

WELL HEAD DESERTED SETTLEMENT Holwick, Teesdale

Interim Report: 2018 (2nd season) Excavation



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

Cover image: Oblique photogrammetry image of Trench 3, looking north-west (by Stephen Eastmead)

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1 OVERVIEW

This is the interim report on the 2018 excavations by Altogether Archaeology (AA) at Well Head, Holwick. Previous documents (see below) have described preliminary surveys of the site and the September 2017 (first season) excavation. A third season is planned to take place in May 2019, after which a final full report will be produced, summarising the findings of all three seasons. Each season has been an excavation lasting 14 to 16 days carried out by members of AA, a community archaeology group in the North Pennines, with professional archaeological supervision by Paul Frodsham.

In 2017 (Sept) two trenches were excavated:

- **Trench 1** examined a dwarf-walled longhouse (F8), with entrances on both long sides and a cobbled lower (livestock) end to the building.
- **Trench 2** examined the platforms (F15, F16) between the centre of the settlement and the spring.

In 2018 (May) three trenches were excavated:

- **Trench 3** examined a longhouse (F9) with entrances on the long sides, a paved floor, animal pens at the lower (east) end and a drain through the east wall, a stone cross-wall with door threshold, padstones for a cruck (timber) frame, and later higher paved floors in the western cell and cross-passage. An incised stone, possibly apotropaic, was found beside the south entrance.
- **Trench 4** examined a curving bank located 150m west of the settlement core, on the opposite side of the beck. This was found to be the probable robbed-out remains of a Bronze Age funerary monument: a ring-cairn.
- **Trench 5** examined a two-celled scooped structure (F12), on the preliminary survey differing from the nearby “longhouse” type buildings (F8, F9). F12 was found to be two adjoining unequal-sized rectangular structures of crude single course stone walls. Neither had clear floor levels. They may be older scoop-floored structures re-used to hold livestock and/or for storage.

The following documents concerning Holwick can be downloaded from the AA website:

- **2011: Holwick Survey Report** (*Oxford Archaeology North and AA*): Survey of the floor of upper Teesdale, covering 2.35 km². (Schofield and Quartermaine 2011)
- **2017: Holwick Scar Settlement Survey Report** (AA): Survey of the group of rectangular structures (presumed to be shielings) on the hillside above Well Head. (Eastmead 2018)
- **2017: Well Head Settlement Survey Report** (AA): Survey of the field in which the Well Head settlement is situated, with a gazetteer of structures found. (Green 2017a)
- **2017: Well Head Settlement Excavation Project Design** (AA): Project design for the first (2017) season of excavation at Well Head. (Green 2017b)
- **2018: Project Design for 2018 (2nd season) Excavation and Interim Report on 2017 Excavation:** (AA): Project design for the second (2018) season of excavation at Well Head and interim report on the first (2017) season’s excavation. (Green 2018)

Previous archaeological work in the North Pennines is comprehensively described in Part 1 (Resource Assessment) of the North Pennines Research Framework (Frodsham 2019).

Well Head is one of a series of small deserted farmsteads and hamlets along the southern edge of the valley floor of upper Teesdale. They consist of the dwarf-wall foundations of rectangular longhouses, with associated enclosures and fields. These settlements are thought to have been in

use in the high medieval era (1066 AD to 1350 AD), but none have been previously excavated to confirm this.

In the 2011 Holwick Survey (Schofield and Quartermaine 2011), the valley floor was surveyed at Level 1 and, in addition, three of the deserted settlements (and some other sites) were surveyed at Level 3 (Ainsworth 2007). The survey results and the archaeology and history of the area are discussed in detail in the survey report. The report recommended (paragraph 6.5.7) that the Well Head settlement should also be investigated further; it was not one of the sites investigated at Level 3 in 2011.

The AA 2017 Well Head Settlement Survey showed that the settlement is a complex group of rectangular buildings, ten of which could be identified, with associated yards, platforms, tracks, and field boundaries. The rectangular buildings of the settlement survive as dwarf-wall foundations of stone and earth about 0.2m high. It is one of the largest of the series of upper Teesdale abandoned “medieval” settlements and is located in a classic position for long-term settlement; on a small hillock by a spring, at the boundary of the good “in-bye” land and the rough grazing of the higher ground.

A nearby group of buildings on the side of the valley above Well Head was also surveyed (Eastmead 2018). This is a scheduled site, monument 1019458, listed as a shieling (a farm occupied only in the summer, part of a transhumance pattern of agriculture). The actual use of this group of buildings is discussed below (Section 7.4).

The historical background and results of the site survey have been discussed in previous reports, so are not repeated in this document. A section on geology is included as this has not been previously discussed. A section is included which discusses some discoveries of the 2018 excavations.

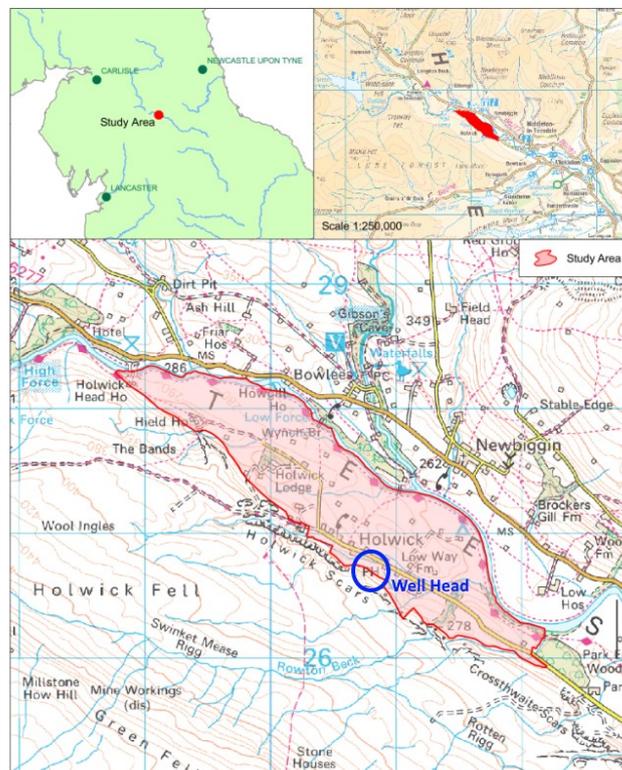


Figure 1: Location map of Well Head. The 2011 survey area is shaded in pink.
Map from Schofield and Quartermaine (2011): Oxford Archaeology North.
Map data © Crown copyright.

Well Head Deserted Settlement (Holwick): Feature References

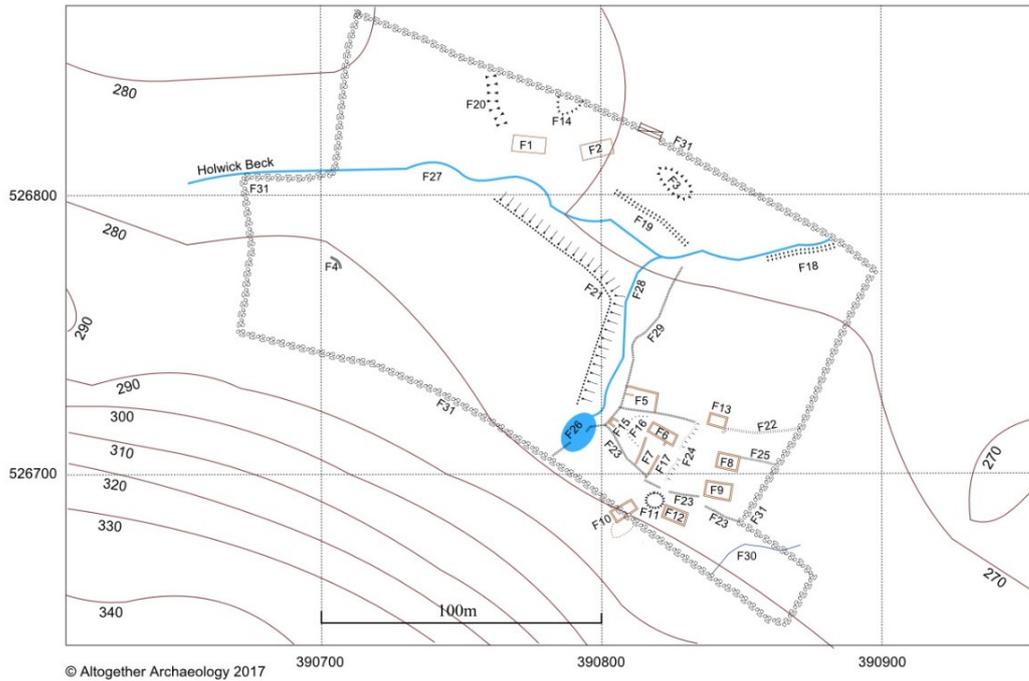


Figure 2: Hand-held GPS survey of Well Head, showing feature numbers (from Well Head Survey Report: Green 2017a).

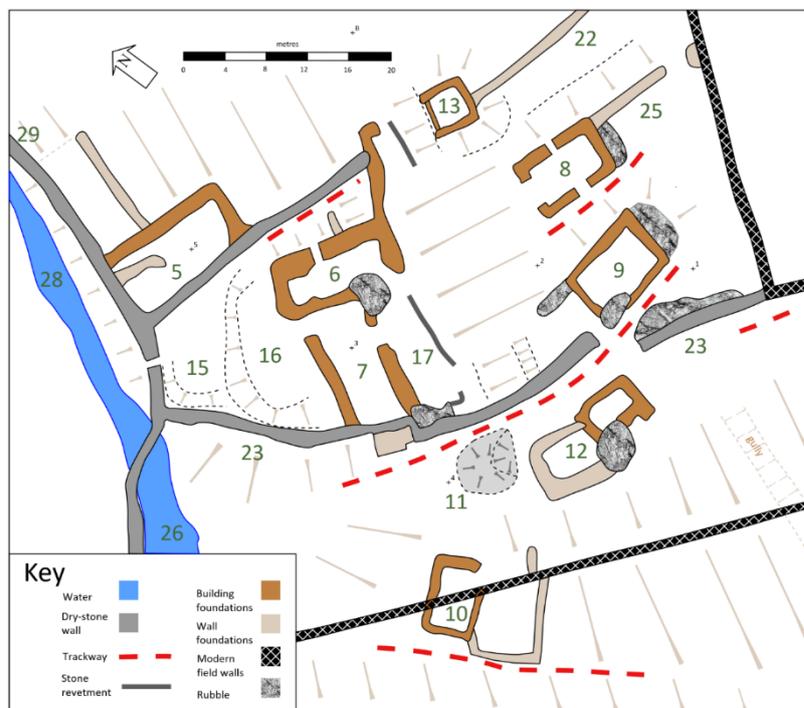


Figure 3: Theodolite-with-disto survey of core area of the Well Head settlement, showing feature numbers (from Well Head Survey Report: Green 2017a).

2 SUMMARY OF FIRST EXCAVATION SEASON: SEPTEMBER 2017

This section is a brief summary. For more detailed information see the interim report for the 2017 season (Green 2018).

2.1 Trench locations and recording

Trench 1, 10m x 14.3m, examined the rectangular structure F8 which was fully excavated, except that the stone wall-bases were not dismantled.

Trench 1a, 1m wide along the centre of both axes of rectangular structure F9, with widening of the trenches in two places. The arm of the trench across the width of F9 was extended to join up with Trench 1, enabling examination of the surface between F9 and F8.

Trench 2, 16m x 2m widened to 6m x 6m at its lower (west) end, examined the west side of the central hillock in the settlement, from the side-wall of F7, a rectangular structure on the top of the hillock, down across two platforms, F15 and F16.

