medieval windmill site (as suggested by the finding of a broken millstone beside it (see 2019 excavation report).
- to enhance engagement of people (both AA members and local residents) with their historic environment.

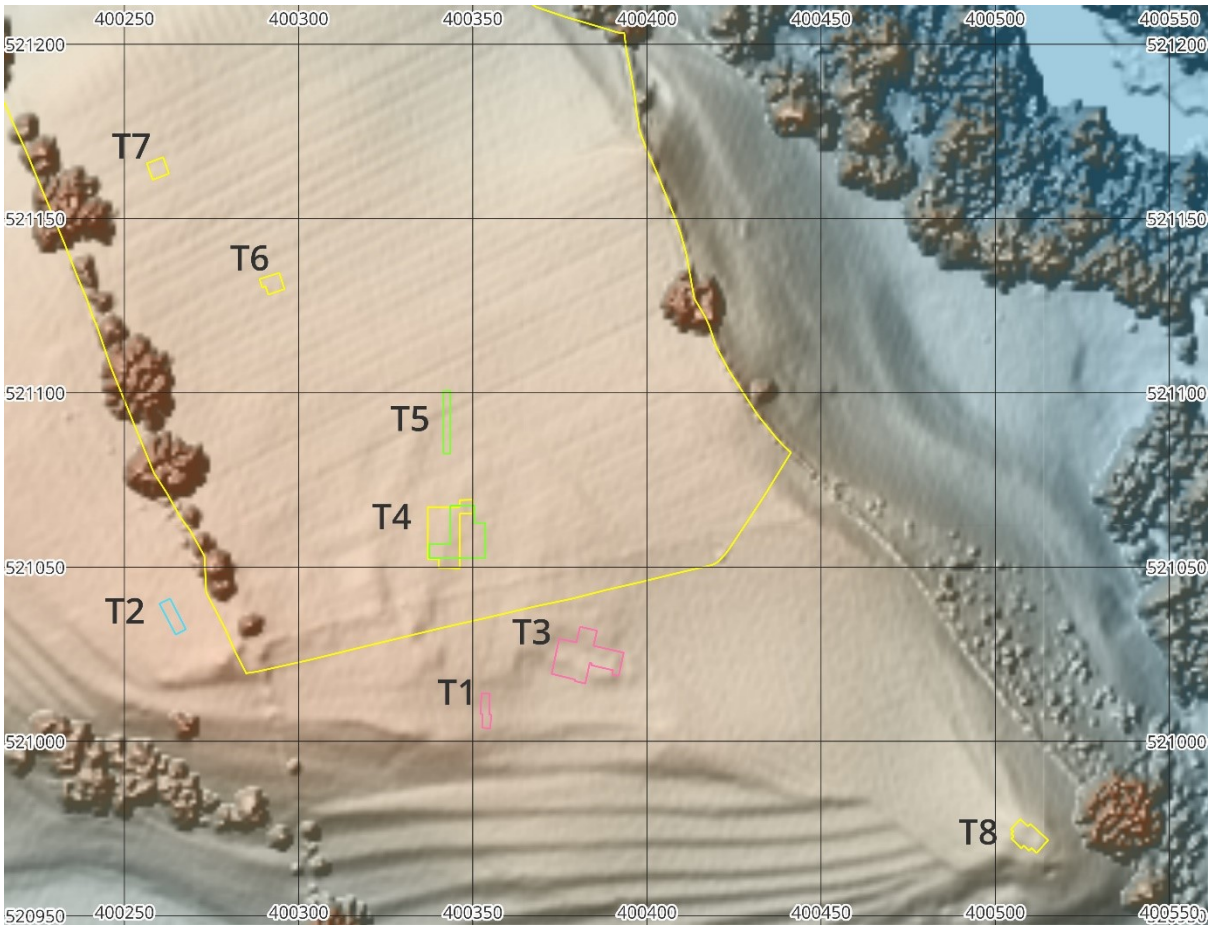

Figure 2: Lidar DSM image of site, with 2019 (blue), 2021 (pink), 2022 (green) and 2023 (yellow) trench positions shown. The parts of T1 and T3 excavated in 2019 are not indicated.

1.6 2023 trenches

Four trenches were excavated, in total 264 square metres. The GPS co-ordinates of the trenches are given in Appendix 8. Trench 4 was aligned north-south, Trenches 6 and 7 were aligned on the magnetometry grid, and Trench 8 was aligned north-west to south-east to occupy the summit of the hillock.

Trench 4: This was a partial re-opening of the 2021 Trench 4. The western part of the trench was re-opened and the trench was extended to the west, to examine how far in that direction the paved areas extended, in the hope of defining building plans. In all, an area 15m x 9m was opened, plus a 4m square extension to the north-east, and a 2.5m x 6m extension to the south (total area 166 sq m) As in 2021, a spread of rubble covered any lower contexts. Disappointingly, the paved areas were not found to extend far westwards. That area was found to include some postholes, pits, and a long straight gully. These were excavated and part of the paving (including two quernstones) was lifted. The deposit underneath contained only “native” type late prehistoric potsherds, with no Roman-period artefacts. Radiocarbon dates for the pits, gullies, and deposit under the paving ranged from c 180 BC to c 200 AD.

Trench 6: This was dug to examine an area of high magnetometry reading on a probable ditch running north from the settlement. An area 5m x 5m was de-turfed, but only the northern half was excavated deeper and then extended 1m westward, giving a 6m x 2.5m excavation (i.e. 15 sq m). As

predicted by the magnetometry, a ditch running north-south was found. On excavation, this contained a group of iron-rich stones (the magnetometry hot-spot) and was cut 0.7m deep in the natural. Radiocarbon-dating of charcoal in the lower fill gave a late Iron Age date, *c* 90 BC.

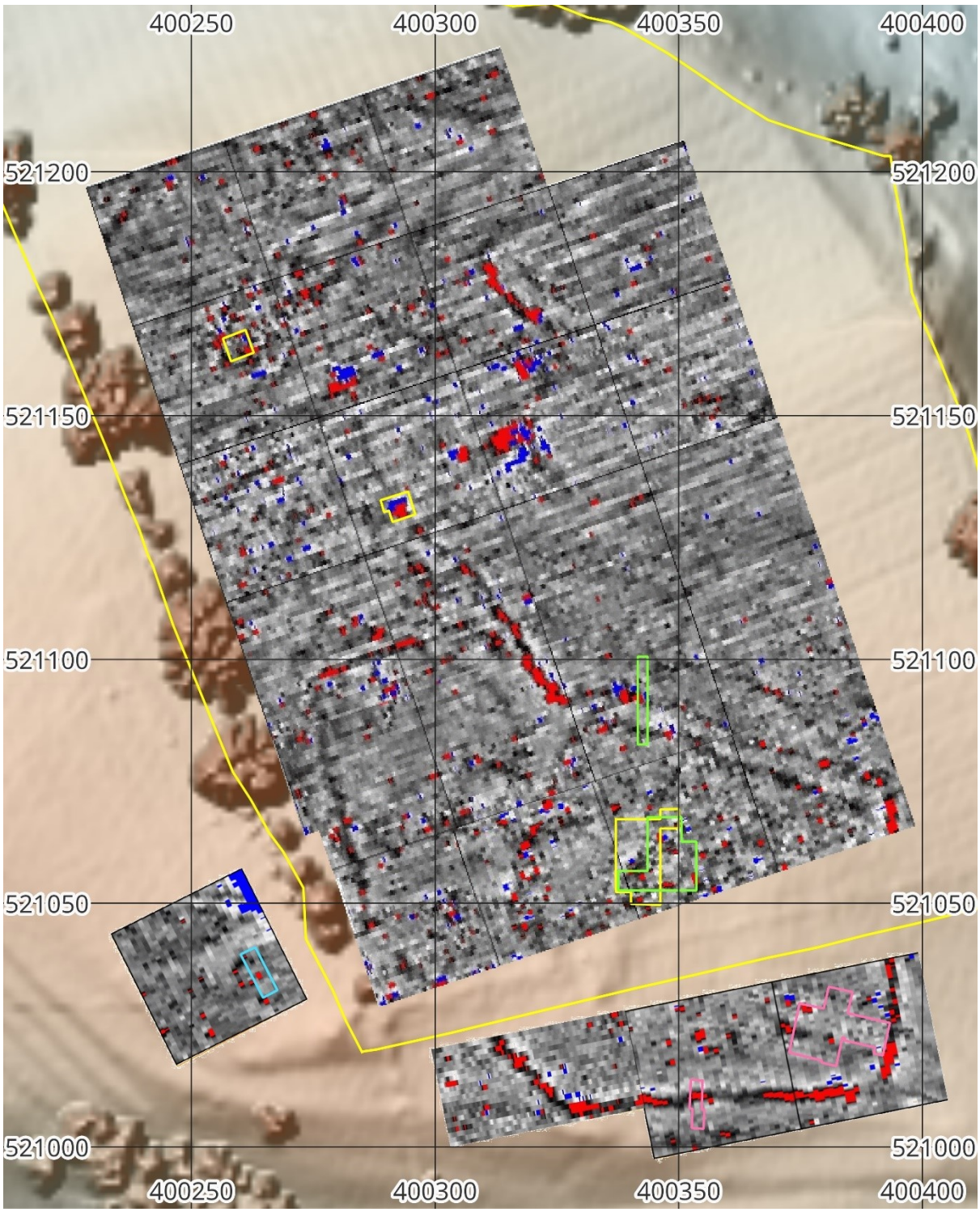

Figure 3: Trench positions (as in previous figure) superimposed on the magnetometry survey, which includes the additional area surveyed in May 2023. Trench 7 is outside the area of this image, so not seen.

Trench 7: This was to investigate a “busy” area on the magnetometry survey at the northern end of the plateau. An area 5m x 5m was excavated, but there were no significant structures or finds.

Trench 8: Sited on the hillock at the south-east corner of the plateau, this trench covered most of the summit. It was 10m x 7m, but with part of the corners not excavated, so a total of 58 sq m. The trace of a possible rectangular structure was found: bands of stones. There were also several groups of large stones, one over a 60cm square flagstone, some others over small postholes. A pilgrim badge *c* 1500 AD was found under one of the stone groups. Due to adverse weather the trench was geotextiled and back-filled.

1.7 Excavation of trenches

See the Project Design (Green 2019) for details of excavation methods, access, and health and safety. The trenches were both excavated by hand. Turf, stones, and soil were stacked separately. The site was fully restored at the end of the dig. Recording was by high-definition drone photography and by photogrammetry using a hand-held camera. Photogrammetry enables scale-correct images to be obtained, but definition is not as good as obtained from drone images. In addition, hand drawing was used for recording.

Professional supervision was by Rob Young, who was on site throughout the excavation. Management of the dig was by Martin Green and Tony Metcalfe, with surveying and drone photography by Stephen Eastmead (all members of the AA fieldwork task group).

Context numbers are given in italics in the description of the trenches: see the context tables (Appendix 1) for further details.

2 EXCAVATION FINDINGS, TRENCH 4

2.1 Trench 4: excavation

The trench was opened in 2022 to examine a "busy" area in the magnetometry survey image, within the circuit of the palisade and inner ditches; so possibly the main settlement area on the site. The magnetometry anomalies include curving features, suggestive of roundhouses, though no complete clear rings. The site has been subjected to post-medieval ploughing, though is now permanent pasture, making interpretation of the magnetometry image difficult.

The 2022 trench was 15m (N-S) x 16m (E-W), but with unexcavated rectangles in the north-west (11m x 6m) and the north-east (5m x 3m). Under the turf was a loam *4000* which, across the whole trench, lay over a stonier loamy context *4003.* Both of these contexts contained finds (presumably due to plough action)dating to the late prehistoric / Roman period. Removal of *4003* revealed two stone-flagged areas (*4002, 4004*), a possible flagged path *4008* leading eastwards from *4004,* a roughly cobbled area *4010* between the flagged areas, and (in the north-east corner of the trench) a semi-compacted surface of small cobbles *4009*.

Flagged surface *4002* included two quernstones (Q1, Q2) and a heat-blackened hearthstone. Flagged surface *4004* included another two quernstones (Q3, Q4). These surfaces and querns were not lifted in 2002, but left in situ. The final drone image of the 2022 Trench 4 is shown in Figure 4, with contexts labelled.

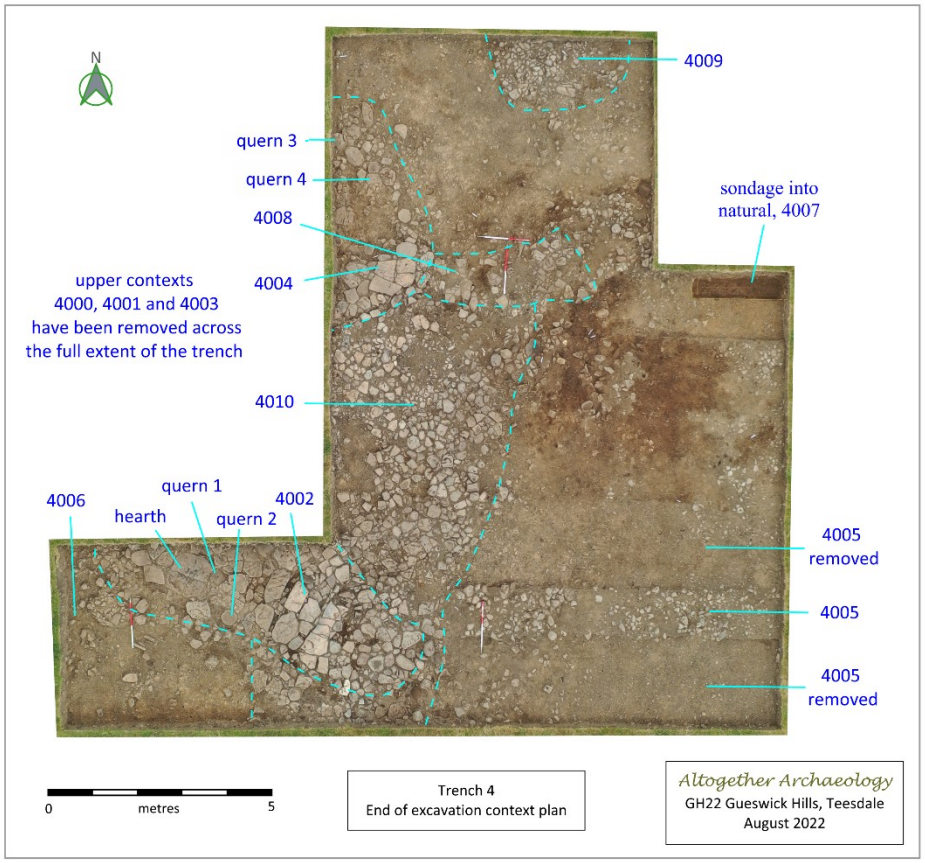

Figure 4: Drone photograph at end of 2022 excavation with contexts and querns marked.

In 2023 the western part of Trench 4 was re-opened (it had been geotextiled at the end of the 2022 season), and it was extended westwards to complete a 15m (N-S) x 9m (E-W) rectangle. Subsequently the eastern 6m of the southern side of the trench was extended by 2.5m, and a 4m x 4m extension excavated from the north-east corner of the trench to expose cobbled surface *4009* and find out if it extended further north. The resulting trench outline, with dimensions, is shown in Figure 5, along with the outline of the 2022 trench to demonstrate their relationship.

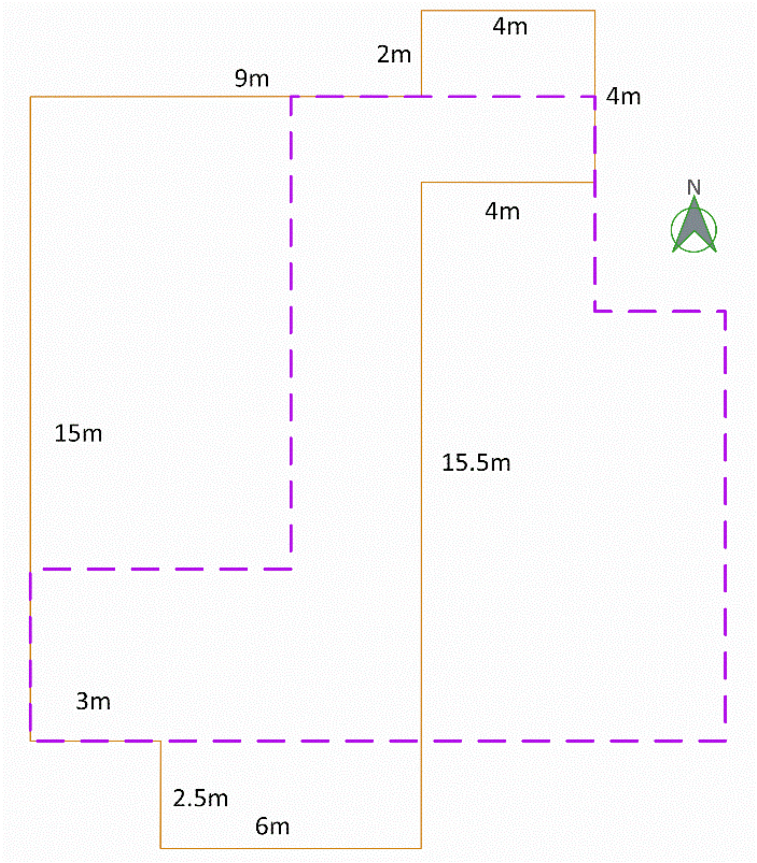

Figure 5: The outline of the 2022 Trench 4 (dashed line) with the outline (solid line) of it after re-opening and extending in 2023. The dimensions of the 2023 trench are shown

As in 2022, after de-turfing the trench extensions in 2023, the soil layer overlying a rubble layer *4003* was found to cover all lower structures. A shallow gully *4011* cut into rubble *4003* ran diagonally across the trench. It was about 50cm wide and up to 13cm deep. See Figure 6 for its position. It may have been a beam slot, or possibly a result of ploughing. In its base were several rounded hollows: possibly the bases of postholes.

The two areas of flagstones (*4002, 4004*) only extended a short distance into the newly excavated part of the trench. In this area, to the north and west of these paved surfaces, was a gritty clay/loam *4012* under the rubble *4003*. This abutted and was similar to the context *4007* excavated in 2012 in the south-east section of the trench.

Figure 6: Drone image of T4 on Day 9 of the excavation, showing the position of gully *4011*. The rubble layer *4003* has not yet been removed from the newly extended north-west part of the trench. The positions of the later trench extensions are shown.
Larger versions of the drone images of trenches are given in Appendix 6

Cut into *4007/4012* were a series of features, with descriptions given later in this section. They were fully excavated with plans and sections drawn. All of paved area *4004* and the eastern part of paved area *4002* were lifted, along with the intervening the rough cobbling *4010* except in the south-east corner of the trench. The querns Q3 and Q4 were also lifted as they formed part of the paving. They will be described below.

Figure 7: Drone image of T4 on Day 14. The rubble layer *4003* has been completely removed. The positions of features cut into the deposit *4007/4012* are indicated. The excavation of the north-east and the south trench extensions are partly complete at this stage.

Underneath paving *4004* were a couple of shallow pits: *4023* in which Q4 was set and *4027* in which a large flagstone (part of the paving) was set with a collar of small stones. Charcoal under the flagstone gave a median radiocarbon date of *c.* AD 50. Beneath the southern part of the paving *4004* was a thin (1.5cm) layer of compacted silty loam *4029* over a crude ill-defined cobbled surface *4030*, about 3m x 1m.

Further south, under the eastern part of paved surface *4002* was a bank of clay *4039*, possibly natural, running roughly north-east to south-west. On both sides of it, under *4002* and *4010*, was a dark brown silty loam deposit containing patches of sand and of charcoal and burnt material. On the east side of the bank, this context, *4035*, extended to the edge of the trench and overlaid a crudely cobbled surface *4040*. Pottery finds in *4035* were of late prehistoric "native" ware, with no Roman era artefacts. Charcoal in it had a median radiocarbon date of *c.* 180 BC (see Appendix 5 for further details including probability ranges), confirming that this is a pre-Roman Iron Age context. On the west side of bank, the dark deposit, *4047*, lay in a shallow gully *4048* cut into the clayey *4012*. Charcoal in if had a median radiocarbon date of *c.* 40 BC.

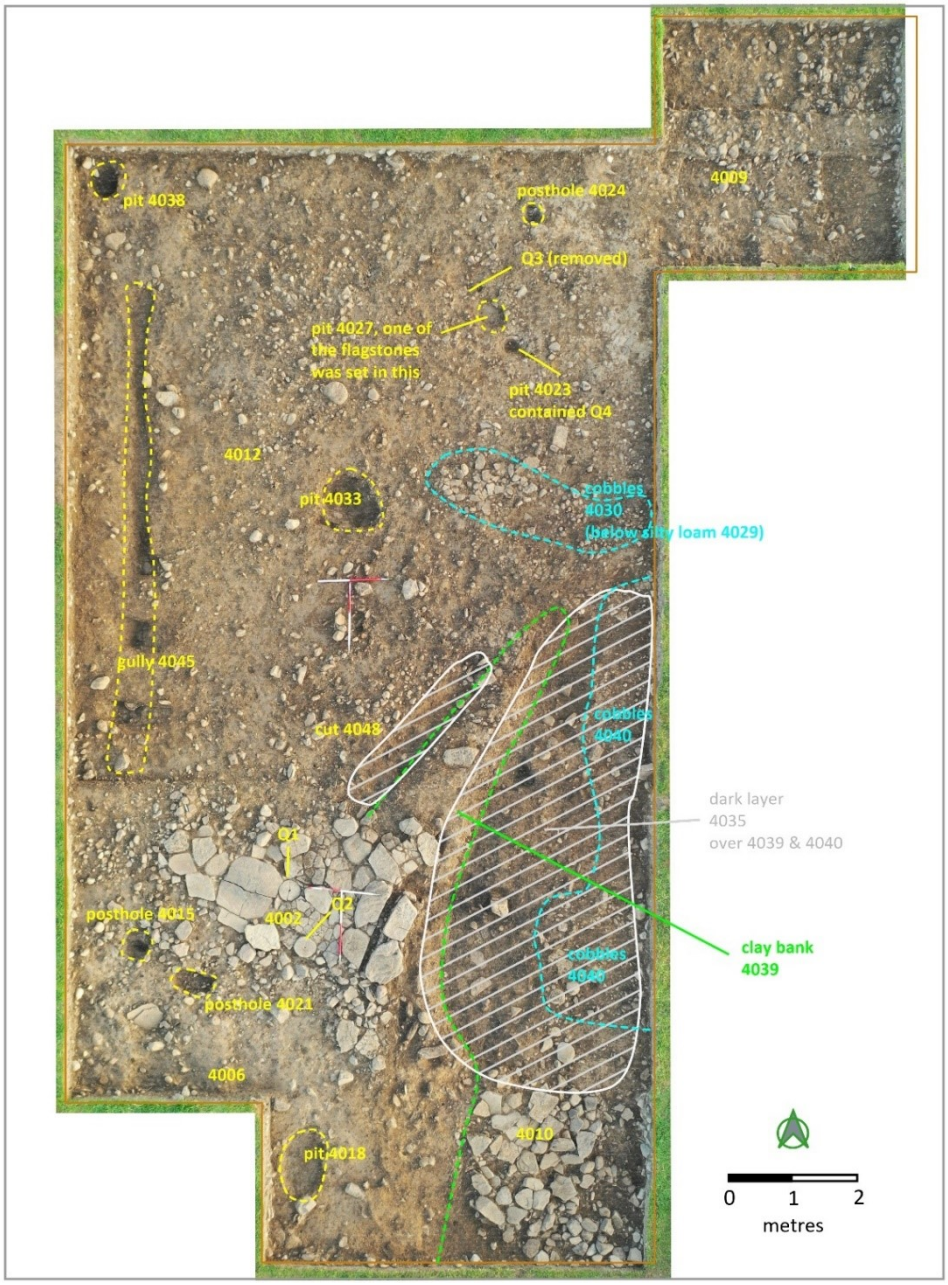

Figure 8: Drone image of T3 on Day 23 (end of excavation) The paving *4004, 4010* (all except south-eastern part)*, and 4002* (east half only) have been removed, exposing underlying deposits. Various other features have been fully excavated.

Figure 9 Trench 4 after removal of paving and cobbles, looking south. The ranging pole lies across clay bank *4039* and there are partly excavated dark layers *4035* (left) and *4047* (right) on each side of it

Figure 10: Trench 4 looking NE. The dark layer *4035* is being excavated with clay bank *4039* in front of the diggers. The western part of paving *4002* is still in situ in the foreground.

Three small pits were excavated and recorded: *4018* in the south, *4033* in the centre, and *4038* in the north of the trench. All were about 20cm deep. One of them, *4033*, was capped by a large stone. Median radiocarbon dates from *4018* (charcoal) and *4033* (spelt grain) were both .*c* AD 200, hence these are Roman-period pits.

Figure 11: Pits. Top left**: *4018* partly excavated. Note clayey base.** Top right**: *4038* after excavation.** Bottom left**: *4033* before excavation, capped by flat stone.** Bottom right**: looking east across trench, part of gully *4045* in foreground, excavated pit *4033* in centre**

Three small postholes were excavated and recorded: *4015* and *4021* (1m apart and 1m to the south-east of paving *4002*) and *4024* in the north of the trench. Both *4015* and *4021* contained stones set on edge.

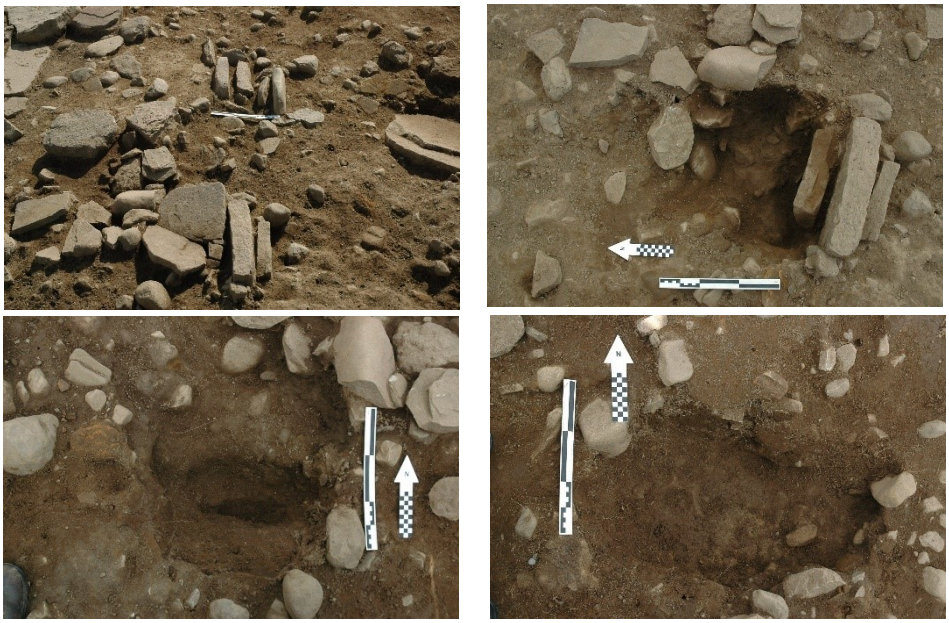

Figure 12: Postholes. Top left: **before excavation looking SE, *4015* in foreground, *4021* in background**. Top right: ***4015*.** Bottom left: ***4015*.** Bottom right: ***4021***

A small, 30cm deep, gully *4045* ran north-south for 7m near the western edge of the trench, and may continue further south. Its northern section contained a line of stones set on edge, 4036. The southern end was curving to the west. The median radiocarbon date of charcoal in its fill was c 60 BC.

Figure 13: Gully *4045* looking south. Two sections at the southern end are unexcavated.

2.2 Trench 4: palaeoenvironmental samples

Six palaeoenvironmental samples were analysed from Trench 4: detailed results are given in the laboratory report (Appendix 7). In summary:

context	description	median radiocarbon date, rounded to decade	findings
4017	fill of pit 4018 near southern edge of trench	AD 200	charcoal (Salicaceae, hazel, birch, oak), spelt wheat grains & chaff, heath grass, mayweed.
4049	in cut 4027 under slab of paving 4004	AD 50	charcoal (all alder branchwood: cleft, probably coppiced). Charcoal in good condition so probably newly deposited when paving laid.
4032	in pit 4033 in centre of trench, coved by stone slab	AD 200	charcoal (birch, heather), charred wheat grains (spelt, possibly one emer), spelt wheat chaff.
4035	dark deposit beneath paving 4002 and cobbles 4010	180 BC	coal, charcoal (heather, ash, oak, hazel (5/6 year cycle growth pattern suggesting hedge-cutting / coppicing), goosefoot & heath grass seeds.
4046	fill of narrow gully at west side of trench, 4045	60 BC	charcoal (ash, birch, oak, hazel), spelt wheat glumes, ribwort plantain seed, traces of calcined bone).
4047	dark deposit below cobbles 4010	40 BC	charcoal (heather, alder, maloideae, salicaceae, birch), spelt wheat chaff, sedge nutlet, heath grass caryopsis, trace of calcined bone.