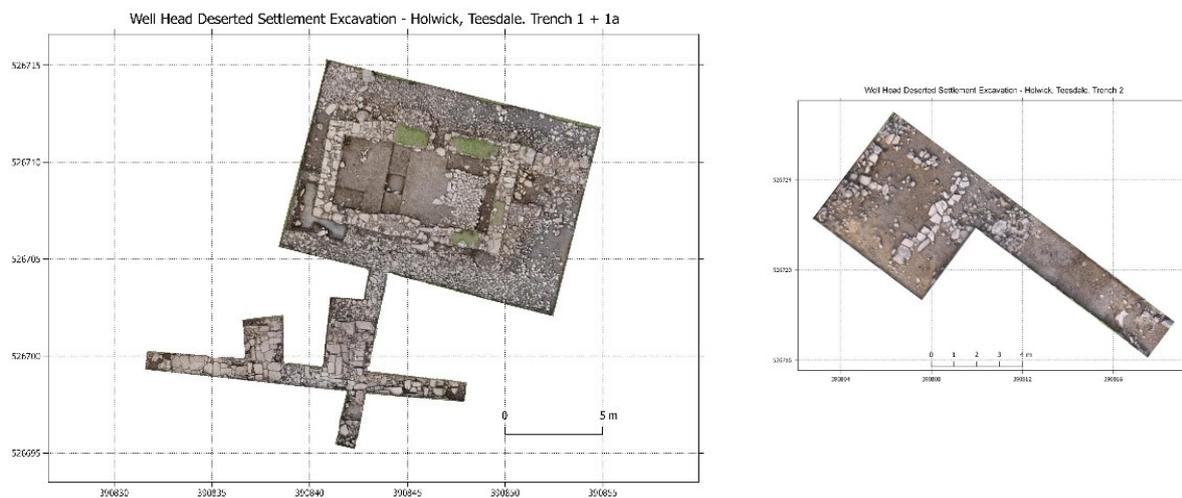


Figure 4: 2017 trench locations on OS grid: Trenches 1 and 1a (left), Trench 2 (right). (Stephen Eastmead).

2.2 Trench 1

The trench examined F8, a longhouse 10mx5m (at wall centres) with entrances in the middle of the long sides. The dwarf walls were roughly-dressed stone structures with a rubble core and no mortar bonding. No hearths were found. There was a surface of worn cobbles in the downhill half (probably the part used to house livestock), but no drain. In the other (western) end of the house there was a surface of redeposited clay and subsoil. There were fragmentary remains of a robbed flagstone floor overlying this.

Outside the structure were cobbled surfaces: there was a good surface of small worn cobbles outside the north door, along most of the length of the north wall. On the south side of the structure was a surface of larger, rougher cobbles continuous between F8 and the neighbouring structure F9. To the northwest of F8 was a cobbled area, edged with larger stones and overlying the cobbles outside the entrance.



Figure 5: Trench 1 vertical photogrammetry view. Building F8. The cobbled surface in the east (right-hand) end of the building has been partly excavated in this view. (Stephen Eastmead).

2.3 Trench 1a

This trench examined structure F9, a longhouse type building about 5m south of and at a slightly different orientation to longhouse F8. Crossed 1m wide trenches were excavated centrally along the short and long axes of the structure and crossing the gap to Trench 1, enabling the surface between the structures to be examined. The intention was to enable an assessment of whether the two structures F8 and F9 were similar.

This trench showed clearly that F9 was a more complex structure than F8, with flagged floor surfaces and one or more internal walls. Excavation of its whole area was carried out in 2018 (Trench 3) and is described later in this document.



Figure 6: Trench 1a vertical photogrammetry view. Structure F9. (Stephen Eastmead).

2.4 Trench 2

Trench 2 investigated the two platforms (F15 and F16) on the beck side of the hillock. Excavation showed no building foundations or post-holes. There was evidence of paving, perhaps paths. The platforms were clearly man-made with stony banks revetting the edges. The lower end of the paving extended under, so was earlier, than the stony bank by the beck.

A wall of the rectangular structure (F7) on the hillock was cut at the east end of the trench, possibly passed through an entrance. The wall was just a line of rubble not dressed stone. F7 is an oddity: it has a different orientation to the other buildings on the site and seems unlikely to be a longhouse.



Figure 7: Trench 2 vertical photogrammetry view. *(Stephen Eastmead).*

3 PROJECT AIMS FOR THE SECOND SEASON (2018)

The first season of excavation confirmed that the Well Head settlement was indeed a deserted medieval hamlet. The large number of sherds of pottery recovered (over 750) were of a wide range of dates from 11th to 17th centuries (plus a single sherd of Roman pottery). Clearly the settlement was in use for a long period, as suggested by its complexity of structure and the well-worn tracks connecting it to the upland shielings and pasture. The pottery collection was already one of the largest recovered in the area from the medieval period and is itself of great interest.

Comparisons are difficult as so little previous work on other upland medieval hamlets has been carried out. In one similar hamlet at Hound Tor (Dartmoor), excavations showed that not all of the rectangular structures were houses, three were barns with corn-drying kilns (Beresford 1979). The houses were dated to the 13th century but overlay earlier small scooped buildings of turf and wattle. The settlement was abandoned in the 14th century.

In the Duddon valley, Cumbria, upland longhouses were recently excavated by local volunteers, directed by Oxford Archaeology North (Bradley et al 2016). One building was 7m long, with a central hearth and opposed doors on the long sides. Charcoal dating suggested last occupation in the 16th century.

Larger rural settlements (deserted villages) in the North have been more extensively studied; see Section 7.2. In Northumberland, the desertion date of medieval settlements, according to work by Wrathmell, is often quite late, in the decades around 1700, rather than in the immediate aftermath of the 14th century Black Death.

One question is the date of first occupation of the Well Head settlement. Evidence of early medieval settlement is often scanty, with few artefacts surviving and traces of farmsteads vestigial compared to later medieval farmsteads. A second question is what the functions of the structures in the settlement were and whether they were all in use simultaneously. It cannot be assumed that all rectangular dwarf-wall structures were longhouses (as shown by the Hound Tor excavations).

One structure, F8, was investigated in the first season and shown to be a longhouse with evidence for use for human occupation at one end (where spindle whorls and much pot was found), with livestock being housed at the other. Although trenches were excavated across the neighbouring rectangular structure, F9, they were only extensive enough to show that this was a well-paved building, with evidence of complex form of the floor (with the likelihood of one floor level overlying another), at least one internal wall, and copious pottery finds. Its floor was not robbed out. One target for the 2018 excavation was to excavate F9 more extensively to clarify its structure and use, with the intention of recovering dating evidence from beneath floors and from hearths.

A second target for investigation was the area between F9 and the head-dyke wall where there is a structure that appears to have a scooped floor (F12). Nearby was a cairn/mound (F11) and a rectangular structure (F10) which underlies the wall and so must have been out of use before the wall was built. This area seemed likely to yield evidence of early medieval occupation (if the hamlet was occupied then). However, complete excavation of these structures was not possible due to the wall crossing F10. Hence a trench was planned to investigate F12.

A third target for investigation was the curved structure F4, lying on the opposite side of the spring to the hillock. This is a low curving bank 6m long with several earth-fast rocks on its line (see the Survey Report gazetteer for a photograph). This location seemed to be a possible site of pre-medieval occupation. The Well Head site is such a favoured one for occupation that evidence of early settlement seemed very possible.

4 METHODS

4.1 Excavation methods, finds and samples

These are outlined in the Project Design for 2018 (2nd season) Excavation (Green 2018) which also details site access, health and safety, insurance, and welfare. Plans for reporting the project are also outlined in that document. The project team was unchanged from 2017 to 2018: **Paul Frodsham** (Professional Archaeologist and Director), **Martin Green** (AA Fieldwork Co-ordinator), **Stephen Eastmead** and **Tony Metcalfe** (AA Fieldwork Task Group Members).

4.2 Community engagement

AA received grant support for the 2018 season from Northern Heartlands to increase community awareness of the archaeology of upper Teesdale. Northern Heartlands is a County Durham Community Foundation scheme and receives funding from the Heritage Lottery Fund. “Academic” aspects of the Holwick project (e.g. report printing, radiocarbon dating, environmental sample analysis) are funded by AA from members’ subscriptions and donations. The following community events were held:

- An evening of talks in April 2018 at Middleton-in-Teesdale to increase local knowledge in the archaeology of upper Teesdale, give the results of our work so far, and discuss plans for the May 2018 excavation
- Two open sessions with guided tours for the public to visit the May 2018 excavation
- Public talks in June 2018 (at the Strathmore Arms) and Nov 2018 (at Middleton-in-Teesdale) to communicate the results of the 2018 excavation.
- A talk at the Northern Heartlands July 2018 evening meeting to explain progress with the project to those interested in local community engagement
- Two finds-processing days in Mickleton Village Hall to enable local people to take part in the washing and processing of pottery finds and be able to see and handle other finds.
- Four public guided walks in May 2018 to see some of the archaeological sites of upper Teesdale.

A final project report and financial statement was delivered to Northern Heartlands in November 2018 at the end of the funding period.



Figure 8: Visitors viewing the trenches at one of the open sessions.



4.3 Trench locations 2018

Three trenches (3,4,5) were excavated in 2018, all were opened at the start of the 16-day excavation. Subsequently two small ancillary trenches (3a, 5a) were opened. Excavation was by hand, with turf, stones, and soil stacked in separate heaps. Back-filling was also by hand, with some additional help by the farmer (Andrew Robinson) using a tractor with bucket.

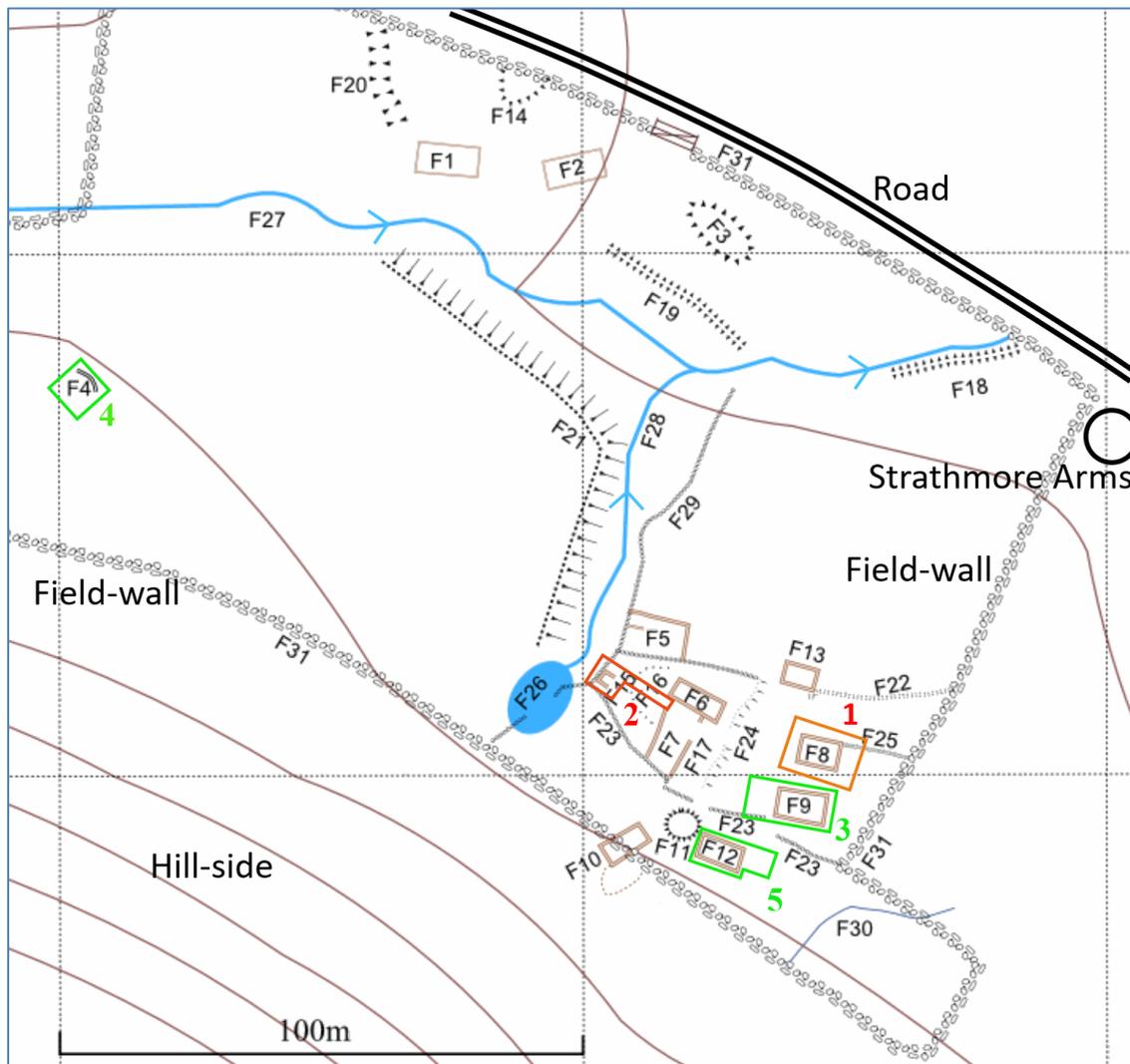


Figure 9: Trench positions: 2017 in red, 2018 in green.