2.3 Querns

Two querns (Q3 and Q4) were lifted in 2023, both had been used as paving slabs in the paved area *4004*. Two querns (Q1 and Q2) are still in situ in paved area *4002* and will be lifted in 2024. Another quern (an unfinished beehive quern deposited in the palisade ditch) was found in 2021. In addition, a small millstone (YQS 8277) probably too large to be a hand-quern, was found near Trench 7 and is discussed in the relevant section below. YQS numbers are the reference numbers of the querns in the Yorkshire Quern Survey database.

Figure 14: The two querns lifted in 2023, upper and lower surfaces: Q4 (left) and Q3 (right).

Both querns had been damaged. One side was lost from Q4 and it has a large crack in the surviving piece. Q3 has chips in diametrically opposite parts of the grinding surface. Note that the labelling of Q3 and Q4 was swapped in the 2022 excavation report. John Cruse (pers. comm.) commented on these photos as follows:

Quern 3 (YQS 8896) is a beehive base, (ca 95% survival) with a Type 3 'Round' profile (Heslop 2008, Fig 20): Diam. 300mm, Height 150mm, Spindle hole diam. 20mm: The very white rock looks suspiciously calcareous in origin. The external surface is very smoothly finished and its flat grinding surface ("G/S") has two, opposed impacts on its G/S edge (perhaps a failed attempt at 'division') and many smaller areas of edge damage, which clearly was their focus, when it was 'decommissioned', prior to deposition.

Quern 4: (YQS 8895) is another characteristic beehive base, but this time, it's a Type 7 profile, with a pronounced 'flange' around the upper part of the body (Heslop, 2008, p38 & Fig 23). Before deposition, this quern was successfully divided (probably a big job, tackling such a tall quern), with ca 25% being struck off, then ca 50% of the remaining G/S edge being damaged - so is probably a ca70% survival.

He goes on to note that Type 7 querns are relatively rare in Yorkshire, being mainly found in the Craven area, with the Gueswick example the only one found north of the Swale. He suspected that Q4 was hardly used: perhaps the crack through it rendered it unsuitable for use.

A detailed analysis of the Gueswick querns will be made once the remaining two querns are lifted in the 2024 season excavations.

2.4 Trench 4 discussion

No discussion of finds is given here, as the trench is to be re=opened. The finds from the 2023 season were comparable with those of the previous season in Trench 4. Above the paving, finds in 2023 were a mixture of “Romano-British” and native types, whereas below the paving, e.g. in *4035* and *4047* only “native” Iron Age type finds were made. This is entirely in keeping with the radiocarbon dating which gave pre-Roman dates for all three samples taken from contexts under the paving (*4035, 4047, 4049*).

The environmental samples showed a wide range of species in the charcoal, with evidence of cyclical ring-growth (implying hedge-cutting or coppicing) of alder and hazel. The grain was almost entirely spelt wheat (the most frequently grown grain in the Roman period in northern England). Heather charcoal was frequently found, probably from the use of peat/turf as fuel. Coal was also found in

one Iron Age sample: this seems to be a frequent finding on this site and has been discussed in previous reports.

The two querns lifted in 2023, surprisingly, are of very different types of shape and rock, although both are the bottom stones of beehive querns. As two querns, Q1 and Q2, are still to be lifted, no detailed analysis of the six (so far!) querns found on the site has been made.

No building outline has yet been identified, but it is now clear that the site had a long period of occupation: evidence includes the 3rd century BC charcoal in the fill of the inner ditch, the 2nd century BC deposit under the paving, the first century BC fill of the long gully across the trench , the 1st century AD deposit directly under the paving and the fill of the palisade trench, the second century AD charcoal with the spearhead, the fills of two pits dated to around 200AD and the coin of 300AD. Thus, there is good evidence for occupation of the settlement extending for over 500 years. The spread of dates implies this is likely to have been continuous, rather than sporadic occupation.

3 EXCAVATION FINDINGS, TRENCH 6

3.1 Trench 6: excavation results

This was dug to examine an area of high magnetometry reading on a probable ditch running north from the settlement. The trench was sited about 25m to the north of palisade ditch (as seen on the magnetometry survey). An area 5m x 5m was de-turfed, but only the northern half was excavated deeper and then extended 1m westward, giving a 6m x 2.5m excavation (i.e. 15 sq m). The natural was reached at about 60cm below the surface (with some variation in this depth due to plough-ridging). Across the whole trench below the plough-soil *6000,* was a layer *6001* with many medium sized stones. Underlying this, and above the natural, was a layer of clayey loam with small stones, *6002.* This soil structure was is similar to that found elsewhere on the site, e.g. in Trenches 5 and 7.

As predicted by the magnetometry, a ditch running north-south was located as a 1.5m wide cut into the natural. It was clearly distinguished from the natural by the increased stoniness, loamier nature, and darker colour of the upper ditch-fill *6003*.

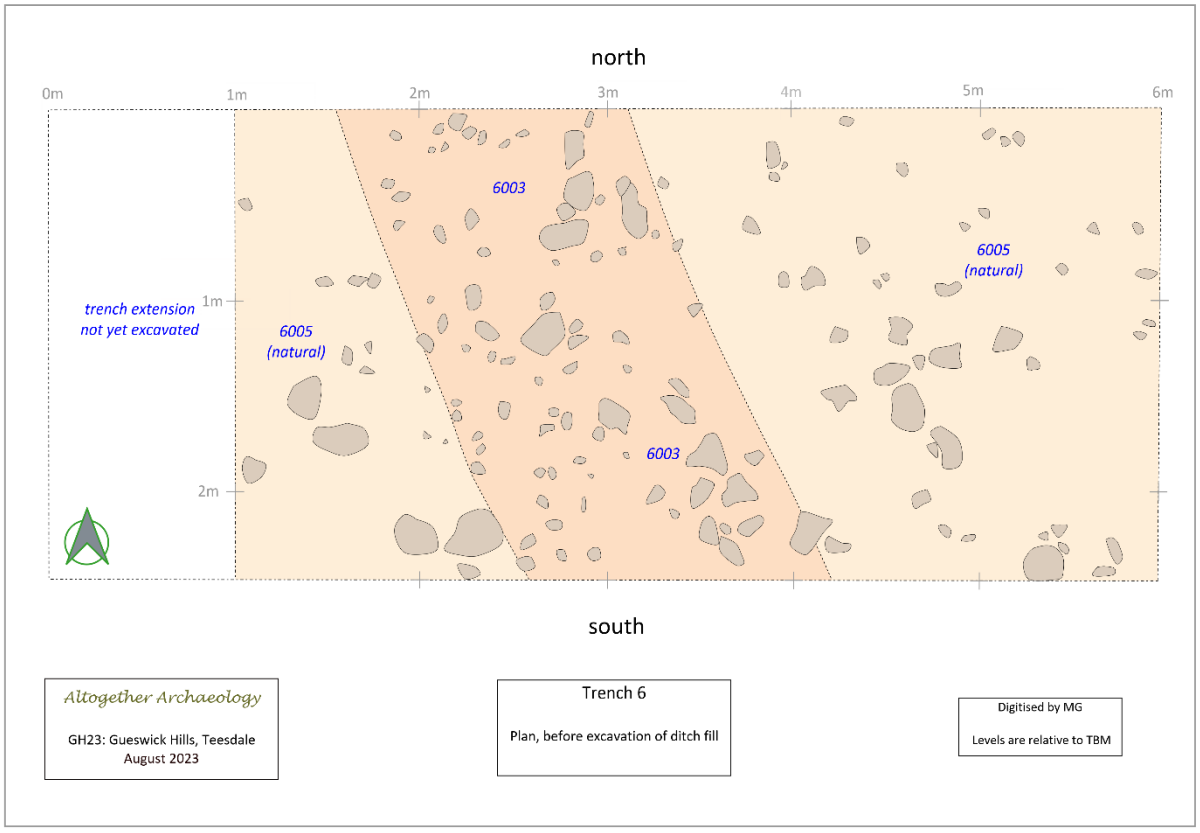

Figure 15: Trench 6 plan, before excavation of ditch fill *6003* and before extension 1m to west.

This 2.5m length of the ditch was then excavated fully and both sections across the ditch drawn. The fill included a group of iron-rich stones (the magnetometry hot-spot) and was cut 0.7m deep into the natural. Two levels of fill could be distinguished, though not clearly defined: both were brown silty loams with many stones, but the lower fill *6004* was siltier and damper than the upper fill *6003*.

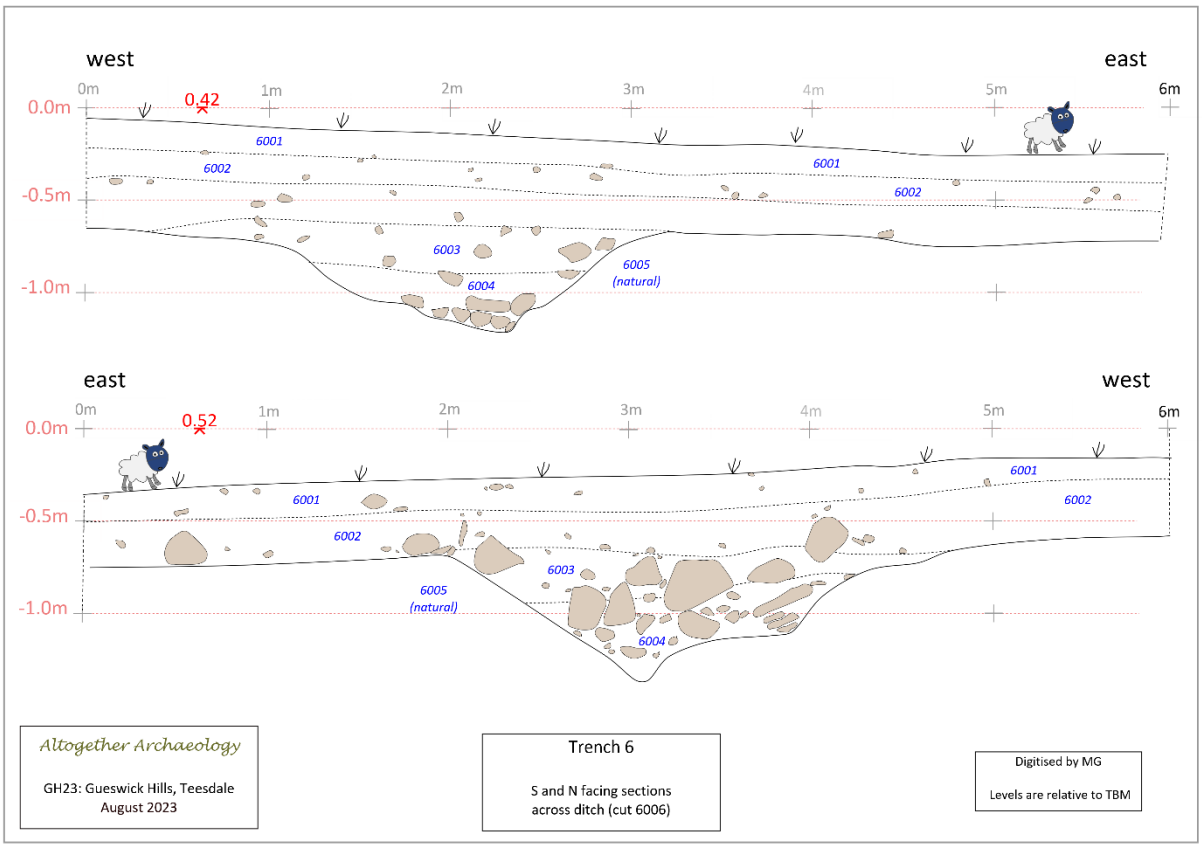

Figure 16: Sections of the full length of both sides of Trench 6.
See Appendix 9 for enlarged version.

Figure 17: Trench 6 at end of excavation, looking north.

3.2 Trench 6: radiocarbon dates and palaeoenvironmental results

An 18 litre palaeoenvironmental sample was taken from the lower fill *6004*. Analysis of this showed it to contain: charcoal (blackthorn, hazel, oak, birch), heather twigs, hazel nutshell, spelt wheat glume and heath grass caryopsis (see Appendix 7). The laboratory reported noted that this was a typical for the Iron Age / Roman period. Some traces of coal were also found (as in some other Iron Age and Roman period contexts on the site). Radiocarbon-dating of a fragment of hazel charcoal gave a late Iron Age date, *c* 90 BC (see Appendix 5)

3.3 Trench 6: discussion

The successful location of the ditch, despite no surface indication of its existence on the ground or in lidar images, confirms the accuracy of the magnetometry survey. The survey indicates that the ditch is associated with the Iron Age settlement as it abuts the settlement. A 25m segment of the settlement's palisade ditch is probably a recutting and deepening of the southern end of this ditch (as shown by the stronger magnetometry signal, which could also be enhanced by the rubble used to pack the palisade). That would imply that this ditch is older than the construction of the palisade. This hypothesis is supported by the 2-sigma radiocarbon date range of the ditch-fill (170 BC to AD 2) that makes it very likely that the lower fill collected in the ditch *before* the palisade was constructed around 10 BC (as indicated by several previous radiocarbon dates). This re-use of part of this ditch for a segment of the palisade does help to explain the rather odd course of the north-east section of the palisade, which has a small dog-leg in it to enable it to re-use the pre-existing ditch.