For more precise locations and sizes, see photogrammetry plans of trenches in Appendix 2.

Trench positions are shown plotted on lidar and on Google Earth in Appendix 1.

Trench sizes were as follows, orientation is approximate (see photogrammetry images in Appendix 2 for more precise information):

- Trench 3 (19m EW x 8m NS, max depth 1m) examined a longhouse F9 which had already been probed by exploratory trenches as Trench 1a of the 2017 excavation. There were two unexcavated areas in the SW quadrant of the trenches (both 2m x 2m) in which tumbled post-medieval field-walls overlaid the house.

- Trench 3a (3m EW x 2m NS, max depth 0.3m) was placed north of Trench 1, with an unexcavated baulk of 2m between the trenches. It examined the paved path leading to the north entrance of F9.
- Trench 4 (8m EW x 7m NS, with a southern extension 1m EW x 5m NS, max depth 0.3m) examined a curving bank F4 located 150m west of the settlement core, on the opposite side of the beck and spring. The bank was found to be a man-made stone wall, possibly the remains of a circular structure.
- Trench 5 (13.2m EW x 7m NS, with 6m x 2m unexcavated in the SE corner, max depth 0.55m) examined a two-celled scooped structure F12, which on the preliminary survey differed from the nearby “longhouse” type buildings (F8, F9).
- Trench 5a (7.4m EW x 1.45m NS, max depth 0.2m) examined a linear stony feature lying to the south of Trench 5. There was an unexcavated baulk approx. 1m wide between Trenches 5 and 5a.

5 DESCRIPTIONS OF 2018 TRENCHES

5.1 General information

Context numbers in the following descriptions are given in *italics*. The contexts are described further in context tables in Appendices 4, 5, and 6. The designation of the longhouses etc (F8, F9, etc) uses the feature numbering of the initial 2017 survey (see above for plan).

Large versions of the photogrammetry plans of the trenches are given in Appendix 2 and other plans and section drawings in Appendix 3. Some aspects of the building F9 are discussed further in Sections 7.1 and 7.2.

5.2 Trenches 3 and 3a: longhouse F9

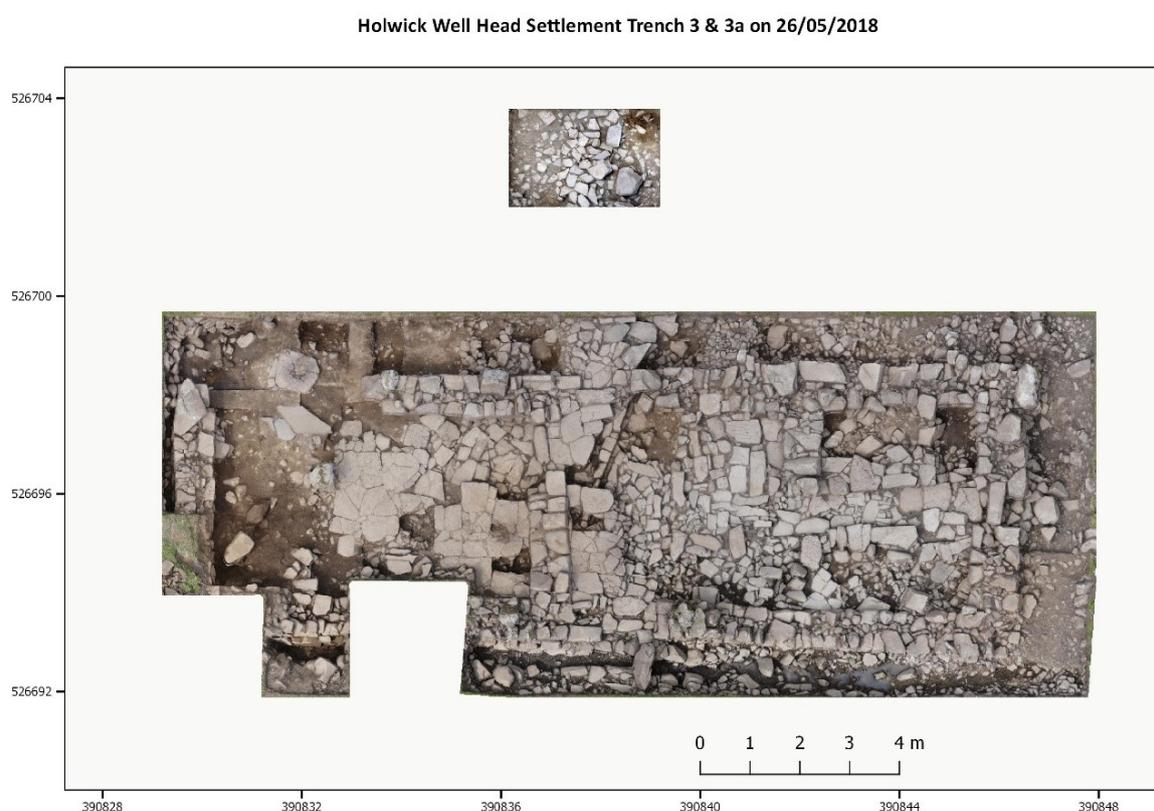


Figure 10: Photogrammetry image of Trench 3 at end of excavation. Image by Stephen Eastmead. See Appendix 2 for an enlarged version of this image.

5.2.1 External structure of F9

Trench 3 examined a longhouse, F9; all the area of the house was excavated, with approximately 1m of the surrounding area. Two small areas 2m x 2m of the SW corner of the trench were not fully excavated as they lay under a tumbled field wall.

In the previous year's excavation (2017), trenches 1m wide had been placed approximately along the long and short axes of F9 (Trench 1a). These were dug to assess whether F9 was similar to the

longhouse F8 excavated fully in 2017. The limited information from these narrow trenches, was sufficient to establish that F9 was much more complex, having extensive flagged floors and other internal structures. Hence the decision was made to excavate F9 fully in 2018.

The longhouse F9 is a rectangle structure with stone dwarf walls about 0.9m thick. The external dimensions are 17m east-west and 6m north-south at the east end, narrowing to 5m north-south at the west end. There were entrances opposite each other, about half-way along the long sides of the building. The walls were of unbonded masonry, with interior and exterior faces and a fill of smaller stones. The maximum height is four courses, but they are mostly lower than this. The stone was irregular, not well-dressed, probably because much of it is hard whinstone from the nearby crag.

Through the east wall 331 there was a drain opening, under a large lintel-stone, to take livestock waste. Numbers in *italics* are contexts, described in Appendix 4. The sections of wall each side of the drain are imperfectly aligned, suggesting that the drain was not a late insertion, but was part of the original wall construction. The lintel was chipped along the internal lower edge, probably during efforts to clear the drain with metal tools (see Figure 11).

The north entrance 341 had a well-worn threshold stone with a fractured hinge hole at one end and a slot at the other into which a loose rectangular stone fits: probably a primitive locking mechanism.



Figure 11 (left): Drain lintel stone, from interior, showing chipping of lower edge.
Figure 12 (right): Threshold stone of north entrance, showing locking stone in slot.

Leading up to the north door was a flagstone path 343. Trench 3a was excavated north of Trench 3 to examine this path further from F9 (see Figure 13). The path was about 0.8m wide: it had a well-defined east (downhill) edge of kerb-stones, but the paving was irregular. The stones were worn near F9, less so further away from the building. Its course was straight, due north from F9. Beyond the excavated first 5m, it can be seen as a subtle earthwork climbing diagonally up the east side of the hillock in the centre of the settlement, passing to the west of longhouse F8.

The south entrance 345 was 1.1m wide but may have been reduced in width at some time as its west side is unclear. The flagstone floor of F9 extends into this entrance, but there was no door threshold stone. Outside the building was a drain 323 running parallel to the south wall. (See Figure 14). It was stone-edged and rubble bottomed but not covered by slabs. About 3m east of the south entrance, it became a simple gully in a rough rubble surface. Its north wall abutted the south wall of F9. At the south entrance to F9 there must have been flagstones over the drain to allow exit from the house across it, but these are now missing (unsurprisingly as they would have been easily robbed).

Lying over the drain, about 1m east of the south entrance was a large stone incised with a pattern of faint lines and gouges. This may be an “apotropaic” stone, and is illustrated and discussed further in Section 6.5.



Figure 13 (left): Flagstone path leading to north entrance. Threshold stone is at top right of image.
Figure 14 (right): Drain along exterior of south wall. South entrance is by ranging pole.



Figure 15 (left): Looking north along east wall of F9, the ranging pole is in front of drain lintel.
Figure 16 (right): Looking north through north entrance to flagstone path. Threshold stone in foreground.

5.2.2 Internal structure of F9

F9 was divided into an upper (western) and lower (eastern) cells by a stone built cross-wall 332. This has two good faces, but no packing stones between, so was narrower (0.75m) than the external walls. It lay immediately to the west of the entrance doors, so the cross passage was part of the eastern cell. At the cross-wall's north end was a worn threshold stone for the doorway between the cells. This had a pivot hole at its north end.

The lower cell had an irregular flagstone floor 344, showing evidence of wear and patching, with some areas cobbled. It had a pronounced downhill slope to the east. The floor was continuous, under the cross-wall, with the lower floor of the eastern cell. In the north-east and south-east corners of F9 were rectangular animal pens 312 and 315, formed by a single course of stones laid on top of the floor, possibly originally the edge of a raised platform. Both pens were small: 3.2m x 1.8m and 3.5m x 1.6m. This is too small for modern cattle, but could house old breeds like Dexters, as well as other types of livestock. The pens might also have been used at times as storage platforms. The floors 313 and 316 of the animal pens are of earth and stones with little paving, merging into the underlying subsoil with no clear demarcation. The eastern end of the northern animal pen was partitioned to form a small 0.8m wide enclosure 313, possibly for small livestock or dogs. Between the animal pens was a 0.8m wide paved passageway which would also have served as a drain: its floor was continuous with the floor of the rest of the eastern cell and it passed through the west wall (see previous section).



Figure 17 (top): Looking east down long axis of building, showing animal pens. The ranging pole is in front of the lintel over the drain through the wall.

Figure 18 (left lower): The north animal pen, looking north-west.

Figure 19 (right lower): The south animal pen (foreground) and north (beyond ranging poles).

The cross-passage has had a higher-level flagstone floor 342, inserted over the floor 344 of the eastern cell. In between the two floor levels was a soil-like deposit 352, through which a stone-lined drain 350 was constructed, emptying through the north wall of F9, just to the east (downhill) of the north entrance. A higher flagged floor 311, had also been inserted in the western cell. This floor is at the same height as the upper cross-passage floor, with an intervening deposit 340 needed to level-up the higher floor as the lower flagged floor of the western cell 347 is sloping. Thus, the intervening deposit varies in depth from 0.3m against the cross-wall to nothing at its western margin. These upper slabbed floors of the cross-passage and western cell are of higher quality and more horizontal than the lower floors.



Figure 20: Photogrammetry images of the same area of the central part of the building F9. That on the right was taken after removal of part of the upper floors of the cross-passage and western cell to show the underlying cross-passage drain and lower floor level.

The eastern side of the upper cross passage floor is ragged and some has probably been lost, possibly due to damage from livestock turning and stepping down from the cross passage into the lower cell. There is no wall defining the east side of the cross-passage, but a linear arrangement of stones on the floor of the eastern cell may mark the line taken by a wooden partition (see right side of photogrammetry images above, Figure 20).

A hearth 333 was located in the western cell, close to the back of the cross-wall. It was slightly offset southwards from the centre-line of the building, probably to keep it away from the door through the cross-wall. (see left centre of photogrammetry images above, Figure 20). It consisted simply of an area of the flagstone floor which had been heat-damaged, forming a depression, and blackened (see Figure 21). Burnt material remained in the scoop and was 100% sampled. This was the only hearth in the western cell, and the eastern cell had no hearth.



Figure 21 (left): The hearth 333 of F9. The cross-wall is at the bottom of the image. Looking west.
Figure 22 (right): The threshold stone through the cross-wall (above right ranging pole). The upper floor surface has been removed, so the poles are on the lower floor. Looking north-east.



Figure 23: Close-up of interior face of north wall (above left ranging pole in previous figure). The wall is built over the lower floor surface.

A key finding was that F9 had padstones to carry a timber cruck frame. This is discussed in detail in Section 7.1. Buildings can have their roofs simply carried on top of their walls (like a modern brick house) or have walls constructed of posts set in post-holes, then linked together. Crucks were an alternative construction method developed in the medieval period: a matching pair of large curved timbers was attached at their apex to form an arch, then raised vertically to stand on padstones, directly on the ground or in shallow holes. Once raised, the crucks were then linked by cross-timbers. Typically, the crucks were made of a tree sawn in half, but could be built up of multiple timbers jointed together. F9 has four cruck pairs, about 4m apart (see diagrams and discussion of cruck-framed buildings in Section 7.1). Photographs of all the padstones are shown in Appendix 11.

5.2.3 West end of F9

The final western two metres of F9 was different to the rest of the western cell. It is an unpaved area beyond the westernmost cruck, suggesting that a partition was erected across the cruck and this area beyond the partition had a distinct use. Such an unpaved area may have had an industrial or storage use, or may have been a chamber for sleeping (see discussion in Section 7.2). It was unlikely to have been a living area by the time the upper flagstone floor was inserted as the paving was not extended to cover it.



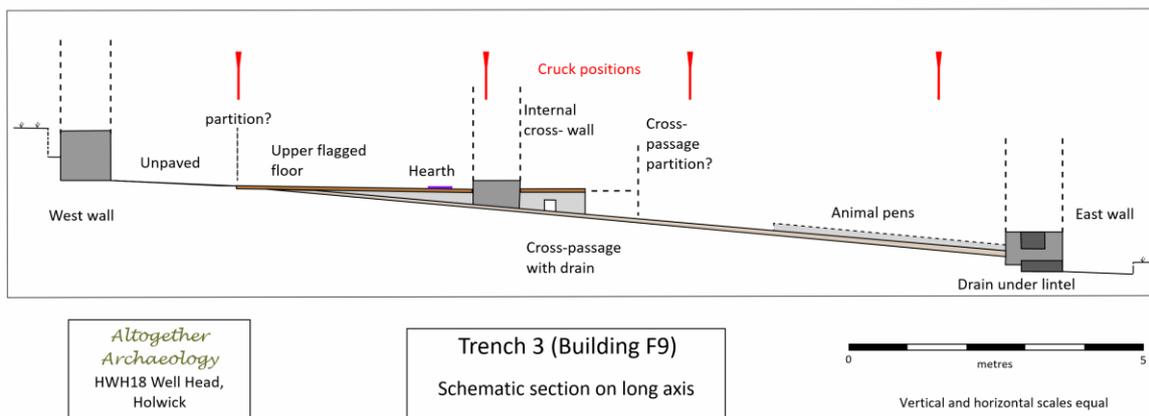


Figure 24: Schematic section east-west through F9, showing the relationships of floor-levels and cruck positions.

The upper floor can never have been present in the rest of the western cell, as it would have been well below the base of the western wall of the building. Only enough material was placed over the lower floor to allow the new floor to be inserted level for the first 4m (see diagram above). The unpaved floor of the last two metres continued on its upward slope to reach the base of the western wall. This unpaved floor level was an indistinct layer of compacted material, not clearly distinguished from the subsoil. The only extant paving was a single diamond-shaped slab at its northern edge.



Fig 25: Western wall of F9. The western padstone is to the right of the scale. There is no paved floor in this area, and the base of the wall lies at a higher level than the upper paved surface of the western cell.

A further abnormality is that the north external wall of F9 is absent for its western 3m; i.e. for the 2m of the unpaved area beyond the westernmost cruck plus an additional 1m eastwards from the

cruck. No northern padstone was found for that cruck. The westernmost stone of the second course of the north wall is unsupported at its west end and so is slumping, suggesting that at least part of the wall has been robbed out (see Figure 27).

Under the line of the absent north wall, a hearth 320 was found, projecting outside the line of the external edge of the building (see Figure 26). It is set in a compacted clayey surface 319 which includes some burnt material. This surface underlies both the west and north walls of the buildings which are set on it. However, the surface is cut-off at the line of the interior edge of the line of the north wall. The diamond-shaped flagstone in the unpaved area abuts this surface.



Figure 26: Hearth 320 under the line of the north wall. It is set in surface 319, which is cut off on the line of the internal face of the north wall, abutting the diamond-shaped slab inside F9.



Figure 27: The west end of the north wall, showing stone in second course slumping due to robbing out of stone below it. The sondage dug outside the building shows the surface 319 underlying the wall, with a dark layer 337, possibly a turf-line, under 319.

The hearth 320 was formed of a large flagstone, with several smaller flat stones set around it. It was radially cracked and blackened by heat, and part of its centre eroded by heat damage. In the resulting depression was burnt material, which was sampled and is being carbon-dated. No structure of any type was found around it.

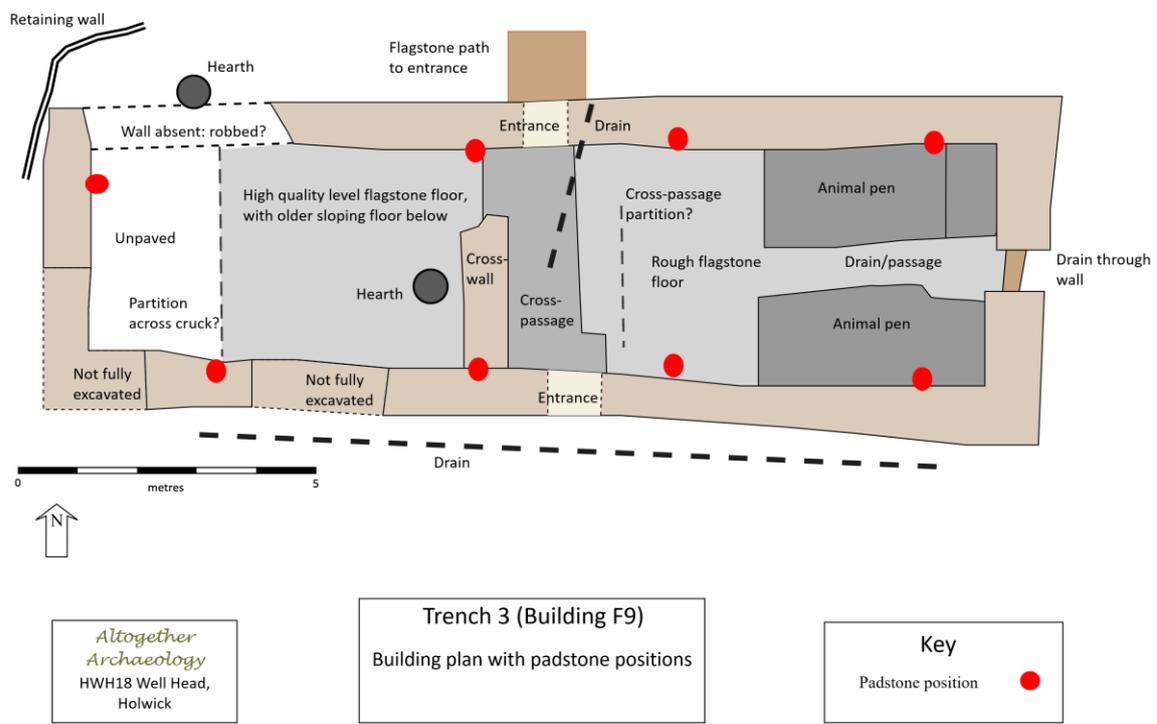


Figure 28: Plan of building F9, showing absent section of north wall and underlying hearth.

Underneath surface 319 and to the north of the hearth was a cut 335, extending beyond the trench margin. Its shape was consistent with a small ditch running east-west and its fill 336 was a silty humic deposit lacking finds.



Figure 29: Cut 335 north of F9 and beneath surface 319. Views looking south (left) and east (right).

Immediately to the north-west of F9 was a crude curving revetment wall 339, holding back the hillslope from the corner of the building. It consisted of four irregular courses of unbonded masonry and passed behind the west wall of F9, and was not keyed into it. Only 2m of it was seen in the trench: both ends pass outside the trench edges.



Figure 30: Crude revetment wall outside north-west corner of F9, passing outside the west wall. Views looking north-west (left) and south (right) along outside of west wall.

Interpretation of the findings in the north-east corner of F9 is uncertain; carbon-dating may help in this. The surface 319 underlies both adjacent house walls so must be early. Hence the hearth it contains 320 must also be early. It may have been related to a previous structure on the site (possibly a round-house with the curving revetment wall part of the same phase). Alternatively, it may have been part of an early version of building F9, before the surviving stone walls were built. It probably predates the cruck frame as the northern padstone of the westernmost cruck would have been very close to the hearth position.

5.2.4 Construction sequence of F9

Any interpretation is, of course, speculative. A house in use for at least 500 years (though not necessarily continuously), as with F9, must have undergone many repairs and alterations, not all of which would necessarily be seen archaeologically. Over that timescale, the activities carried out in the building would have changed repeatedly, as would the human and livestock population needing to be housed. Many of the timbers of the frame and roof would have rotted and been replaced, and parts of the stone walls, being unbonded, would have slumped or fallen and needed repair. The roofing material would have been replaced many times. No roofing stone slabs or slates were found, so the roofing material must have been organic, probably heather. Slates were only available in the area after the advent of railways.

It seems unlikely (but not impossible) that the cruck-frame and walls of F9 were erected at the same time since the walls are far less rectangular than the frame (as defined by the padstones). Some of the padstones stand clear of the walls, some are keyed into the stone walls and form part of the inner face, which seems an unlikely planned feature of a single construction phase. Hence the possibilities are that either:

- The frame was erected first (maybe with an earlier version of the walls), and then later the walls were replaced by the current stone walls which were “wonky” and partly encased some of the padstones and crucks.
- The stone walls were erected first, with the house wider at the west end. Later the house was updated by a cruck-frame which, for convenience of construction, was made rectangular. The stone walls were adapted to incorporate some of the padstones. In this scenario, the raising of the crucks would have been difficult as the walls would have obstructed the process.

The first possibility seems the most likely (Mark Gardiner and Nathaniel Alcock, pers. comms and see discussion in next section). One confirmatory piece of evidence is that the lower floor underlies the inner face of the stone walls by a small margin in several places, suggesting it was already in place when the walls were built (or rebuilt). As the floor in medieval buildings is usually inserted after the construction of the walls (Mark Gardiner, pers. comm.), the surviving stone walls are probably not an original feature of the building.