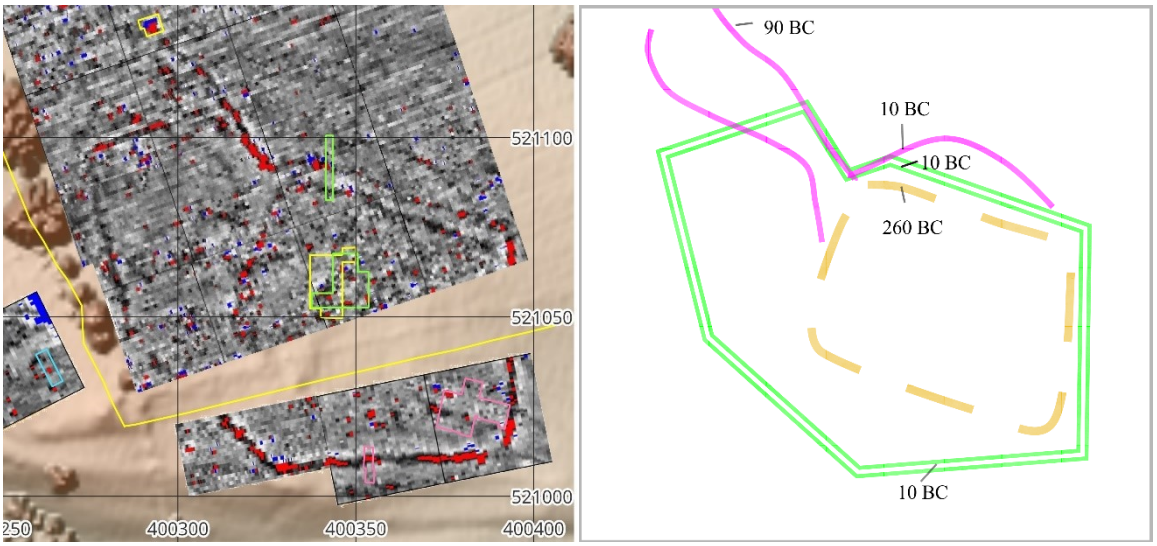

Figure 18: The same area: (left) **magnetometry trench outlines and** (right) **ditches. The late Iron Age palisade trench (green) is entirely external to the older, middle Iron Age, ditch (brown) around the settlement: presumably the older ditch and bank survived enough to still have had a defensive function when the palisade was built. The palisade ditch deviates from an obvious straight line course on its north-east side and appears to have re-used pre-existing ditches (shown in purple), resulting in a dog-leg. Ditch-fill radiocarbon dates from the 2021, 2022, and 2023 seasons are shown (rounded to the nearest 10 years and averaged if more than one is available).**

4 EXCAVATION FINDINGS, TRENCH 7

This was to investigate a "busy" area on the magnetometry survey at the northern end of the plateau. An area 5m x 5m was de-turfed and cleaned down to the natural, but no significant structures or finds were discovered. Soil structure was similar to that in Trench 6: a plough-soil *7000* over a stony layer *7001*, under which was a clayey loam with stones *7002.*

Figure 19: Trench 7 at end of excavation, looking north.

5 EXCAVATION FINDINGS, TRENCH 8

5.1 Trench 8: excavation results

This trench was sited on the hillock at the south-east corner of the plateau: see Figure 2 for its location shown on a lidar image and Figure 20 for a contour plan. It rises about 0.8m above the saddle that connects it to the main part of the summit plateau (OD 213.25m and OD 212.47m).

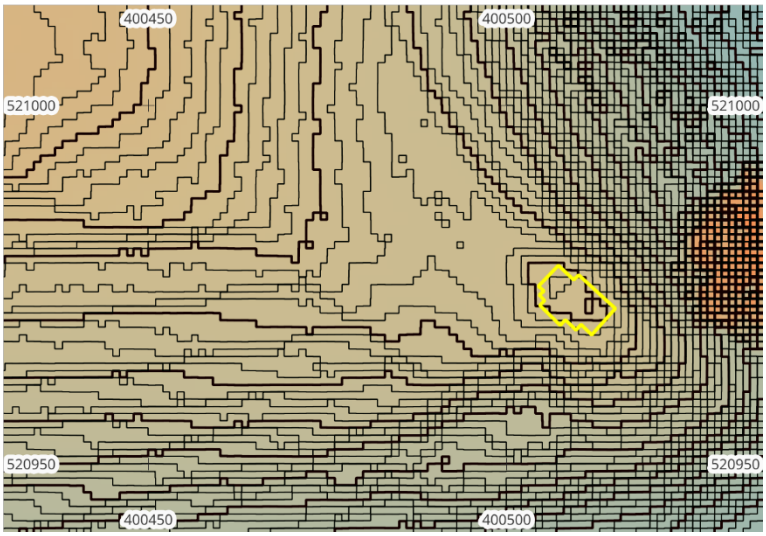

Figure 20: Trench 8 with lidar contours at 0.2m intervals, darker contours are at 1m intervals.

The hillock is 150m from the core area (Trench 4) of the settlement. This location was investigated because it is not clear if the low hillock is natural or at least partly artificial. A broken mill/quern stone had been found lying in the entrance to a disused badger sett on the south side of the hillock during the 2019 season (Green 2020: Section 4.7). Its diameter when complete would have been about 60cm, and it had a comparatively flat (not beehive) profile, so it is too large to be a quern, though too small to be from a large mill. Thus, it was most likely a stone from a small medieval or early post-modern mill, which could have been water, wind, animal, or human powered. Wind-power seems a strong possibility in view of its find location. Small wind-powered post-mills are known to have been used from the 13th century onwards in England and are seen in illustrations in late medieval manuscripts. They consisted of a central wooden post, around which the upper part of the mill rotated to align the sails with the wind. The post was usually supported on horizontal baulks of timber and braced by diagonal struts.

A 10m x 10m area of the hillock (essentially the whole of its level top) was included in the 2019 magnetometry survey (Eastmead 2022). No clear structures were shown, and the survey area was too small to be useful. Initially a 3m x 10m trench was opened, crossing the summit NW to SE. Since structures were found, the trench was widened on each side to a 10m x 7m rectangle (though with some of the corner areas unexcavated. After three days work, the excavation had to be suspended due to persistent rain. The trench was covered in geotextile and backfilled. The GPS co-ordinates of the trench corners are given in Appendix 8.

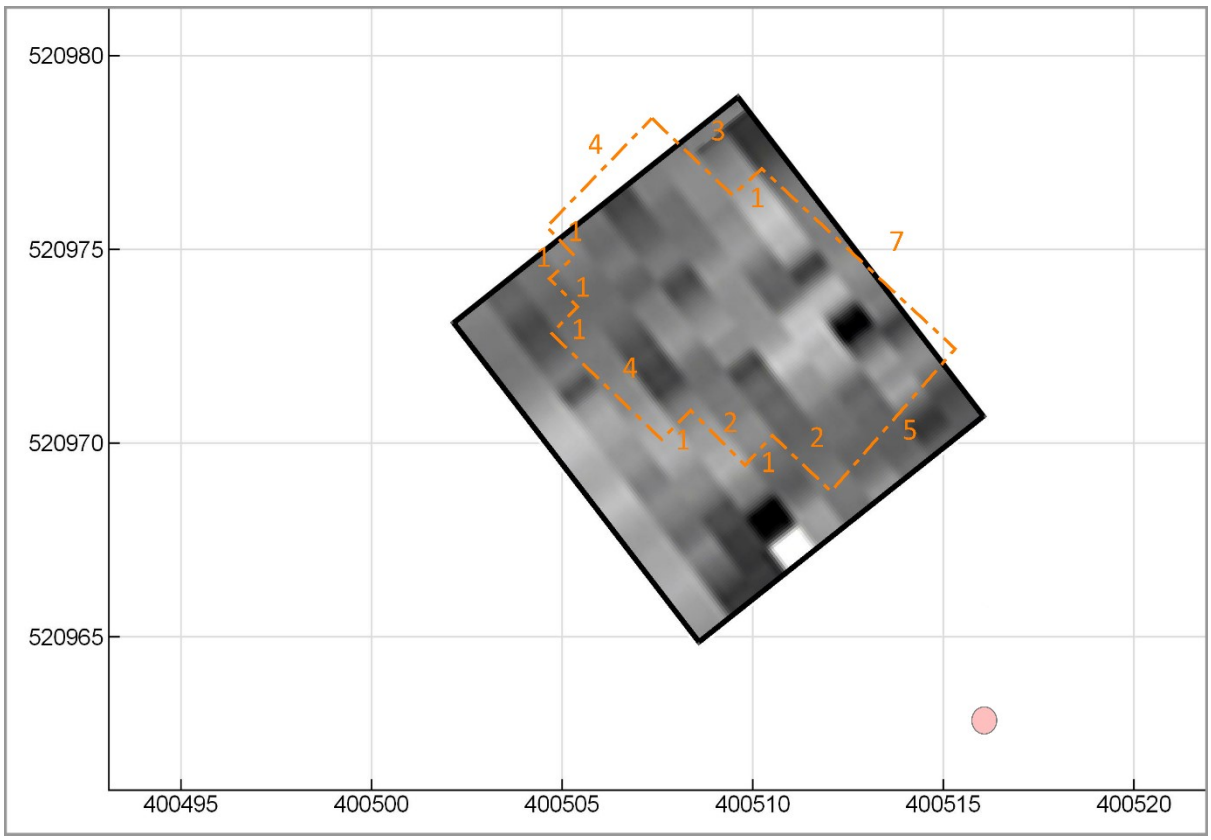

Figure 21: The dimensions (in metres) of Trench 8 at the end of excavation. Overlaid on the magnetic survey of the hillock. The pink circle shows the find-spot of the broken millstone.

The shallow topsoil *8000* was a mid-brown silty loam with a small percentage of small stones. This lay directly on a gravel rich layer of loam *8001*. This may overlie the natural, but excavation was too limited to confirm this. The soil structure was therefore simpler than that found elsewhere on site (Trenches 6 and 7), possibly because these trenches are in areas of post-medieval plough ridging, whereas there is no indication that Trench 8 has ever been ploughed. Finds in the topsoil were: small fragments of coal and charcoal, some post-medieval potsherds, and bases of shotgun and rifle cartridges.

The trace of a possible rectangular structure was found: bands of stones, *8002*, embedded in the gravel-rich layer *8001.* These 80cm wide bands were irregular, not clearly defined, and probably only consist of a single layer of stones (although further excavation will be needed to confirm this). The stones were mostly angular, up to 10cm diameter, though with a few larger stones. These stones appeared to define a possible structure 6m x 3m. See Figures 22 and 23 below) for drone views.

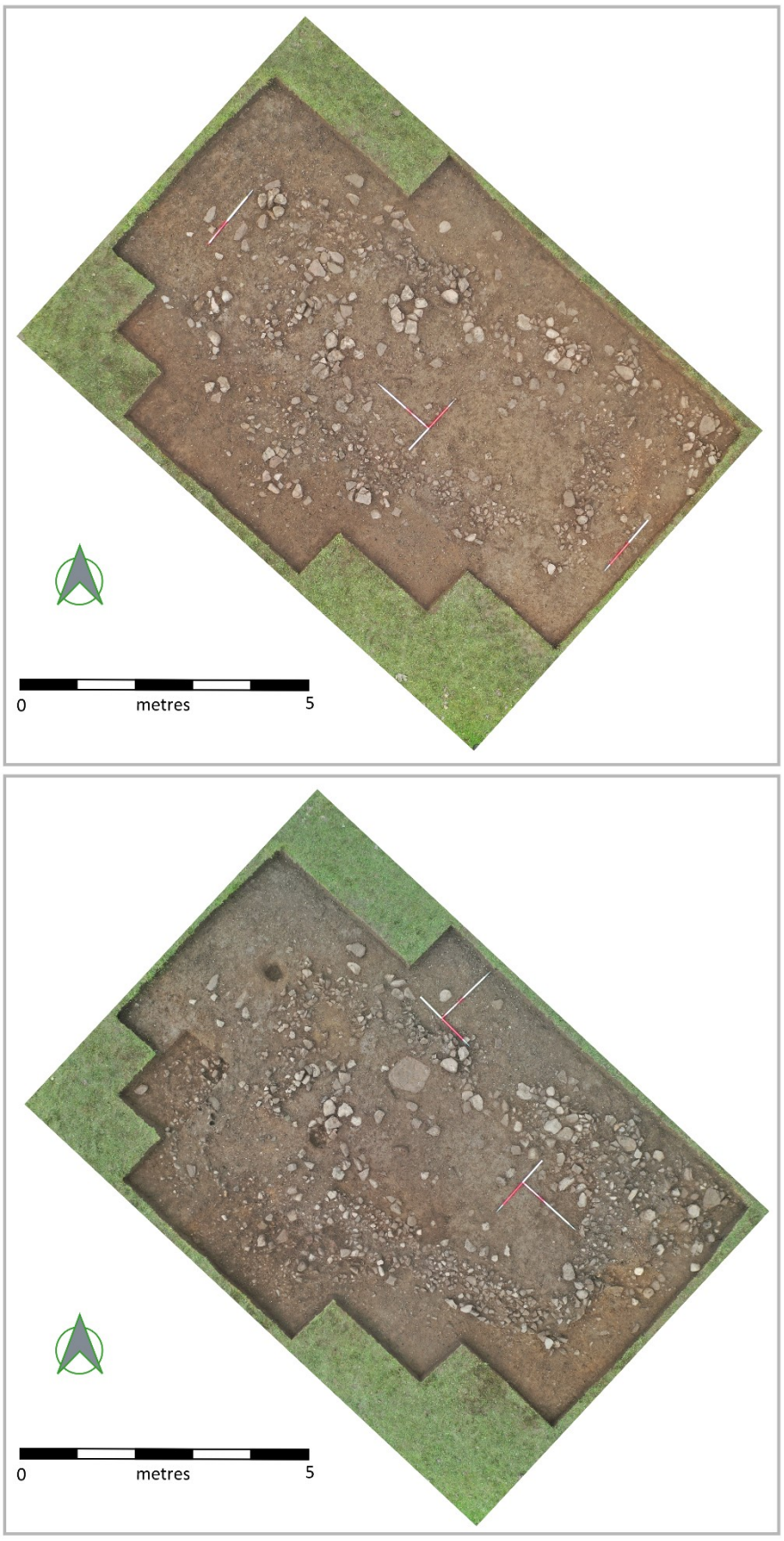

Figure 22: Vertical drone views of Trench 8 at end of Day 2 (top) and end of dig (bottom)

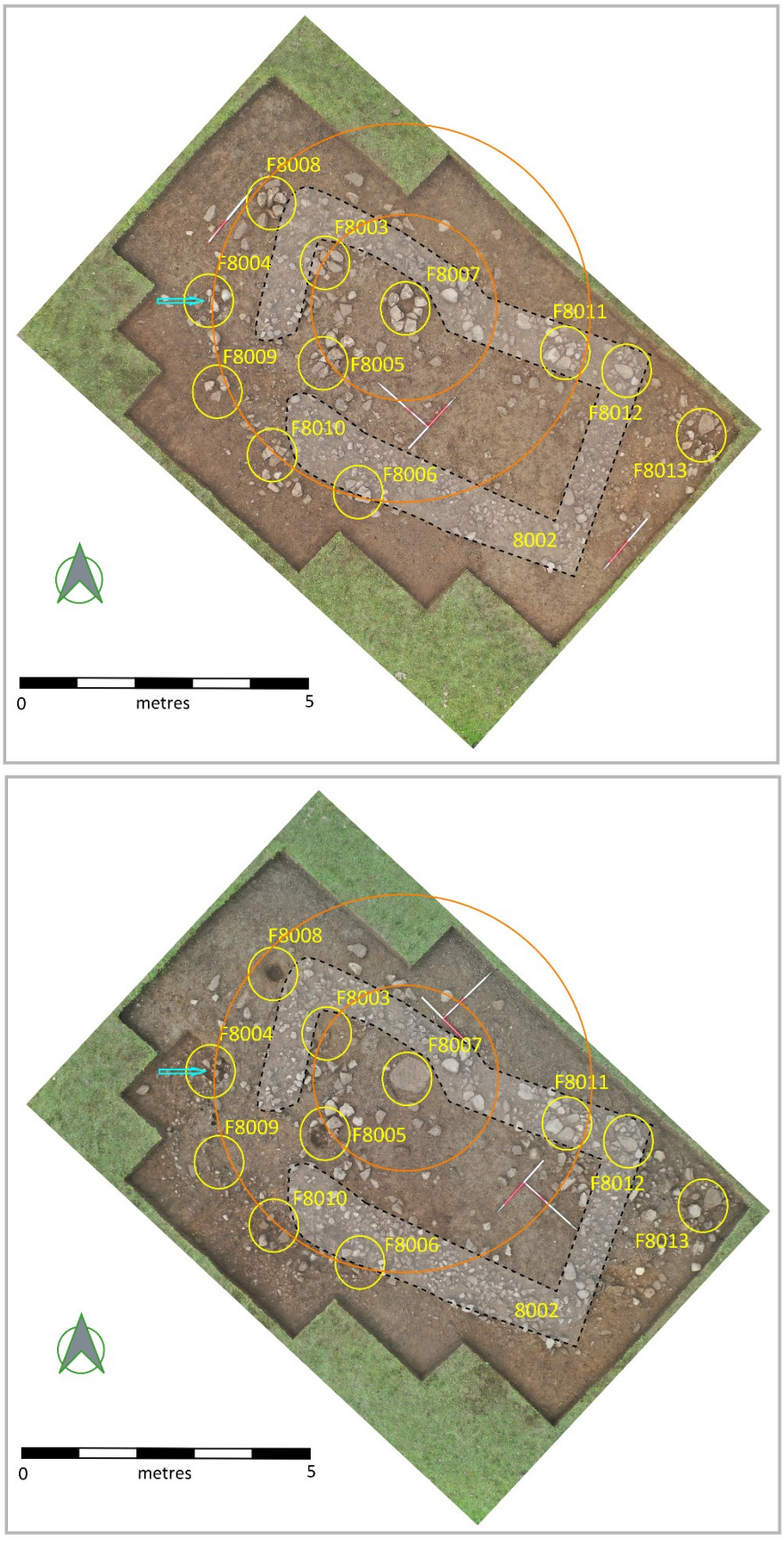

Figure 23: Annotated version of previous figure. The find-spot of the pilgrim badge is shown (blue arrow). The band of stones is shaded and features (groups of stones) are circled.

There were also eleven groups each consisting of a few (4 to 8) larger stones around 20cm diameter, *F8003-F8013.* See Figure 22 and 23 for the location of these groups of stones. Due to lack of time, not all of these groups were investigated further, but the results of those that were excavated is as follows:

F8003. Group of 8 stones. Appeared to overlie the context *8001*, the context across the whole trench. No posthole.

F8004 An ill-defined loose group of about 10 stones. Underneath these was a significant find, a late medieval pilgrim badge (Figure 27), lying in an ill-defined shallow (15cm deep, 50cm wide) shallow posthole cut in *8001*. This will be discussed below. At the base of the posthole were cobbles in mid-brown silty loam *8015*. A small area 2m x 1m was exposed of this, but only its western edge was found: hence it may extend over a larger area of the trench. See Figure 24.

F8005. Group of 10 stones. over a shallow (10cm deep, 30cm diam) posthole cut into *8001*, with stony layer (possibly same as *8015*) at base. Fill similar to *8001* but uncompacted. See Figure 24.

Figure 24: photographs of *F8004* and *F8005* after excavation

F8006. Group of 6 stones, largest 25cm diameter. Lifted. No significant underlying posthole. Stones lay on *8001.*

F8007. A group of 8 stones, largest 25cm diameter, arranged in a circle, with a 20cm diameter void in the middle. On excavation, they lay on a 2cm deep deposit, similar to and continuous with the surrounding *8001.* Under this, centred on the stones, was a 60cm square flagstone. See Figure 25.

Figure 25: *F8007,* the underlying loamy layer half- and fully-excavated, with the flagstone below. See drone view (Figure 23) for situation at end of excavations with stones removed and flagstone fully exposed.

F8008. A group of 8 stones, overlying a shallow-sided posthole, 35cn diameter and 15cm deep. The fill was similar to *8001* but less compacted. See Figure 26.

Figure 26: *F8008*. Posthole under a group of stones.

F8009. A group of 4 stones which were lifted. They were lying on *8001* with no posthole.

F8010. A loose group of 9 stones. Only partially lifted when excavation was halted due to adverse weather. Not clear if there is an underlying posthole.

F8011, F8012, and F8013. Not excavated. Groups of stones in the eastern end of the trench. *F8011 and F8012* lie on the band of stones *8002* and may be part of the structure.

5.2 Trench 8: discussion

Due to adverse weather the trench was geotextiled and back-filled after only 3 days of excavation. As it will be re-opened in August 2024, only a brief discussion is given here of the findings. However,

examination of the drone photos (Figure 22 and 23) at end of Day 2 shows that the 11 groups of stones are not randomly arranged. Taking the flagstone under group *F8007* as its centre, a circle of 3.2m radius passes through 6 of the groups: *F8004/06/08/09/10/11*. Another circle of half the radius (1.6m) passes through another 2 of the groups: *F8003/05.* Only 2 of the groups of stones do not lie on one or other circle: *F8012/13* (see Figure xx). The likely explanation is that the flagstone in *F8007* was the padstone of a vertical post, which was surrounded by a circle of diagonal bracing timbers. Assuming a 45-degree slope, these would have been 4.5m long. Timber beams of this length were readily available in the medieval period, for instance Altogether Archaeology's excavation of a longhouse at Well Head in Teesdale showed that the posts of the cruck-frame had a horizontal spacing of about 4m.

Around the circumference of the two circles, the stone groups were spaced by about 1.5m. This implies that if the groups originally extended all round the circle there would have been 12 or 13 on the outer circle and 6 in the inner circle. The ground falls away on the NE quadrant of the outer circle so any evidence in that part may have been lost downslope.

A structure of this type is most likely to be a windmill or (possibly) a beacon. The finding of a millstone adjacent to it makes it very likely that this is indeed a medieval post-windmill. All the bracing struts would not necessarily belong to the same phase, there may only have been 4 or 6 on the outer ring at any one time. The configuration does not seem to be typical of prehistoric round structure. In particular, the central flagstone in *F8007* showed no evidence of fire and no charcoal was present so it is unlikely to be a central hearth. In any case, the pilgrim badge which appears to have been deposited under the structure excludes a date earlier than the late medieval period.

Excavations on medieval post-mill sites have in general found evidence of horizontal beams, forming a cross. The central post and bracing timbers are set into the top of these beams. No beam slots have been found in this excavation as yet, so it is not a typical medieval windmill site, but the further excavation in 2024 may throw further light on the nature of the structure. In general, medieval windmills were small, designed to be easily moved around the landscape if needed, and therefore their timbers were not in deep postholes.

The copper-alloy pilgrim badge found under the stones of *F8004* was probably deliberately deposited, perhaps to bring good luck for the new structure. It shows signs of wear and one of the archer's heads is broken off. The badge has been conserved. Information from Ben Westwood (Finds Liaison Officer, Durham):

This is a copper alloy pilgrim badge, depicting the martyrdom of St Edmund in the 9th century. Edmund stands in the centre bound, and possibly tied to a tree, with archers to either side with bows drawn. St/King Edmund was king of East Anglia c.855-869, killed in battle (possibly...) by Danish archers, part of the 'Great Heathen Army'. They aren't common. In general copper alloy pilgrim badges are less common than lead (alloy), and there's only around 10 or so St. Edmunds like this one on the PAS database. The record for PUBLIC-731EA7 () cites an excavated example from Chaucer House, London and published in detail by Robinson (1989) (https://archaeologydataservice.ac.uk/archives/view/london_arch/contents.cfm?vol=06:03). The same record also asserts that the known examples are so similar that they feel they are made from the same mould (I'm not going to comment on that!). The date generally given is later 15th – mid 16th century (c.1450-1530), and again copper alloy pilgrim badges tend to be on the later side.

Although the badge dates from *c.* 1500, it may have been been kept by the owner for many years before deposition, so the structure could be several decades later than the badge's manufacture.

Figure 27: The pilgrim badge before conservation (top: both sides) and conserved (bottom).

This leaves the question of how the possible rectangular structure suggested by the bands of stones, *8002* relates to this possible windmill structure. This is unclear: the groups of stones are next to, rather than on/in the bands of smaller stones so their relationship is unknown. The exception to this is group *F8011* which has not yet been lifted: this will need careful examination when the trench is re-opened.

Another open question is the nature of the hillock on which the structures stand. It may be natural, a prehistoric burial mound, or a medieval windmill mound. The Gueswick Hills are glacial deposits, so it is certainly possible that it is a naturally deposited mound of glacial debris. There was a Bronze Age presence on the Hills (as shown by the rock art, summit cairn and radiocarbon date from the 2022 season) so a burial mound is also possible (though these are rare in the north Pennines). In addition the mound may have been purposely built for a windmill: however it is already in a prominent, exposed position, so the effort of digging a large mound to raise the windmill by 0.8m seems to be unnecessary.

6 DISCUSSION

Further excavation is planned, so fuller discussion of the Gueswick site as a whole will follow later.

7 ACKNOWLEDGEMENTS

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9 APPENDIX 1: CONTEXT TABLE

This is the context table for the 2023 trenches (T4, T6, T7). The initial digit of the context is the trench number. Contexts *4000* to *4010* are the same as those used in 2022, new contexts in Trench 4 were numbered starting at *4011*.

The details given of charcoal and bulk samples are brief summaries, see Appendix 7 for full details of the laboratory analysis.

Small finds are described in more detail in the Finds Table, Appendix 3, and the text. Only significant ones are listed here for each context.

NB plant species: *maloideae* is e.g. hawthorn or apple, *prunus* is e.g. blackthorn, *salicaceae* is e.g. willow or alder.

Context #	Type	Trench	Is above	Is below	Adjoins	Description
4000	Topsoil	4	4041 4001	-		Topsoil over all of trench. Friable, mid-brown silty/sandy loam with a few small angular stones. Small finds 2022: lead spindle whorl, pottery (modern, Tees Valley, Piercebridge, Catterick, Iron Age coarse ware, mortarium), slag, Fe nails, glass bangle fragments (R-B), whetstone, flint flakes
4001	Deposit	4	4003 4011	4000 4041		Soil beneath *4000* over all trench. Loose, friable matrix similar to topsoil *4000*, but with frequent gravel up to 10mm, mostly angular. Small finds 2022: pottery (modern, Tees Valley, medieval, Piercebridge, Catterick, Iron Age coarse ware, mortarium), slag, cinder, Fe nails, clay pipestem, flint flakes Charcoal samples 2022: C1, C2
4002	Surface	4	4035	4003	4010 4006	Flagstone floor surface in SW part of trench. Includes two quern stones (Q1 and Q2) used as flagstones, and a hearthstone: centrally blackened and fractured. Its S side is a laid cobble surface. See photographs and plans. Small finds 2022: pottery (Romano-British)
4003	Deposit	4	4002 4004 4005 4006 4007 4008 4010 4012 4017 4025 4028 4031 4036 4037 4046	4001 4011		Cobbles (rounded and some angular) over surface *4002* and rest of trench. In matrix of mid-brown friable silt. Stones 8cm to 20cm. Forms uncompacted layer 10cm to 15cm thick. Small finds 2022: lead spindle whorl, whetstone, pottery (Romano-British, Black Burnished, Catterick, mortarium, Iron Age coarse ware), cinder, coal, slag, copper slag, Roman coin (circa 300AD), penannular brooch (1st century AD?), worked flint/chert flakes Charcoal samples 2022: C3, C6, C8, C10, C12, C14, C17

Context #	Type	Trench	Is above	Is below	Adjoins	Description
4004	Surface	4	4022 4026 4029 4049	4003		Flagstone surface under *4003* in NW part of trench. Includes two quern stones (Q3 and Q4) used as flagstones. See photographs and plans. Small finds 2022: flint flake Charcoal sample 2022: C19
4005	Deposit	4	4007 4009	4003		Small angular stones, 3cm to 10cm. Underneath the spread of larger cobbles *4003* in the E side of the trench. Appears featureless spread. Three areas of it excavated to show natural *4007* beneath. Small finds 2022: pottery (Iron Age coarse ware, mortarium), coal, slag, cinder
4006	Deposit	4	4007	4003	4002	Yellow/brown clay/silt. Beneath *4003*. To W of floor surface *4002* in SW part of trench. Not compacted. Includes small medium rounded & and angular stones. Overlies probable natural *4007*. Small finds 2022: pottery (Iron Age coarse ware), glass bangle fragment (R-B), spearhead (circa 180AD), Fe nail Charcoal sample 2022: C21a (hazel), radiocarbon dated to **180 calAD**
4007	Natural?	4		4003 4005 4009	4012	Yellow/brown silty clay with sand and some angular (broken) stones and larger rounded stones. East side of trench. Below *4005*. Natural? Equivalent of 4012 Small finds 2022: chert flake
4008	Surface	4	4012	4003		Irregular flagstone surface to E of surface *4004*. Not closely laid. Set in mid-brown silty clay. Possibly a pathway from building floor *4004*. Small finds 2022: corroded copper blob, copper slag?
4009	Deposit	4	4007	4005		Rounded patch of small to medium cobbles at N end of trench. Is in a hollow in the ground surface (seen on lidar image, Figure 4). See photos/plan. Small finds 2022: none
4010	Surface	4	4035 4047	4003	4002 4004	Well-bedded well-laid cobble surface between flagstone floors *4002* and *4004*. Stones 10cm to 25cm. runs from W edge of 2022 trench eastwards. Small finds 2022: none
4011	Cut	4	4003	4001		Linear cut forming a straight gully in stones *4003*, filled with *4001*. Beam slot? 40cm-62cm wide, Max depth c13cm Plan/section 410