Thus, a possible construction sequence would be the phases:

- Hearth 320 and surface 319 part of previous structure on site.
- Crucks erected, possibly originally standing on the ground or in shallow post-holes.
- Walls constructed of stone or other material, between the crucks.
- Lower floor inserted. Animal pens constructed on floor.
- Exterior walls rebuilt in stone, now partly encasing some of the crucks. Cross wall inserted.
- Partition inserted at westernmost cruck, to form separate room in west end.
- Higher floor inserted in western cell and cross-passage.

At some stage the padstones, if not an original part of the structure, were inserted, replacing the rotten lower parts of the cruck timbers. The cross-wall cannot have been an outside wall of an early version of F9 which was then later extended because the cross-wall is narrower than any of the external walls and was inserted over the lower floor level.

The relationship between the walls gives some additional information. The cross-wall is keyed into the south wall but its relationship to the north wall cannot be seen due to the doorway. At the south-east corner of the building, the east (end) wall abuts the south (side) wall. At the north-east corner the relationship is unclear. Hence the simple scenario that the outer walls were built as a

single phase and the cross-wall inserted at a later date, cannot be correct. The walls of F9 differ from those previously investigated in F8, not just in that F9 has padstones; F8 has end walls that are stronger and better constructed than the side walls, whereas in F9 this is not the case. In addition, F8 is shorter than F9 and one of the side walls of F8 is in part a re-use of a field wall. Clearly F8 and F9 are very different structures.

Dating of the phases is difficult, but important evidence comes from the finds in the deposits above and below the lower floor. Above the floor, in context 340 which was inserted to make the new floor level, finds are of a large range of dates: from circa 1200 green-glaze pot to pipe-stems. These are mixed together, not stratified, so it is a redeposit, maybe of midden material. In contrast, under the lower floor in both the western and eastern cells, the only finds are of green-glaze/Tees Valley potsherds, circa 1200 (but may date to earlier in the 12th century). This strongly suggests that the lower floor was inserted in 1200 (give or take 50 years), but the upper floor is a much later post-medieval addition.

The missing western 3m of the north wall may have several explanations:

- At no stage in the building's history was a wall present there, as it was the site of a kiln (now robbed). This is unlikely as the westernmost cruck would have been sited inconveniently close to it.
- The wall was there in the early phase of the building's evolution, but when the current walls were built, that location was used for a kiln and the cruck re-replaced by a beam. Later the kiln was removed (maybe for re-siting) leaving only the hearth.
- The hearth was part of an earlier building and was by chance under the wall-line. The north wall was complete in all phases, but for some reason that section was robbed away after the building went out of use.

Further information to clarify these uncertainties may come from radiocarbon dating and from re-examining the archaeology e.g. by partial removal of walls and padstones to see if there is evidence of early phases (e.g. post-holes) underneath.

Further discussion of cruck construction and medieval rural dwellings can be found in Sections 7.1 and 7.2.



5.3 Trench 4: curving bank F4

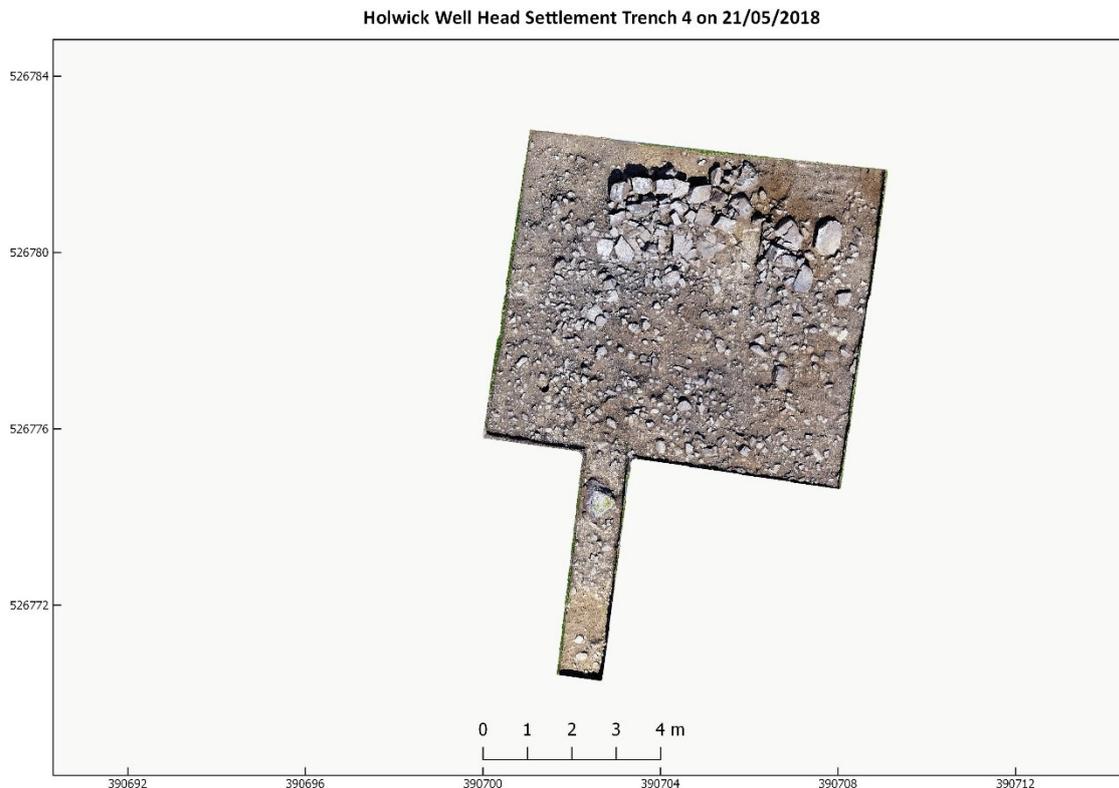


Figure 31: Photogrammetry image of Trench 4 at end of excavation. *Image by Stephen Eastmead.*

Trench 4 examined a short curving length of bank about 150m west of the centre of the Well Head settlement. This bank, F4, lies in otherwise featureless pasture. It is set on a comparatively flat area of the field, at the base of the crag. To the north of F4 the land drops steeply to the beck 10m below.

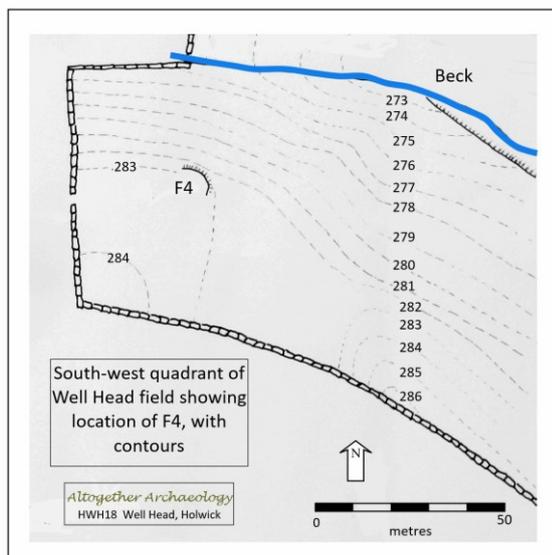


Figure 32 (left): Plan of SW quadrant of Well Head field: contours (metres) and location of bank F4. *From 2017 Well Head survey (Green 2017a). Plan prepared by Stuart White.*

Figure 33 (right): Photograph showing bank before excavation, looking east.

Excavation showed that the bank was man-made, a short (about 6m) segment of a circle. It contained inner and outer lines of large stones averaging about 0.4m, some larger. In between were smaller stones, but no bonding. Total width was about 1m. The stones were placed directly on a fairly flat surface of stony clay subsoil, dropping away immediately to the north of the bank. If extrapolated to a circle, the bank would have an external diameter of about 9m.

A 1m wide southwards extension to the main trench was excavated to investigate the opposite side of this predicted circle. No remnants of bank were found, but the subsoil surface showed a 0.1m fall in level at the edge of the 9m circle (Trench 4 Section 1 in Appendix 3), and fewer small stones, suggesting that the subsoil surface had been sculpted into a platform.



Figure 34: Looking east along line of bank. Some of the interior flat stones have been removed.

Adjacent to the inner (concave) face of the bank was a very irregular surface of flat stones 403, 1.3m wide, but with an ill-defined edge. The stones were very variable in size and undressed. e.g. 0.64m x 0.40m, 0.55m x 0.50m. Beneath the stones was a deposit of orange clay/sand containing small stones, similar to the subsoil but less compacted. Its depth was variable, up to 0.4m maximum. It appeared to be redeposited material to form a bed for the flat stones. A sample was taken, including some fragments of charcoal.



Figure 35: Looking west, showing west end of bank, with area of flat stones internally (to left).

There was another area of flat stones at the centre of the 9m diameter circle. It was about 4m x 2m, lying directly on the subsoil 405. The stones were very variable in size, up to 0.6m.



Figure 36: Trench 4, before removal of areas of flat stones interior to bank and in centre of hypothetical 9m circle (drawn on). *Photogrammetry image by Stephen Eastmead.*

After lifting of the flat stones, the area inside the circle was cleaned and examined for any evidence of pits, post-holes or burials. No burials or cremation remains were found. As mentioned above there were charcoal fragments in the irregular deposit under the flat stones by the bank. A single 0.3m x 0.25m circular cut was found, 3m west of the centre of the circle, so not under the area of flat stones. It was 0.21m deep with an irregular rounded floor, and the fill was sandy/loamy with small stones and no evidence of organic material. It may have been a post-hole or animal burrow.



Figure 37: Small post-hole or burrow, located west of the central area of flat stones (seen at right)

Plough marks were found on earth-fast stones inside the circle: parallel scores across the stones. The ploughing appears to have been in a single direction, consistent with medieval practice.



Figure 38: Two example of earth-fast stones inside the circle showing damage from ploughing.

The finds in Trench 4 were few, and none were pre-medieval. There were a few sherds of medieval pottery, not unexpected in view of the proximity to the Well Head settlement. There were no flints.

In summary the curved bank was found to be man-made: one metre wide with internal and external kerb stones. If extrapolated it would have formed an approximately 9m diameter circle. The platform of subsoil it stood on fell steeply away immediately to the north being on the edge of a beck valley, and outside the southern rim of the circle it changed in level, becoming 10cm lower and less stony. In the middle of the circle there was an area of flat stones laid horizontally, and a similar band of flat stones along the inside of the arc of bank, abutting it. No post-holes, hearths, cremation remains or burials were found, but there was charcoal in the loose material under the flat stones inside the arc.

The bank is in an otherwise featureless, fairly level area of the field. Lidar shows no other earthworks nearby. Evidence of medieval ploughing of the area is given by one-directional plough-marks on earth-fast stones. In addition to plough damage, stone from any monument in the area would have been in demand for constructing the nearby post-medieval field-walls, only 30m away. The survival of a small portion of bank can probably be attributed to its position on the brim of the steep slope down to the beck, where ploughing would have been difficult. The rest of the monument has been largely ploughed and robbed away.

The lack of hearths, finds and post-holes make it unlikely to be a domestic building, such as a round-house. The location, in a prominent position visible from a large area of valley floor, is more in keeping with a funerary monument. Its form, a circular bank with flat stones inside the bank and at the centre, is more typical of a Bronze Age ring-cairn, despite lack of evidence of burials (pers. comms: Stewart Ainsworth, Al Oswald, Andrew Newton and Paul Frodsham). These enigmatic structures are discussed further in Section 7.3.

5.4 Trenches 5 and 5a: rectangular structure F12

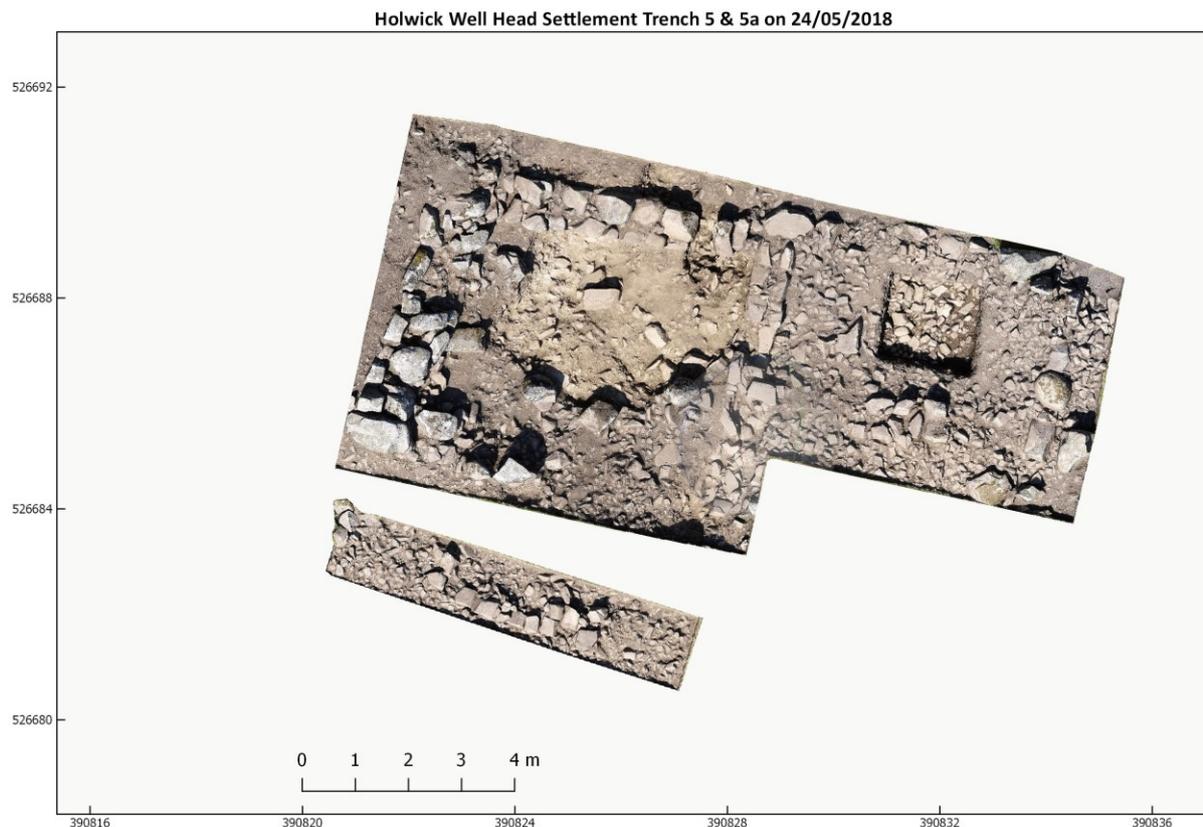


Figure 39: Photogrammetry image of Trenches 5 and 5a at end of excavation. *Image by Stephen Eastmead.*

See Section 4.3 and Appendices 1 and 2 for size and position of these trenches.

The Holwick Well Head survey identified feature F12, a two-celled rectangular building. F12 was a scooped structure, which is rare for a rectangular building. All the references to local scooped house platforms listed on the Heritage Gateway are of roundhouses. F12 (Trench 5) is the third building excavated at Holwick, the others being F8 (Trench 1) and F9 (Trench 3). All three differ significantly from each other. F12 has very crude foundation walls which look as though they may have been from an earlier date, compared with the foundations of F8 and F9.

The two cells of F12 differ in size: the eastern is smaller. The only apparent entrance/doorway is that between the two cells, 523. All walls are very crude, mostly a single course of undressed stone with no bonding. There are two faces present in most sections, sometimes with small packing stones between them. The south wall is very damaged, with a tumble of boulders into the scooped interior. It is evident that the large irregular stones from the wall bases have been extensively robbed and reused as a foundation layer in the field-wall.

The sequence of construction of the two cells of F12 is difficult to establish due to the crude nature of the walls, and the partial robbing. They were not constructed as a single phase as their north walls are very different and are poorly aligned. It seems most likely that the eastern cell is later than the western, since the western cell's north wall forms a comparatively neat corner with its east wall

(now the dividing wall). The north wall of the eastern cell is very crude and appear to abut the western cell (with a small offset).

Ignoring the relatively modern finds, there was a small range of medieval sherds including some green glaze pot and one sherd with a delicate leaf pattern. None were obviously pre-conquest. The relative paucity of finds, the absence of a hearth, and the lack of any extensive floor surfaces suggest that F12 were not residential during the medieval period. The charcoal, possible bloomery slag and the area of intense burning in the NE corner of the scooped western cell, make it possible that F12 was at one time some form of work and storage area. In some areas the finer dry soil fragments were attracted to magnets; however, this site is situated on top of the Whin Sill (Dolerite) which does have a relatively high iron content but perhaps not sufficient to behave in this way.

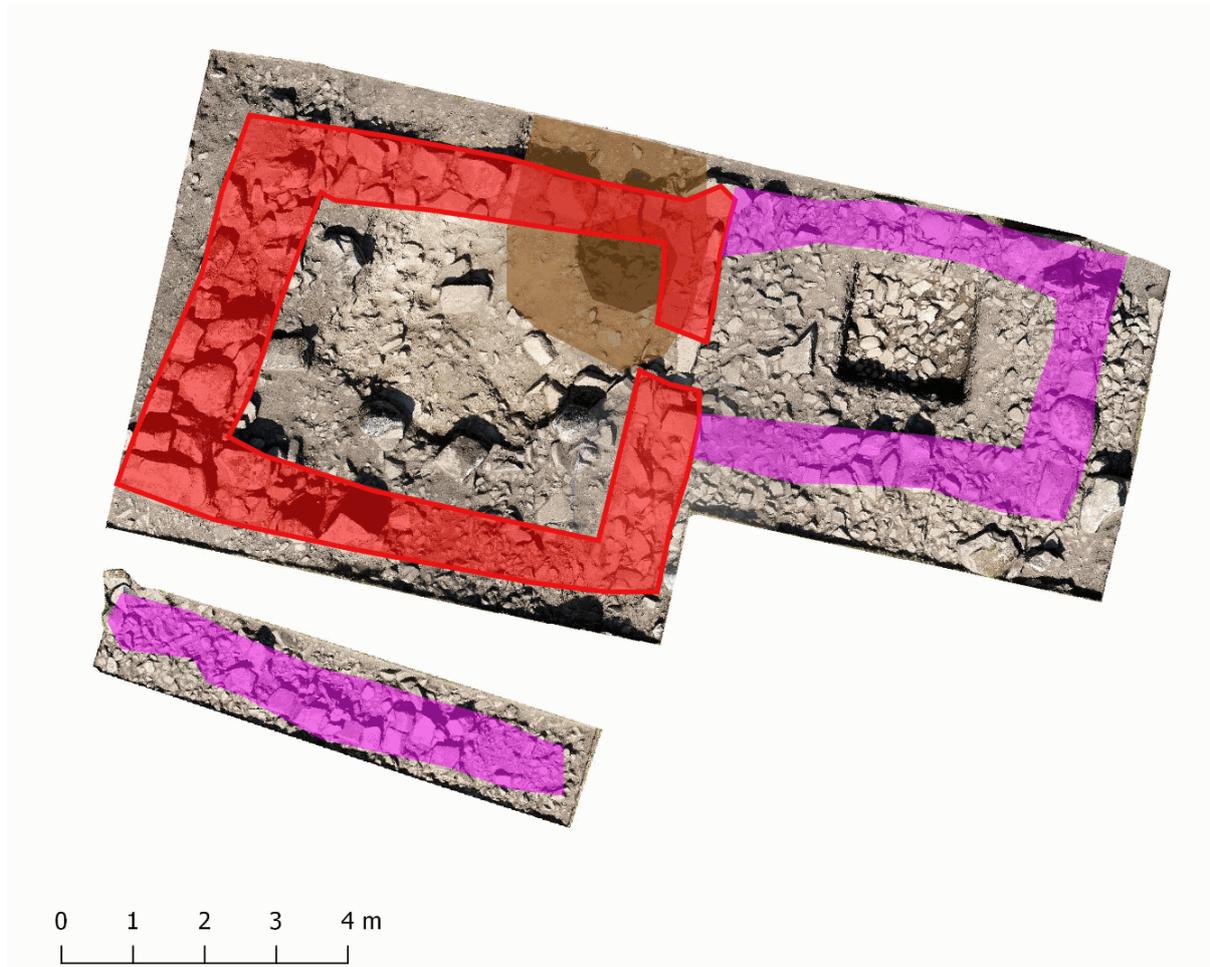


Figure 40: Annotated photogrammetry plan of F12. Walls are shown in red and purple. In the north-east corner of the western cell is a heat damaged area 521 (dark brown). It is embedded in surface 512 (light brown) which extends beyond the north wall as 519.

Photogrammetry by Stephen Eastmead.

Lumps of charcoal were present, particularly in 517, the deposit in the centre of the eastern cell. Their origin is unclear. In this area, there was more peat-like material than in other parts of the site, suggesting that one use of the eastern cell may have been as a peat-store. Similarly, 521, the irregular clay area with intense heat alteration in the north-east corner of the western cell would be consistent with industrial use, but there was no apparent hearth or kiln structure to give further

information as to the activity that caused the heat-damage. Soil samples taken may provide some additional information.

A small area 512 (by 521) was a compact sandy clay layer that appeared to be a floor surface. This layer was found to extend under the north wall 506, suggesting that the surface predated the rectangular building. If so, then it may have been an earlier roundhouse floor, which would account for it being scooped. The soil samples from 512 may shed some additional information on this too. Unfortunately, no other floor surfaces or any post-holes were present.

Clearly F12 has undergone radical alteration at some stage. The scooped nature of the western, larger cell, would be consistent with it having been the site of an Iron Age round-house or possibly an early medieval structure. However, the nature of early medieval houses in this area is uncertain, in particular the date and length of change-over period from circular domestic structures to rectangular ones. The heat altered area 521 and adjacent surface 512 may belong to this early phase: the surface 512 definitely underlies the northern wall and must predate it. The use of F12 at a late date for storage and livestock is likely, which might account for loss of floor surfaces.

The nearby structure examined in Trench 5a was a typical medieval wall. It had clearly been significantly disturbed when it was robbed for stone, probably for the construction of the adjacent field-wall. There was no evidence that it was associated with F12.



Figure 41: De-turfing Trench 5, looking east.



Figure 42: Sondage in eastern cell of F12, through stony context 517.



Figure 43: Heat-altered area in north-east corner of western cell of F12, looking north.



Figure 44: North wall 506, on boulder clay which dips to the east, looking north.



Figure 45: Well Head looking south-east. Trenches 3a (right foreground), 3 (centre) and 5 (right rear). Modern field-wall across centre of image with gully beyond draining water from moorland (resulting in flowing water across site after heavy rainfall).



Figure 46: Photogrammetry image of modern field-wall adjacent to Trenches 5 and 5a, showing use of boulders, presumably robbed from site. *Photogrammetry by Stephen Eastmead.*

6 FINDS

6.1 Ceramics

A report on of pottery finds will be included in the final report, once the largest possible collection of pottery from the site has been analysed. All pottery from 2017 and 2018 has been washed and labelled, but due to lack of nearby comparison sites, as large a collection as possible is needed before publishing conclusions. Pottery appears to span a wide range of dates from 12th to 17th centuries at least. Many of the sherds of medieval green-glaze type pottery could be classed as Tees Valley Ware, but this is ill-defined and not well studied, meaning that typologies are difficult to determine.

A significant absence is that no roof or floor tiles were found. Nor were any stone or slate roof materials found. The roofs of the settlement were clearly all of organic material, probably heather.

6.2 Spindle whorls

Spindle whorls were found in both the 2017 and 2018 excavations, including a very similar pair, one from Trench 1 and one from Trench 3. These will be described in the final report.



Figure 47: Lead spindle whorls, same mould, from (left) Trench 1, F8 and (right) Trench 3, F9.



Figure 48: Stone spindle whorl from Trench 3, F9.