Context #	Type	Trench	Is above	Is below	Adjoins	Description
4012	Deposit	4		4003 4004 4006 4008 4015 4018 4021 4023 4024 4026 4027 4029 4030 4033 4038 4045 4048	4007	Mid yellow-brown gritty clay loam under cobbles *4003* and flagstones 4004 In centre & W side of 2023 trench. 25% small stones. Equivalent to 4007 in the E part of trench. Bulk sample 405 (where overlain by Quern 3). Not analysed
4013	Deposit	4	4014 4015	4006		Soil fill of ?posthole cut 4015. Grey-brown, friable, loose. There was a cracked capping slab over it. and upright stones 4014 around it. Bulk sample 401. Not analysed Plan/sections 412, 429
4014	Deposit	4	4015	4013		Upright stones demarcating edges of ?posthole cut 4015. 28x30x7cm and 26x39x7cm Plan/sections 412, 429
4015	Cut	4	4012	4013 4014		Cut for ?posthole. Subrectangular. 2.5m W of Quern 2. Had a broken horizontal stone capping it. Plan/sections 412, 413, 414, 415, 429
4016	Deposit	4	4020 4021	4006		Soil fill of ?posthole cut 4021. Yellow-brown loamy, friable, fine. contained between upright stones 4020. Bulk sample 404. Not analysed Plan/sections 412, 430
4017	Deposit	4	4018 4019	4003		Upper fill of pit cut 4018. Dark brown silty loam. Is over clay layer 4019. About 14cm deep. Bulk sample 403. Lab analysis: charcoal (Salicaceae, hazel, birch, oak), spelt wheat grains & chaff, heath grass, mayweed. Plan/section 411 Charcoal sample 2023: C03 (hazel) radiocarbon dated to **199 calAD**
4018	Cut	4	4012	4017 4019		Cut for sub-rectangular shallow pit. S end of trench, 3m S of Quern 2. Plan/sections 411, 425, 426, 444

Context #	Type	Trench	Is above	Is below	Adjoins	Description
4019	Deposit	4	4018	4017		Discontinuous layer of grey-blue clay in base of cut 4018. Below fill 4017. May be part of natural, may be lowest fill of pit. Bulk sample 402. Not analysed
4020	Deposit		4021	4016		Four upright stones in ?posthole cut 4021. Average 26x20x6cm. Plan/sections 412, 430
4021	Cut		40012	4016 4020		Cut for ?posthole. 1.5m SW of Quern 2. Contains upright stones 4020 and soil fill 4016. Plan/sections 412, 413, 416, 417, 430
4022	Deposit	4	4023	4004		Soil fill under Quern 4, in cut 4023. Mid-brown sandy loam, small gravel inclusions. Bulk sample 406. Not analysed
4023	Cut	4	4012	4022		Cut that contained fill 4022, with Quern 4. Plan/sections 420, 443
4024	Cut	4	4012	4025		Cut of ?posthole to NE of Quern 4 Plan/section 418, 419
4025	Deposit	4	4025	4003		Fill of posthole 4024 to NE of Quern 3 Bulk sample 408. Not analysed Plan/section 418
4026	Cut	4	4012	4004		Cut in which Quern 3 was located Plan/sections 420, 443
4027	Cut	4	4012	4049		Cut holding large slab (part of paving 4004) and packing stones 4028 NW of Quern 4 Plan/sections 420, 443
4028	Deposit	4	4049	4003	4004	Packing stones around slab in cut 4027 Plan/section 420
4029	Deposit	4	4030 4012	4004		Semi-compacted mid brown silty loam with 30% small stones under flags 4004 south of Quern 3. Charcoal rich. Levelling deposit?
4030	Deposit	4	4012	4029		Patchy areas of cobbled surface under 4029. Small rounded cobbles.
4031	Deposit	4	4032 4034	4031		Large stone over fill 4032 and stones 4034 in pit 4033 Plan/sections 421, 422

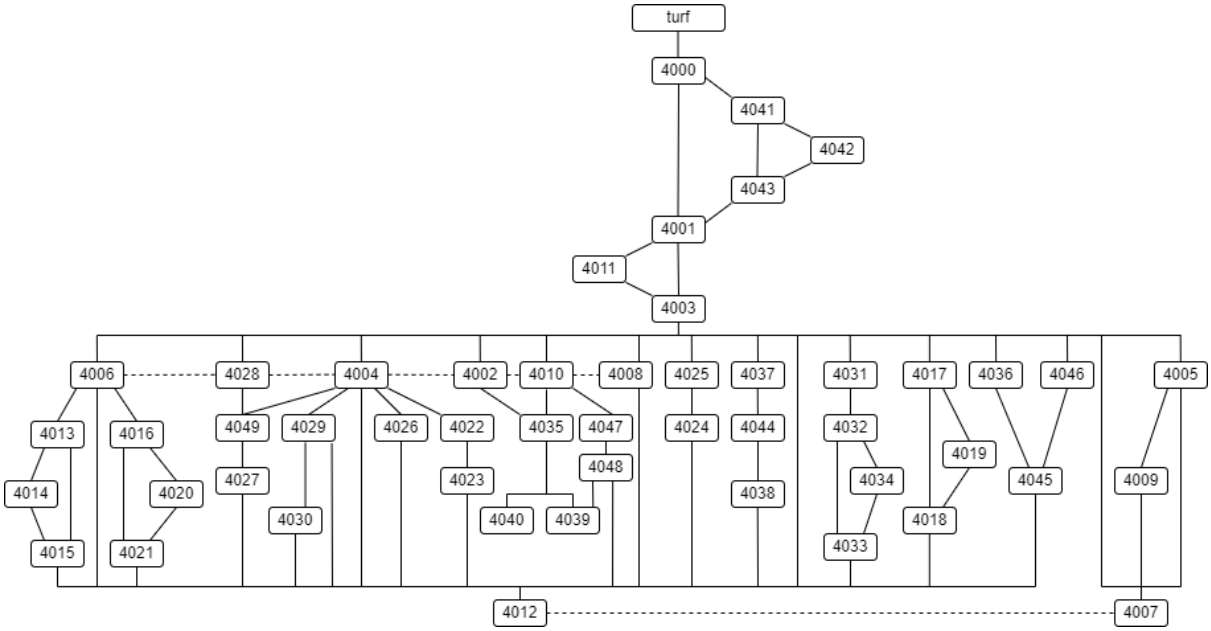
Context #	Type	Trench	Is above	Is below	Adjoins	Description
4032	Deposit	4	4033 4034	4031		Fill of pit 4033. Dark brown fine silty loam, semi-compacted, very few small stones. Bulk sample 409. Lab analysis: charcoal (birch, heather), charred wheat grains (spelt, possibly one emer), spelt wheat chaff. Plan/section 422 Charcoal sample 2023: C04 (spelt grains) radiocarbon dated to **202 calAD**
4033	Cut	4	4012	4032 4034		Cut of pit in centre of trench under slab 4031. Sub-oval, steep-sided. Plan/sections 422, 427
4034	Deposit	4	4033	4032		Stones set in side of pit 4033. Packing. Plan/section 422
4035	Deposit	4	4039 4040	4002 4010		Dark deposit, charcoal rich in places. Lies under 4002 paving and extends eastwards under cobbles 4010, Is over clay bank 4039 and the cobbles 4040 to the east of this. Dark brown silty loam, with charcoal and burnt material. Some orange sandier patches. Not laminated. Bulk samples 413 (inc charcoal), 415, 416, 417. 417 Lab analysis: coal, charcoal (heather, ash, oak, hazel (5/6 year cycle growth pattern suggesting hedge-cutting)), goosefoot & heath grass seeds. Charcoal sample 2023: C10 (hazel) radiocarbon dated to **179 calBC**
4036	Deposit	4	4045	4012	4046	Upright stones in linear cut 4045 at N end of W side of trench. Plan/sections 423, 440, 441
4037	Deposit	4	4044	4003		Upper fill of posthole 4038 in NW corner of trench. Mid/dark brown clay/silt loam, semi-compacted. No stones. Bulk sample 412. Not analysed Plan/sections 424, 428
4038	Cut	4	4012	4044		Cut of posthole in NW corner of trench. Subrectangular, almost vertical side, flat stone-lined base. Plan/sections 424, 428, 442
4039	Deposit/ natural	4	?	4035 4048		Clay bank running N-S under paving 4002, with dark layer 4035 in between. Yellow clay with sand & silt. small angular stones.
4040	Deposit	4	?	4035		Patches of cobbled surface to E of clay bank 4039, overlain on western edge by dark layer 4035.

Context #	Type	Trench	Is above	Is below	Adjoins	Description
4041	Deposit	4	4042 4043	4000		Silty fill of posthole 4043, in S-facing section on N trench edge. Orange brown, silty, friable, Small inclusions only, <3mm.
4042	Deposit	4	4043	4041		Stone packing in posthole 4043
4043	Cut	4	4001	4041 4042		Cut of posthole seen in N trench edge near NW trench corner. Top is 20cm below turf and 26cm wide. Cut is 20cm deep. Packing up to 4-7cm. post pipe full <9cm.
4044	Deposit	4	4038	4037		Lower fill of posthole 4038 in NW corner of trench. Yellow-brown sandy silt/clay soil. <20% small gravel. Bulk sample 414. Not analysed. Plan/section 428
4045	Cut	4	4012	4036 4046		Linear cut running NS, close to W edge of trench. Gully 7m long (and may continue further to S). Steep side, trench-like, with flat base. Contains upright stones 4036 and fill 4046 Plan/sections 423, 440, 441, 445, 446, 447
4046	Deposit	4	4045	4012	4036	Fill of linear cut 4045. Medium brown fine silt/clay/loam. slightly compacted, some small grit & ?charcoal. Sits around upright stones 4036. Bulk sample 418. Lab analysis: charcoal (ash, birch, oak, hazel), spelt wheat glumes, ribwort plantain seed, traces of calcined bone. Charcoal sample 2023: C12 (birch) radiocarbon dated to **56 calBC**
4047	Deposit	4	4048	4010		Dark fill of linear cut 4048 to W of clay bank 4039. Similar in appearance to 4035. Bulk sample 419. Lab analysis: charcoal (heather, alder, maloideae, salicaceae, birch), spelt wheat chaff, sedge nutlet, heath grass caryopsis, trace of calcined bone. Charcoal sample 2023: C15 (hawthorn) radiocarbon dated to **35 calBC**
4048	Cut	4	4012 4039	4047		Linear cut on W side of clay bank 4039. Runs NE-SW.
4049	Deposit	4	4027	4004 4028		Fill of cut 4027 below paving slab 50cm NW of Quern 4. Bulk sample 407. Lab analysis: charcoal (all alder branchwood: cleft, probably coppiced) Charcoal sample 2023: C17 (alder) radiocarbon dated to **46 calAD**

Context #	Type	Trench	Is above	Is below	Adjoins	Description
6000	Topsoil	6	6001			Topsoil. Similar to that in other trenches. Dark brown silty loam with a few small stones. Ploughed. 16cm deep approx.. Small finds: pipe stem, coal, cinder, post-med sherd Plan/section 602a/b, 603a/b
6001	Deposit	6	6002	6000		Layer of stones/gravel below topsoil across all of trench. 30% stones up to 15cm diam, rounded in mid brown silty loam. Not compacted. 14cm deep approx. Plan/section 602a/b, 603a/b
6002	Deposit	6	6003 6005	6001		Medium brown clayey loam across all of trench under stoney layer 6001 and above natural and fill of large ditch. 10-15% stones up to 5cm diam. About 25cm thick. Plan/section 602a/b, 603a/b
6003	Deposit	6	6004	6002		Upper fill of ditch cut 6006. Lot of stones: small rounded pebbles and some larger stones in medium/dark brown loam. Friable. Plan/section 601, 602a/b, 603a/b
6004	Deposit	6	6006	6003		Lower fill of ditch cut 6006. Medium/dark brown silty loam with 30% stones up to 10cm. Not clearly differentiated from 6003, but more silty. Damp. friable. Bulk sample 601. Lab analysis: charcoal (blackthorn, hazel, oak, birch), heather twigs, hazel nutshell, spelt wheat glume, heath grass caryopsis. Plan/section 602a/b, 603a/b Charcoal sample 2023: C19 (hazel) radiocarbon dated to **92BC**
6005	Natural	6		6002 6006		Yellow/brown silty clay with sand and some angular (broken) stones and larger rounded stones. Similar to natural seen elsewhere on site. Glacial deposit. Plan/section 601
6006	Cut	6	6005	6004		Cut of large ditch. See section drawings. Plan/section 601, 602a/b, 603a/b
7000	Topsoil		7001			Topsoil. Similar to that in other trenches. Dark brown, silty loam with a few small stones. Loose. Ploughed.

Context #	Type	Trench	Is above	Is below	Adjoins	Description
7001	Deposit		7002	7000		Layer of stones/gravel below topsoil across all of trench. In clayey loam. Similar to 6001 in Trench 6.
7002	Deposit			7001		Medium brown clayey loam across all of trench under stoney layer 7001 and above natural About 25cm thick. Similar to 7001 in Trench 6.
7003				7002		Yellow/brown silty clay with sand and some angular (broken) stones and larger rounded stones. Similar to natural seen elsewhere on site. Glacial deposit.
8000	Topsoil	8	8001			Topsoil. Similar to that in other trenches. Dark brown silty loam with a few small stones. Ploughed. 16cm deep approx..
8001	deposit	8		8000		Gravel rich layer under topsoil
8002	deposit	8				Bands of small stones, forming a ?rectangular feature.
8003	feature	8				Group of stones lying on 8001
8004	feature	8				Group of stones overlying a small posthole
8005	feature	8				Group of stones overlying a small posthole
8006	feature	8				Group of stones lying on 8001
8007	feature	8				Group of stones overlying a 60cm x 60cm flagstone
8008	feature	8				Group of stones overlying a small posthole
8009	feature	8				Group of stones overlying 8001
8010	feature	8				Group of stones to be fully escavated
8011	feature	8				Group of stones not yet excavated
8012	feature	8				Group of stones not yet excavated
8013	feature	8				Group of stones not yet excavated
8014						not used
8015	deposit					cobble rich layer at base of 8004 (and elsewhere?)

10 APPENDIX 2: HARRIS MATRIX FOR TRENCH 4



11 APPENDIX 3: SMALL FINDS TABLES

At the trench is to be re-opened in 2024, no analysis of small finds is given here. In general, finds were similar to those of the previous (i.e. 2022) season.

12 APPENDIX 4: BULK SAMPLES TABLES AND CHARCOALS

Bulk samples. These are cross-referenced in the context table.

See Appendix 7 for details of the lab analysis., which is also summarised, for each context, in the Context Table (Appendix 1)

Context #	Trench #	Sample #	Sent o labs?	Weight kg	Type	Notes
4013	4	401		7.10	env	fill of pit/posthole, in SW corner of T4
4019	4	402		2.18	env	Blue clay in lower part of pit 4018.
4017	4	403	Y	7.30	env	Dk brown fill in upper part of pit 4018. **Lab analysed**
4016	4	404		2.31	env	Fill of pit 4021, in SW corner of T4
4012	4	405		2.40	env	Orange silty deposit under Quern 3.
4022	4	406		0.50	env	Deposit in pit 4023 holding Quern 4
4049	4	407	Y	1.94	env	Deposit under paving stone 50cm NW of Quern 4 **Lab analysed**
4025	4	408		2.85	env	Fill of pit 4024
4032	4	409	Y	2.38	env	Deposit in pit under large stone, centre of T4 **Lab analysed**
4035	4	410		3.89	env	Dark, burnt(?) deposit. Under 4002 flagstones
4035	4	411		7.11	env	Dark, less burnt, part of 4035 under 4002
4037	4	412		2.18	env	Upper fill of pit/posthole in NW corner of T4
4035	4	413a		0.27	env	a,b,c are 3 samples of burnt patches in 4035 lying directly on E side of clay ridge 4039
4035	4	413b		0.20	env	See photos. a & b are square.
4035	4	413c		2.42	env	"
4044	4	414		2.44	env	"gravel rich layer"
4035	4	415		0.23	env	From the part of 4035 on top of clay bank 4039
4035	4	416		0.68	env	From the part of 4035 on top of clay bank 4039
4035	4	417	Y	7.27	env	Random sample from centre of the part of 4035 to the east of clay bank 4039. **Lab analysed**
4046	4	418	Y	>10	env	Fill of linear slot feature 4045 **Lab analysed**
4047	4	419	Y	3.93	env	Fill of 4048, to W of clay bank. **Lab analysed**
6004	6	601	Y	20	env	Taken from sections on S & N sides of trench. **Lab analysed**

Charcoals

These were all from flotation of bulk samples.

Context #	Trench #	Bag #	No. of bits	Weight mg	Notes	Lab species ident
4017	4	C01		11	From flotation of bulk sample	Spelt grain
4017	4	C02		100	From flotation of bulk sample	Salicaceae 7 rings & bark
4017	4	C03		85	From flotation of bulk sample	Hazel small stem branchwood **sent for radiocarbon date**
4032	4	C04	1	11, 10, 9	From flotation of bulk sample	Spelt grains x3 **sent for radiocarbon date**
4032	4	C05	2	28	From flotation of bulk sample	Birch moderate curvature
4032	4	C06	2	50	From flotation of bulk sample	Heather
4032	4	C07	1	8	From flotation of bulk sample	Emmer (?) grain
4035	4	C08	1	90	From flotation of bulk sample	Ash
4035	4	C09		25, 31	From flotation of bulk sample	Heather x 2
4035	4	C10		389	From flotation of bulk sample	Hazel branchwood **sent for radiocarbon date**
4046	4	C11		116	From flotation of bulk sample	Ash moderate curvature
4046	4	C12		37	From flotation of bulk sample	Birch moderate curvature **sent for radiocarbon date**
4046	4	C13		236	From flotation of bulk sample	Oak
4047	4	C14		68	From flotation of bulk sample	Heather
4047	4	C15		99	From flotation of bulk sample	Hawthorn branchwood strong curvature **sent for radiocarbon date**
4047	4	C16		58	From flotation of bulk sample	Alder 4 short rings
4049	4	C17		105	From flotation of bulk sample	Alder branchwood 7 rings & bark strong curvature **sent for radiocarbon date**
4049	4	C18		161	From flotation of bulk sample	Alder branchwood 5 rings strong curvature
6004	6	C19		125	From flotation of bulk sample	Hazel branchwood strong curvature **sent for radiocarbon date**
6004	6	C20		58	From flotation of bulk sample	Blackthorn moderate curvature
6004	6	C21		12	From flotation of bulk sample	heather

13 Appendix 5: Radiocarbon dates

Radiocarbon dates were obtained for seven charcoals from the 2023 season. Processing was by the Queens University Belfast 14Chrono Centre. Calibration used the intcal20.14c data set.

Sample #	C03	C04	C10	C12	C15	C17	C19
Type	hazel	spelt grains	hazel	birch	hawthorn	alder	hazel
Laboratory #	UBA-52836	UBA-52837	UBA-52838	UBA-52839	UBA-52840	UBA-52841	UBA-52842
Context #	4017	4032	4035	4046	4047	4049	6004
Context description	Fill of pit 4018 at south end trench	Fill of pit 4033 in centre of trench	Dark deposit under paving	Fill of long narrow gully 4045	Fill of broad gully 4048 by clay bank	Fill of cut 4027 holding paving slab by Q4	Fill of ditch 6006 to north of settlement
Radiocarbon Age	1845 ± 27	1844 ± 26	2147 ± 28	2056 ± 28	2043 ± 26	1973 ± 25	2081 ± 26
Calibrated dates (1σ)	132-139AD 7%	132-138AD 7%	314-319BC 26%	103-65 BC 42%	90-80BC 12%	14-80AD 91%	149-135BC 14%
	162-189AD 29%	163-188AD 29%	202-149BC 60%	60-34BC 33%	53BC-8AD 88%	99-108AD 9%	113-47BC 86%
	201-238AD 63%	202-239AD 64%	134-115BC 13%	16BC-6AD 25%			
Calibrated dates (2σ)	124-246AD 99.5%	125-246AD 100%	351-288BC 26%	155BC-20AD 100%	150-133BC 2%	38-12BC 11%	170-39BC 96%
	300-303AD 0.5%		227-220BC 1%		116BC-27AD 96%	3-88AD 73%	11BC-2AD 4%
			209-92BC 68%		46-57AD 2%	92-120AD 15%	
			77-54BC 5%				
Median calibrated date	**199 AD**	**202 AD**	**179 BC**	**56 BC**	**35 BC**	**46 AD**	**92 BC**

Radiocarbon dates as a table. The percentages given are the relative likelihoods that the true date is within that date range.

Radiocarbon certificates

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Hunstanworth
Consett DH8 9UF
United Kingdom

^{14}CHRONO Centre
Queens University Belfast
42 Fitzwilliam Street
Belfast BT9 6AX
Northern Ireland

Radiocarbon Date Certificate

Laboratory Identification:	UBA-52836
Date of Measurement:	2024-03-07
Site:	Gueswick
Sample ID:	GH23/4017/C03
Material Dated:	charcoal
Pretreatment:	AAA
mg Graphite:	0.971
Submitted by:	Martin Green

Conventional ^{14}C Age:	1845±27 BP
Fraction corrected	using AMS $\delta^{13}C$

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Radiocarbon Date Certificate

Laboratory Identification:	UBA-52837
Date of Measurement:	2024-03-11
Site:	Gueswick
Sample ID:	GH23/4032/C04
Material Dated:	charcoal
Pretreatment:	AAA
mg Graphite:	0.986
Submitted by:	Martin Green

Conventional ^{14}C Age:	1844±26 BP
Fraction corrected	using AMS $\delta^{13}C$

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Radiocarbon Date Certificate

Laboratory Identification:	UBA-52839
Date of Measurement:	2024-03-11
Site:	Gueswick
Sample ID:	GH23/4046/C12
Material Dated:	charcoal
Pretreatment:	AAA
mg Graphite:	0.931
Submitted by:	Martin Green

Conventional ^{14}C Age:	2056±28 BP
Fraction corrected	using AMS $\delta^{13}C$

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Radiocarbon Date Certificate

Laboratory Identification:	UBA-52838
Date of Measurement:	2024-03-11
Site:	Gueswick
Sample ID:	GH23/4035/C10
Material Dated:	charcoal
Pretreatment:	AAA
mg Graphite:	0.926
Submitted by:	Martin Green

Conventional ^{14}C Age:	2147±28 BP
Fraction corrected	using AMS $\delta^{13}C$

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Radiocarbon Date Certificate

Laboratory Identification:	UBA-52840
Date of Measurement:	2024-03-11
Site:	Gueswick
Sample ID:	GH23/4047/C15
Material Dated:	charcoal
Pretreatment:	AAA
mg Graphite:	0.898
Submitted by:	Martin Green

Conventional ^{14}C Age:	2043±26 BP
Fraction corrected	using AMS $\delta^{13}C$

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Radiocarbon Date Certificate

Laboratory Identification:	UBA-52841
Date of Measurement:	2024-03-11
Site:	Gueswick
Sample ID:	GH23/4049/C17
Material Dated:	charcoal
Pretreatment:	AAA
mg Graphite:	0.943
Submitted by:	Martin Green

Conventional ^{14}C Age:	1973±25 BP
Fraction corrected	using AMS $\delta^{13}C$

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Radiocarbon Date Certificate

Laboratory Identification:	UBA-52842
Date of Measurement:	2024-03-11
Site:	Gueswick
Sample ID:	GH23/6004/C19
Material Dated:	charcoal
Pretreatment:	AAA
mg Graphite:	0.955
Submitted by:	Martin Green

Conventional ^{14}C Age:	2081±26 BP
Fraction corrected	using AMS $\delta^{13}C$

14 APPENDIX 6: DRONE PHOTOGRAPHS OF TRENCHES

Some are shown in the main text, but at larger scale here. Drone photography by Stephen Eastmead.

Trench 4 Day 9

Trench 4 Day 12 (23 August)

Trench 4 Day 14 (25 August)

Trench 4 Day 17 (28 Aug)

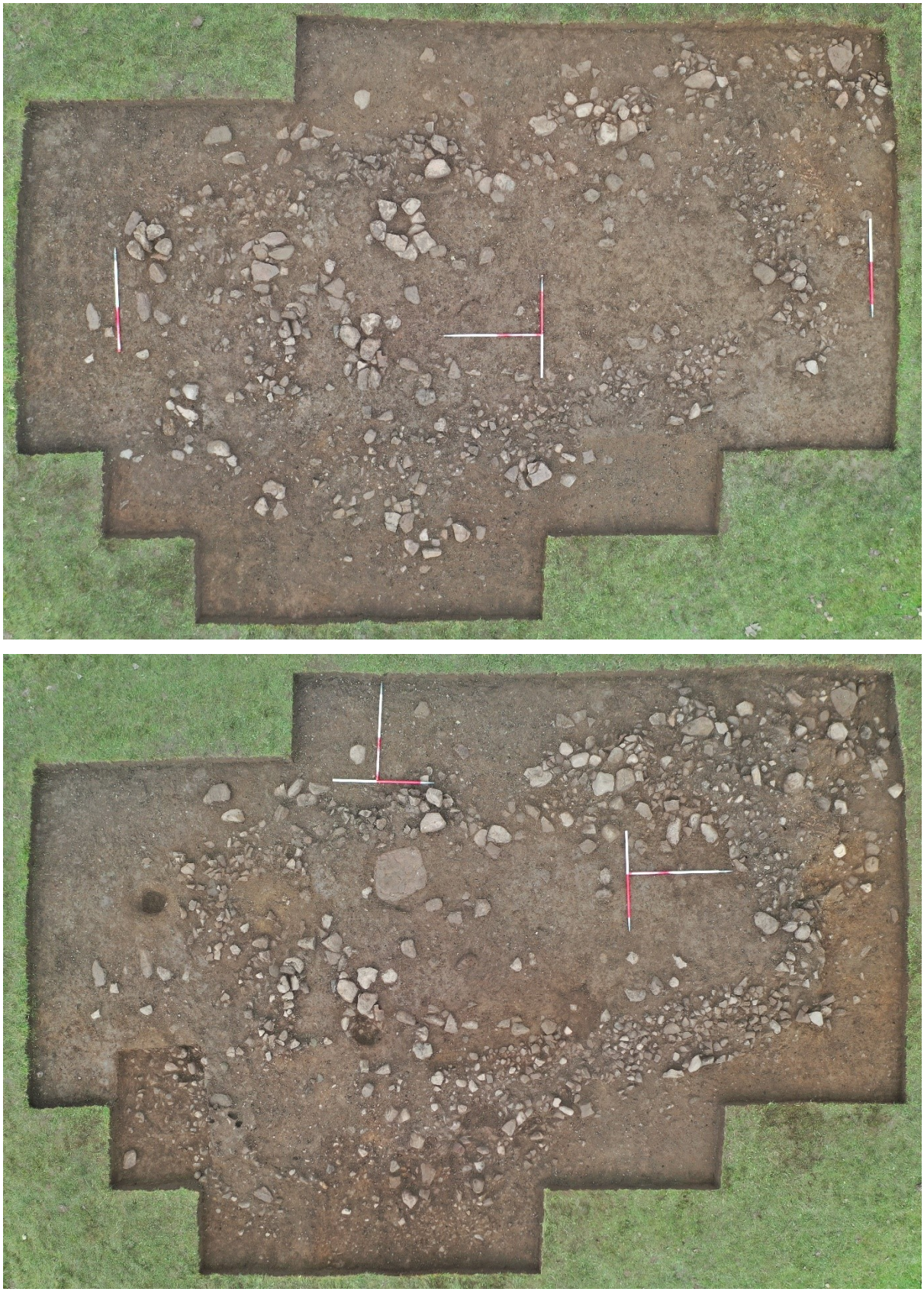
Trench 4 Day 22 (2 Sept: penultimate day)

I

Trench 4 Day 23 (3 Sept: final day)

Trench 6 Day 14 drone photo, looking south

Trench 7 Day 14



Trench 8 Day 2 (top), Day 3, end of dig (bottom)

Trench 8 at end of dig, oblique photos looking north (top), looking south (middle). The hillock viewed from plateau (bottom).

15 APPENDIX 7: PALAEOENVIRONMENTAL REPORT (DURHAM UNIVERSITY)

This is the unedited report on the bulk samples and charcoal. The results for each context are summarised in the context table (Appendix 1)

Archaeological Services University of Durham, Report 6044, October 2023

Contents

1. Summary

The project

1.1 This report presents a palaeoenvironmental assessment of seven bulk samples, taken during the 2023 excavations at Gueswick Hills, Teesdale, County Durham.

1.2 The works were commissioned by Altogether Archaeology and conducted by Archaeological Services Durham University.

Results

1.3 Palaeoenvironmental evidence consistent with Iron Age or Romano-British activity is noted in six contexts [4017], [4032], [4035], [4046], [4047] and [6004]. This is based on the presence of charred spelt wheat remains and/or heath-grass caryopses, both of which are characteristic of these periods in north-eastern England.

1.4 The well-preserved charcoal found in deposit [4049] and pit fill [4032] is likely to have been covered by the capping stones shortly after deposition.

Recommendations

1.5 Every sample has material suitable for radiocarbon dating.

1.6 The flots should be retained as part of the physical archive of the site. The residues were discarded following examination.