6.3 Clay pipes

Tobacco was introduced into general use in England around 1580, initially in London, but spreading rapidly to other areas including the North-East. In 1629 a pipe-maker was buried in Gateshead and large numbers of clay pipes dating to the middle of the 17th century have been found on Tyneside. In 1675 the local trade was important enough for pipe-makers to receive a charter from the Bishop of Durham and for pipe-clay and tobacco to be common imports to the Tyne. The Newcastle merchant, Ralph Grey, mentions tobacco in several letters, archived at <http://www.dukesfield.org.uk>, including this of 19 Aug 1675:

Mr Panall, Though unaquainted I salute you, [...] and have consigned you five hogsheads of tobacco [...], hoping that you will dispose of them to the best advantage and at price current.

By the end of the 17th century, tobacco was widely used: a normal item to stock in shops and inns. Evidence from 17th century Dutch paintings show smoking as common for men and women of all classes (Edwards 1986, Graves and Heslop 2013).

Many fragments of clay pipe-stems were found during excavation of F8 and F9. Diagnostic pipe-bowl mouldings were lacking however. Some dating conclusions can be drawn from the stem diameter, and the bowl shape and angle. This will be discussed in the final report.

6.4 Other finds

The creeling trough and incised stone are discussed below. Other finds will be discussed in the final excavation report.



6.5 The incised stone

An incised stone was found during the excavation, lying face down over the drain running along the outside of the south wall of building F9 in Trench 3. It was located about 1m to the east of the south entrance to the house. It is an irregular slab of whinstone, approximately 0.75m x 0.35m. It was removed to allow excavation of the drain underneath and only later, when turned over on the discard stone pile, was its incised pattern noted.



Figure 49: The incised stone in situ (the right-hand of the two stones framed by the ranging poles). It is lying face down over the drain outside the south entrance to building F9. View looking north.



Figure 50: The incised stone, on discard stone heap, with incised pattern exposed.

The incised pattern is very faint, probably because of the hardness of the stone: whinstone, a form of igneous dolerite, from the nearby crag. Hence the incised lines are very superficial. There were also broader linear “gouges”. To assist interpretation, a photogrammetry image was created of the face of the stone with the pattern. This allowed a tracing to be made of the pattern.



Figure 51: The incised stone, photogrammetry image, with pattern of fine incisions annotated on right image. Note that broader lines/gouges are not annotated.

The incised pattern includes rectangles within rectangles. The upper part of the design is reminiscent of a gaming board (Nine Men’s Morris). The transverse gouges are particularly noticeable in the central area. They overlie the incised lines.

Obviously, the markings were man-made; but why was the stone decorated in this way? Several explanations are possible:

- A Nine (or Twelve) Men’s Morris board, or similar game. Known from Roman times onwards.
- A plan, maybe of the house itself, either for practical or symbolic use.
- An “apotropaic” stone to guard the house against intrusion of evil e.g. witches or the devil himself.
- Doodles!

These explanations aren’t exclusive: a game might side-track the devil from entering; for instance, on the floor of the entrance of Ely cathedral is a post-medieval maze. And game boards and plans might have symbolic meanings beyond their obvious use. Were the gouges used to symbolically decommission it? Another puzzle is why such an unsuitable large stone was used for the design: softer sandstone is available in the area, as are flatter, more regularly shaped stones. Maybe the stone was originally incorporated in a building and only incised when already in place.

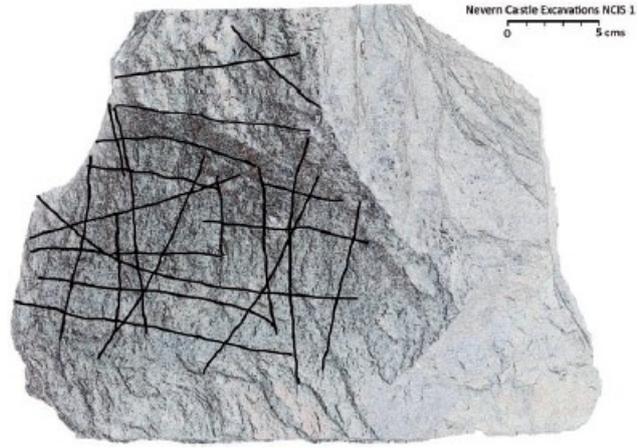
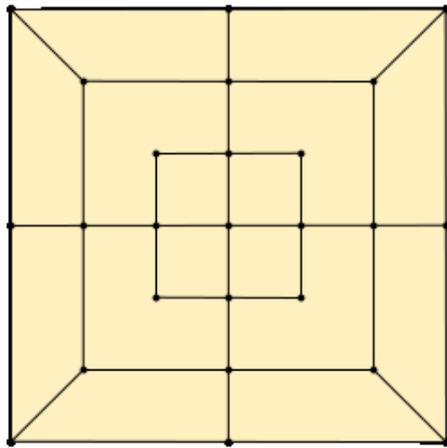


Figure 52 (left): The pattern of a Twelve Men's Morris board.

Figure 53 (right): Incised stone found at Nevern Castle. *From Caple (2012).*

Caple (2012) catalogues and discusses the incised stones found at the entrance to Nevern Castle in South Wales, dated to the late 12th century. Interestingly, they were found only at the entrance, similar stones scattered around the site were never incised: this seems to rule out the hypothesis that they were just doodles or workmen's plans. One example is shown above. He notes that similar gaming board designs have been found at several other locations, not always complete, and sometimes on a vertical surface (such as at Krak des Chevaliers, the crusader castle in Syria). These designs were therefore not always used for game-play: some clearly had symbolic meaning. At Nevern, just as at Well Head, there is evidence of gouge marks across designs, maybe to "decommission" them.

To have symbolic meaning, the stone would not need to be face up, so its position face down across a drain may have been its intended one. It was only a metre from the doorway, again suggestive of an apotropaic (protective) function.

The incised stone at Well Head was found directly under topsoil, not keyed into the building, so could have come from a late phase of the building's development: it cannot be proven to date from the 12th-century, as at Nevern.

6.6 The creeing trough

A crudely carved sandstone basin was found in Trench 3, on top of a bank of rubble piled against the outer face of the east end of the north wall of F9. The basin is a rough octagon (a square with corners removed) about 35cm on its long axis and 30cm on its short axis. It is 27cm high. There is a horizontal crack through it, resulting in the loss of a section of the rim: This may have occurred during manufacture and have resulted in the discarding of the basin. It shows little sign of use. The trough internally is oval, 17cm on the long axis and 15cm on the short.



Figure 54: The creeing trough in situ before lifting from Trench 3. Views looking south-west.

The basin is a creeing-trough, a mortar used to prepare food for human (and sometimes animal) consumption. Grain was pounded in it to soften and de-husk before being boiled to make broth. No doubt they were also used to prepare other foods. Creeing troughs are fairly common findings on medieval occupation sites, but due to the lack of decoration and the likely long periods for which they could be in use, it isn't possible to assign close dates to them.



Figure 55: The creeing trough after lifting: top, bottom and oblique views.

CREE, to bruise wheat or barley in a large stone mortar until the husks fall off, and it becomes in a fit state for being made into frumenty. Sometimes a wooden pestle was used, and sometimes a round ball of stone. In former times mortars were articles of great utility in the kitchen, and are still found in almost every old house. *See FRUMENTY.*

CREEING-TROUGH, called also a knocking trough. A large stone mortar used for *creeing* or taking off the husks of barley or wheat, preparatory to boiling them for broth or frumenty. These creeing troughs are still to be seen at the doors of farm houses, square on the outside, and sometimes rudely ornamented, but their original use is generally neglected. They are sometimes met with turned upside down as seats at the kitchen fireside.

Figure 56: Definition of cree and creeing-trough in Brockett (1846).



Figure 57: An example of an octagonal creeing trough from Yorkshire, 22cm in exterior diameter.

From www.finds.or.uk Record ID: SWYOR-CE309F. Creative Commons Licence: CC-BY-SA 4.0.

The octagonal shape of some creeing troughs may be because a circular shape would make them difficult to secure in a wooden frame ready for use; by partially dressing to an octagon, the stone can be held in a frame securely enough not to revolve when used. Full dressing to a square is unnecessary and might weaken the trough.

7 DISCUSSION

7.1 Padstones, crucks and gavelforks

The North-East is not an area of England known for cruck construction. Of several thousand recorded cruck buildings in the UK, Alcock (1981) lists only eleven in County Durham (and not all of these were certain). However, this may well not reflect their true distribution and no doubt more County Durham examples will be included in the updated catalogue. 'Cruck' as a term can cover various types of timber framing, the common theme being that they use pairs of large timbers (forming pointed arches) to transmit the weight of the roof to the ground. The crucks may be single matching timbers, split from a single bent tree, or they may be constructed by jointing smaller pieces of timber together. The crucks are raised, then braced by horizontal timbers to form a rigid frame. This is in contrast to setting timbers upright one-by-one in postholes, or to the walls taking the weight of the roof.

Many examples will have been destroyed unrecorded, with just scattered examples surviving; the Rector of Edmundbyers (Featherstonehaugh 1900) wrote about the survival into modern times of a cruck-framed cottage in this County Durham village which lies on the edge of moorland:

The houses of this class would not be very grand affairs: some that have survived to our day in Edmundbyers probably pretty accurately represent the cotmen's houses of the 14th century. One yet standing may suffice for an example. It is a rectangle of twenty-seven feet by twenty-one outside measurement, the frame supporting the roof consisting of a stone gable at each end, of rough stones mortared with clay, and in the interval two 'forscs' of solid oak. These, set up together at a more or less acute angle, had their feet either resting on the ground or sunk a few inches below the surface, being kept in their places by an oaken ridge-timber, the ends of which rested on the gables. These main timbers resembled pairs of gigantic compasses set upright with points in the earth. Then broad walls were built up, front and back, of rough stone with clay for mortar, so as to enclose the feet of some portion of the timbers, and to form a small rectangular room.

Newton (2014) discusses the significance of this description, and notes that "*The lack of pre-1400 dates for crucks in Northern England might be because the design reached here later than in other parts of the country, or because fewer such buildings have survived.*"

An addition to cruck-construction is the gavelfork. Alcock (1977) interprets these as "*forks at the gables or ends of the building.....there is one gavelfork at each end in contrast to the pairs of syles [crucks]*". He gives several examples of 14th-century mentions of gavelforks, for instance a small house with: "*tres coples de syles [crucks] et duo gavelforkes*". Thus, gavelforks were timbers used when the last cruck was placed some way in from the end wall; the gavelfork(s) supported the hipped roof-end between the last cruck and the end of the building.

At Well Head, one excavated longhouse (F9) had padstones suggesting that it had a cruck-frame, whereas the other (F8) had no padstones (or post-holes at similar positions). This does not necessarily exclude the possibility that this was a cruck building: as the Edmundbyers quote above indicates, the crucks may have rested on the ground. When the lower part of the crucks rotted, they could have been replaced by wooden pads, rather than padstones.