2. Project background

Location and background

2.1 Archaeological excavations were conducted at Gueswick Hills, Teesdale by Altogether Archaeology. This report presents a palaeoenvironmental assessment of seven bulk samples, taken from various features and occupation layers of probable Iron Age or Romano-British origin.

Objective

2.2 The objective of the scheme of works was to assess the palaeoenvironmental potential of the samples, establish the presence of suitable radiocarbon dating material, and provide the client with appropriate recommendations.

Dates

2.3 The samples were received by Archaeological Services on 4th October 2023. Assessment and report preparation was conducted between 10th and 20th October 2023.

Personnel

2.4 Assessment and report preparation were by Lorne Elliott. Sample processing was by Eloise White.

Archive

2.5 The site code is **GH23**, for **G**ueswick **H**ills 20**23**. The flots and charred plant remains are currently held in the Palaeoenvironmental Laboratory at Archaeological Services Durham University awaiting collection.

3. Methods

3.1 The bulk samples were manually floated and sieved through a 500μm mesh. The residues were examined for shells, fruitstones, nutshells, charcoal, small bones, pottery, flint, glass and industrial residues, and were scanned using a magnet for ferrous fragments. The flots were examined at up to x60 magnification for charred and waterlogged botanical remains using a Leica MZ7.5 stereomicroscope. Identifications were aided by comparison with modern reference material held in the Palaeoenvironmental Laboratory at Archaeological Services Durham University, and by reference to relevant literature (Cappers *et al.* 2006;

Jacomet 2006). Habitat classification follows Preston *et al.* (2002). Plant nomenclature follows Stace (2010).

3.2 Selected charcoal fragments were identified to provide material suitable for radiocarbon dating and to determine the nature and condition of the assemblages. The transverse, radial and tangential sections were examined at up to x500 magnification using a Leica DMLM microscope. Identifications were assisted by the descriptions of Schweingruber (1990), Gale & Cutler (2000) and Hather (2000), and modern reference material held in the Palaeoenvironmental Laboratory at Archaeological Services Durham University.

3.3 The works were undertaken in accordance with the palaeoenvironmental research aims and objectives outlined in the regional archaeological research framework and resource agendas (Petts & Gerrard 2006; Hall & Huntley 2007; Huntley 2010), including the updated version: *North-East Regional Research Framework for the Historic Environment* (NERRF 2.0) (https://researchframeworks.org/nerf/accessed 18/10/2023).

4. Results

4.1 Every sample contains small deposits of charcoal. The most productive, in terms of quantity, are pit deposit [4017], and occupation layers [4035] and [4047]. The most notable characteristic of the charcoal record is the good preservation found in deposit [4049] and pit fill [4032]. In both instances a stone capping has aided preservation, suggesting the remains were covered shortly after deposition.

4.2 Another aspect of the charcoal worth noting is the regular occurrence of alder in deposits [4047] and [4049], and ash in contexts [4035] and [4046]. Both of these species were scarce in previous assessments (Archaeological Services 2022; 2023) and may therefore represent an earlier or later phase of activity. Both species are found in damp environments (riverside, carr), which contrasts with other evidence indicating a drier grassy heathland habitat (heather, heath-grass and sedge). The regular occurrence of hawthorn, along with blackthorn, is perhaps linked to the maintenance of hedges. Possible evidence of this nature is seen in hazel charcoal from [4035], which has a fluctuating growth ring pattern consistent with periodic cutting.

4.3 Detailed palaeoenvironmental results and a provisional date for each context are presented in Appendix 1. The best options for radiocarbon dating are shown in Appendix 2. Selected fragments are from the most representative material, either in terms of the number of remains or the general makeup.

5. Discussion

5.1 Palaeoenvironmental evidence consistent with Iron Age or Romano-British activity is noted in six contexts [4017], [4032], [4035], [4046], [4047] and [6004]. This is either based on the presence of charred spelt wheat remains or heath-grass caryopses. The former was the principal cereal crop of the time, the latter reflects the exploitation of grassy heathland, also a characteristic of these periods in north-eastern England.

6. Recommendations

6.1 Every sample has material for suitable radiocarbon dating.

6.2 The flots should be retained as part of the physical archive of the site. The residues were discarded following examination.

7. Sources

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Table 1: Data from palaeoenvironmental assessment

Context	Sample	Feature	Volume processed (l)	Flot volume (ml)	C14 available	Rank	Notes
4017	403	pit (clay-lined)	7	120	Y	***	The sample produced the largest flot - mainly modern roots with approximately 30ml of fragmented charcoal (all pieces less than 1cm). The charcoal is in reasonable condition with some mineral inclusions. There are several species including Salicaceae (willow or poplar), hazel, birch, and oak. A small assemblage of charred plant macrofossils includes several spelt wheat remains (grains and chaff), a couple of heath-grass caryopses (heathy grassland plant) and a scentless mayweed achene (arable weed). **IA / RB**
4049	407	deposit under slab	2	20	Y	**	The sample produced a small flot of modern roots and charcoal (pieces up to 15mm). The charcoal is all alder branchwood in surprisingly good condition with no mineral inclusions, probably due to rapid burial beneath the slab. The larger fragments have pith and bark and may have been worked (cleft). The number of growth rings and the growth ring pattern is consistent with coppicing, though this is not certain based on a few fragments. *A good chance the alder charcoal will date placement of the slab.* **No diagnostic dating**
4032	409	pit (capped by stone)	2	10	Y	***	The sample produced a small flot of modern roots and fragmented charcoal (pieces mainly less than 4mm). The charcoal is in surprisingly good condition with no mineral inclusions, presumably due to rapid burial beneath the stone. Most of the fragments are birch, plus there is heather with notably curled growth. There is also a low number (10) of charred wheat grains (some are pitted, and others are in good condition). Most have the characteristic shape of spelt wheat, though one is notably hump-backed and could be emmer. There is a single piece of diagnostic spelt chaff (glume base) confirming the presence of this species. **IA / RB**
4035	417	layer below paving	7	40	Y	**	The sample produced small amounts of charcoal and coal, with a few intrusive modern roots. The charcoal is relatively good condition with few inclusions. Ash is noted the most, plus oak sapwood, hazel branchwood and heather. The hazel charcoal has a growth ring pattern showing a 5–6-year cycle - repeated 4 times. Charred plant macrofossils comprise a goosefoot and heath-grass seed, and an indet. rhizome. **IA / RB**
4046	418	gully	9	40	Y	***	The flot has modern roots and a small amount of charcoal. All the charcoal is in relatively good condition and firm with few mineral inclusions. Mainly ash and birch, also several fragments of oak branchwood with series of short growth rings and a single piece of hazel branchwood. Other charred plant remains include a small heather twig, two spelt wheat glumes and a ribwort plantain seed. Traces of calcined bone. **IA / RB**
4047	419	layer below cobbled surface	4	60	Y	***	Relatively larger flot of charcoal and a few modern roots. The charcoal is generally in reasonable condition although there are more mineral inclusions compared with other contexts. Surprisingly heather is common, there are also several pieces of alder, Maloideae (hawthorn), and Salicaceae (cf. willow), and a single birch. Charred plant macrofossils are a few poorly preserved spelt chaff, a sedge nutlet and heath-grass caryopsis. Trace of calcined bone. *Based on variable inclusions there may be more than one phase represented.* **IA / RB**

Context	Sample	Feature	Volume processed (l)	Flot volume (ml)	C14 available	Rank	Notes
6004	601	ditch fill (lowest)	18	30	Y	**	Small flot with modern roots, a small amount of fragmented charcoal (only 2 pieces greater than 4mm) and traces of coal. The charcoal includes blackthorn, hazel, oak stemwood and birch. Sparse charred plant macrofossils comprise a few small heather twigs, a tiny hazel nutshell (too small for dating), a fragmented spelt glume and a heath-grass caryopsis. **IA / RB**

Table 2: Material available for radiocarbon dating

Context	Sample	Single Entity recommen	Weight	Notes	Single Entity recommen	Weight	Notes
4017	403	charred Spelt wheat	11mg	fair condition	Willow or Poplar charcoal	100 mg	(3 growth rings) branchwood fair condition
4049	407	Alder charcoal	105 mg	(7 growth rings - with bark attached) branchwood 3 wide rings then	Alder charcoal	161 mg	(7 growth rings - pith to bark) branchwood 3 wide rings then 4 short rings
4032	409	charred Spelt wheat	11mg	Could use two additional spelt grains if there is insufficient carbon for AMS dating	Birch charcoal	28mg	(2 growth rings) moderate ring curvature – good condition
4035	417	Ash charcoal	90mg	(4 growth rings) strong growth ring curvature	Heather charcoal	25mg	twig (ø less than 4mm) **Also present 3rd choice**
4046	418	Ash charcoal	116 mg	(3 wide growth rings) moderate growth ring curvature	Birch charcoal	37mg	(3 growth rings) moderate ring curvature
4047	419	Heather charcoal	68mg	Some mineral inclusions	Hawthorn charcoal	99mg	(5 growth rings) strong ring curvature - branchwood
6004	601	Hazel charcoal	58mg	(6 short growth rings) strong growth ring curvature	Blackthorn charcoal	123 mg	(3 growth rings) moderate ring curvature

16 APPENDIX 8: CO-ORDINATES OF TRENCH CORNERS

Trench number	longitude	latitude		Trench number	longitude	latitude
T4	-1.996307	54.584813		T8	-1.993718	54.583982
T4	-1.996307	54.584679		T8	-1.993706	54.583976
T4	-1.996259	54.584679		T8	-1.993716	54.583971
T4	-1.996259	54.584657		T8	-1.993705	54.583964
T4	-1.996166	54.584655		T8	-1.993715	54.583958
T4	-1.996166	54.584796		T8	-1.993671	54.583933
T4	-1.996108	54.584796		T8	-1.993660	54.583940
T4	-1.996107	54.584832		T8	-1.993637	54.583927
T4	-1.996166	54.584831		T8	-1.993626	54.583934
T4	-1.996166	54.584813		T8	-1.993603	54.583921
				T8	-1.993552	54.583954
T6	-1.996944	54.585375		T8	-1.993631	54.583996
T6	-1.996967	54.585417		T8	-1.993642	54.583990
T6	-1.997054	54.585401		T8	-1.993675	54.584008
T6	-1.997043	54.585379				
T6	-1.997028	54.585382				
T6	-1.997016	54.585361				
T7	-1.997529	54.585657				
T7	-1.997555	54.585699				
T7	-1.997483	54.585715				
T7	-1.997457	54.585673				

17 APPENDIX 9: INDEX OF GH23 PLANS AND SECTION DRAWINGS

Plan #	Sheet #	Trench #	Scale	Contexts	Description
410	1	4	1:10	4011 (cut)	Three profiles through gully/slot
411	2	4	1:10	4018 (cut) 4017 (fill)	Profile of pit cut 4018
412	2	4	1:20	4015 (cut) 4014 (stones) 4013 (fill) 4021 (cut) 4020 (stones) 4016 (fill)	Plan of postholes 4015 and 4021 before excavation
413	3	4	1:20	4015 (cut) 4021 (cut)	Plan of postholes 4015 and 4021 after excavation
414	3	4	1:10	4015 (cut)	Profile across posthole 4015 (NW facing)
415	3	4	1:10	4015 (cut)	Profile across posthole 4015 (SE facing)
416	4	4	1:10	4021 (cut)	Profile across posthole 4021 (NE facing)
417	4	4	1:10	4021 (cut)	Profile across posthole 4021 (SE facing)
418	3	4	1:20	4024 (cut) 4025 (fill)	Plan of posthole 4024 (NE of Q3)
419	3	4	1:10	4024 (cut)	Profile across posthole 4024 (E facing)
420	5	4	1:20	4023 (cut) 4027 (cut) 4028 (packing stones)	Plan of pit 4023 containing Q4 and adjacent pit 4027 containing a large stone with packing stones 4028
421	5	4	1:20	4031 (slab)	Plan of slab 4031.which overlies pit 4033
422	5	4	1:20	4033 (cut) 4031 (slab) 4032 (fill) 4034 (packing stones)	Plan of pit 4033 after removal of overlying slab 4031
423	7	4	1:20	4045 (cut) 4036 (upright stones)	Plan of upright stones in N end of linear cut 4045
424	5	4	1:20	4038 (cut) 4037 (fill)	Plan of posthole 4038 in NW corner trench
425	5	4	1:10	4018 (cut)	N/S profile of clay-lined pit 4018
426	5	4	1:10	4018 (cut)	E/W profile of clay-lined pit 4018
427	7	4	1:20	4033 (cut)	Plan of pit 4033 fully excavated
428	8	4	1:10	4038 (cut) 4037 (upper fill) 4044 (lower fill)	Section of posthole 4038 (E facing)
429	6	4	1:10	4015 (cut) 4014 (stones) 4013 (fill)	Profile across posthole 4015 (NW facing)
430	6	4	1:10	4021 (cut) 4020 (stones) 4016 (fill)	Profile across posthole 4012 (SE facing)
431-9					not used

Plan #	Sheet #	Trench #	Scale	Contexts	Description
440	7	4	1:10	4045 (cut) 4036 (stones)	Profile across linear cut 4045 (S facing)
441	7	4	1:10	4045 (cut) 4036 (stones)	Profile across linear cut 4045 (N facing)
442	8	4	1:20	4038 (cut)	Posthole 4038 after excavation: plan, N-S profile, E-W profile
443	9	4	1:10	4023 (cut) 4027 (cut)	Profile through 4023 and 4027 (Q4 pit and adjacent pit)
444	9	4	1:20	4018 (cut)	Plan of pit 4018 fully excavated
445	10	4	1:50	4045 (cut)	Plan of linear cut 4045 after excavation
446	11	4	1:10	4045 (cut)	Section of linear cut 4045 (S facing)
447	11	4	1:10	4045 (cut)	Section of linear cut 4045 (N facing)
448	12	4	1:100	-	Plan of levels taken at 1m intervals across all T4 at end of excavation
601	13	6	1:10	6006 (cut) 6003 (fill)	Plan of T6 before 1m westward extension. On natural, showing ditch.
602a 602b	14 15	6	1:10	6006 (cut) 6000, 6001, 6002 6003 (fill) 6004 (fill)	Section along N side T6 (S facing) showing ditch cut 6006
603a 603b	16 17	6	1:10	6006 (cut) 6000, 6001, 6002 6003 (fill) 6004 (fill)	Section along S side T6 (N facing) showing ditch cut 6006
801	18	8	1:10		Profile NE-SW through F8004
802	18	8	1:100		Plan of levels taken at end of season
803	18	8	1:10		Profile SE-NW through F8008