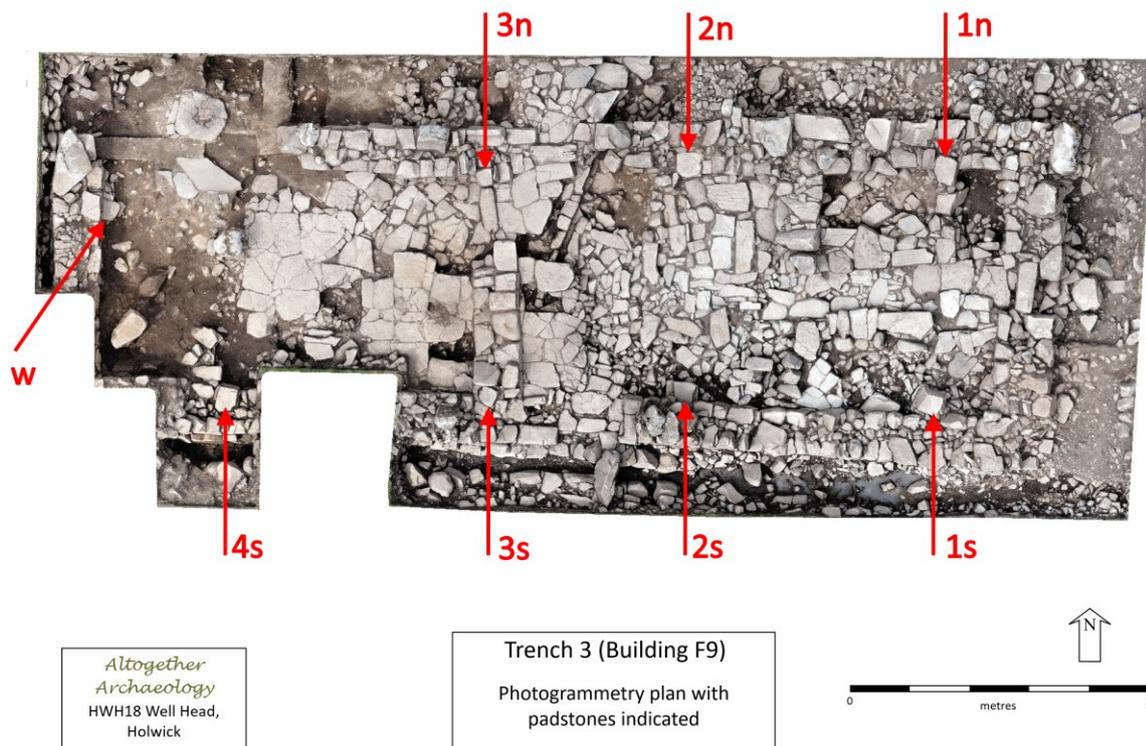


Figure 58: Positions of the padstones of building F9.

In F9 there are 3 pairs of padstones (1s+1n, 2s+2n, 3s+3n), plus the southern member of a fourth westernmost pair (4s). The northern padstone of this pair was probably lost when the west end of the north wall was robbed. Alternatively, the diamond-shaped flagstone, the only paving in the western 2m of F9 may have been the northern padstone (although very different to the other padstones). In addition, there is a padstone on the west wall (w), to the north of the centre-line of the building.

Photographs of each padstone can be found in Appendix 11. They were, in most but not all cases, keyed in to the inner face of the building's external wall.

Cruck 1 had padstones in the animal pens at the east end of the building. Its northern padstone (1n) is in the line of stones dividing the main section of the northern pen from its small eastern compartment, the "dog kennel". Cruck 2 had both padstones in the lower "animal" cell of the building. Cruck 3 had both padstones built into the stone cross wall of the building; the northern padstone is adjacent to the threshold slab of the doorway through the cross-wall, so the cruck would have also served as a doorpost. Cruck 4 lies at the edge of the paved part of the upper "human" cell of the building. Although there are no post-holes or wall to confirm this, it suggests that there may at one time have been a partition across the building at this cruck, with the western 2m of the building being used for storage or workshop.

The single western padstone (w) is well to the north of the centre-line of the building, with no other evidence of padstones along this wall. One possibility is that it was a padstone for a gavelfork (see above) which supported the hipped roof-end beyond the last cruck.



Figure 59: Members of AA standing on the padstones to demonstrate the crucks of building F9.

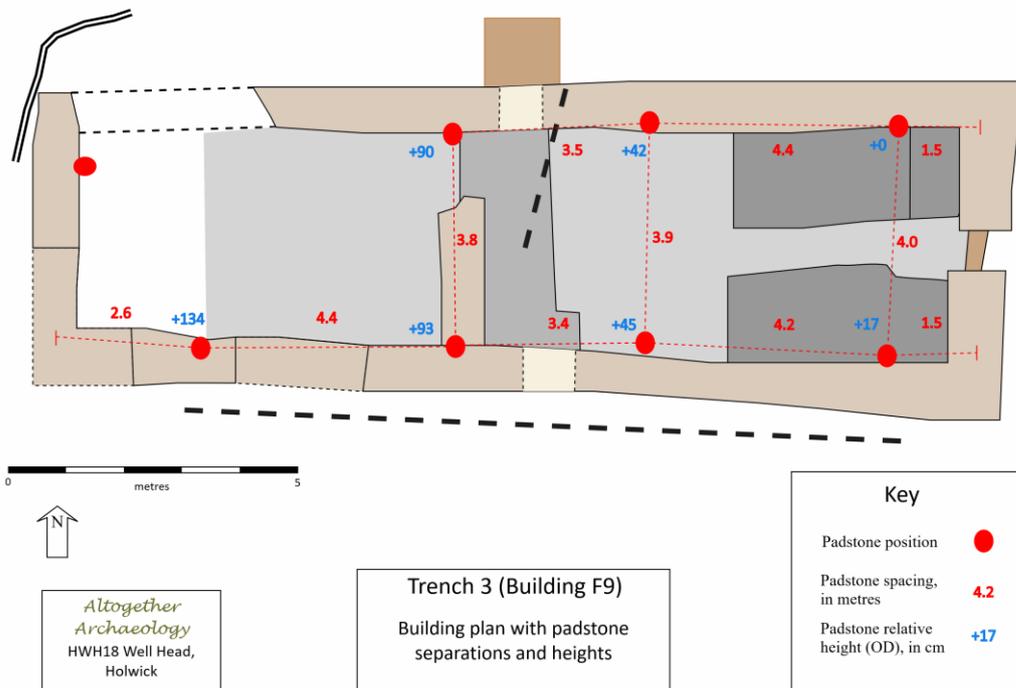


Figure 60: Cruck span dimensions and heights (ODs) of upper surface of padstones in F9.

Measurement (see figure above) shows that the north and south padstones of crucks 2 and 3 differed in height (OD) by only 3cm. The padstones of cruck 1 differ in OD by 17cm. The similarity of height between two of the pairs of padstones increases the chance that they were original features of the crucks, rather than inserted to replace the rotten lower parts of crucks. However, this is far from conclusive, especially as the padstones of cruck 1 differ significantly in OD.



Figure 61: Building at Auchindrain (Scotland) with a cruck frame and hipped roof. Note padstones.
Preserved at the Auchindrain Township Museum: <http://www.auchindrain.org.uk>.

The date of introduction of cruck-framing has been a subject of much speculation. A major problem is that few houses dating from before the late medieval period have surviving original timbers. This is partly due to decay of timbers, but also to the inevitable rebuilding work as houses are adapted to new circumstances. Where they do survive, dendrochronology can date the felling of the timbers used.

Archaeological evidence is difficult to interpret, and dating is uncertain, being indirect and not of the crucks themselves. Crucks in extant buildings are not normally set in the ground, so will not be seen archaeologically as post-holes. Nor will crucks set on sill beams be identifiable. Excavations may be able to demonstrate slots in walls to take crucks (only identifiable if several courses of the walls survive) and find padstones (if used). Some surviving crucks can be dated to the 13th century, and careful arguments imply that developments during the 12th century led to the cruck idea. Early medieval building in Britain show no clear evidence of crucks (Addyman 1981).

“The documentary evidence makes it clear that crucks were numerous at a peasant level in the 14th century, and at a slightly higher economic level (demesne farm buildings) in the preceding century. The earliest indication of their widespread use is probably that of 12 century Welsh Law.”
Alcock (1981)

Evidence for cruck-framed buildings is still being collected and a review of the subject is in preparation, including discussion of evidence for early cruck-framed buildings (N. Alcock and M. Gardiner, *pers. comm*). Locally, the Durham volume of Pevsner’s “Buildings of England” is under revision by Martin Roberts.

Clearly the Well Head site is very relevant to these investigations, as it provides much information about the structure of medieval vernacular buildings, in particular suggesting that cruck-framing had already been introduced by around 1200, despite the remoteness of the site. Building styles tend to travel slowly as the people of an area, unless literate, are only exposed to innovations if they themselves travel to see them; hence a tendency for medieval vernacular builders just to copy previous buildings in their locality. This is in contrast to the style of portable artefacts, for instance pottery, where knowledge of new styles can be spread rapidly by trade in the objects themselves.

7.2 Medieval rural settlements in the North

The most extensively investigated deserted medieval village in the North is probably Wharram Percy, which lies on the Yorkshire Wolds, 29km north-east of York. Decades of survey, excavation and analysis has yielded a huge body of information (Wrathmell 2012a). Dyer (2012) emphasises that the buildings show many signs of alteration, reconstruction, repair, extension, and shortening. Oddly, positive identification of the lower end of houses as byres was elusive as they in general lacked well-built drains. Most of the houses at Wharram that were visible as earthworks measured about 15m in length. Dyer notes that these were presumably built with 4 pairs of crucks and could house a family of five and a limited quantity of livestock.

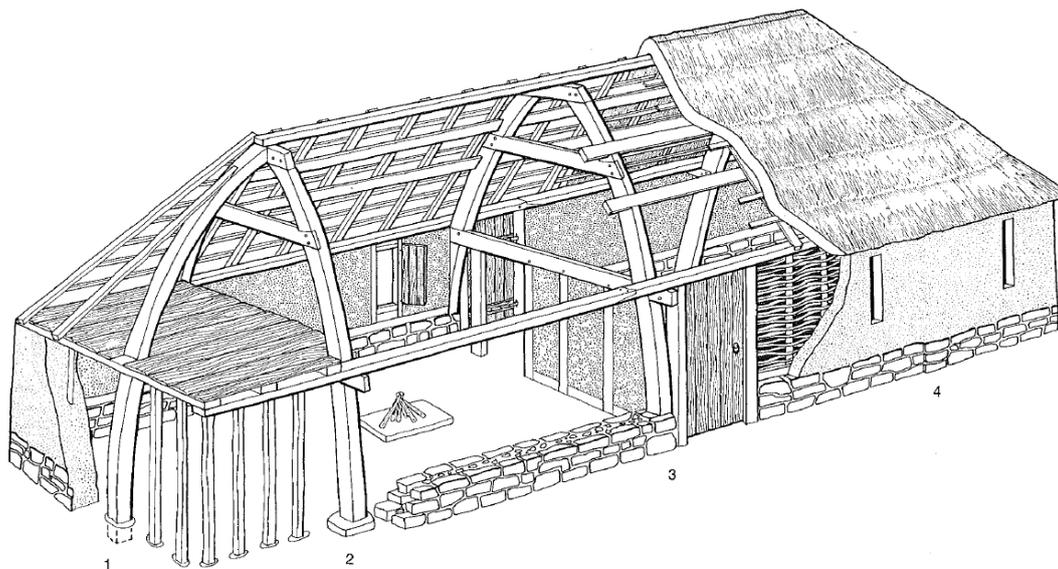


Fig. 4. Model of a medieval peasant house, showing the various possible relationships of superstructure to substructure: 1, cruck blade set in a posthole; 2, cruck set on a padstone; 3, cruck set within a groundwall. The discontinuity in wall alignment at 4 indicates another cruck-truss position.

Figure 62: Crucks might be set in holes, on the ground or on padstones. From Wrathmell (2001).

In comparison, the houses at Well Head have the external lengths 17m (F9) and 11m (F8): thus F9 seems to be similar to some at Wharram in length and number of crucks. Wrathmell (2001, 2012b) views the introduction of improvements in houses (stone walls, padstones, etc) to be part of an evolution of techniques, with the older features of buildings (wattle-and-daub walls, lines of upright timbers in post-holes, crucks set on the ground) being steadily reconstructed during the medieval period. “The insertion of stone groundwalls was a measure taken to extend the life of existing buildings”. In this scenario, the stone walls were not primarily weight-bearing, but inserted to protect the timber frame of the building from the weather. (Gardiner 2014).

Another example of improvement was the moving of the hearth from the centre of the living space, to being against the cross-passage wall. As well as wasting less floor space, it allowed a hood to be placed over the fire, making it easier to use the roof space as an attic.

Gardiner (2014) describes the 50 years before and after 1200 as being when there was a decisive shift, from using posts set in post-holes to building a strong frame on or above the ground. This gave the building longer life and greater rigidity. The change was enabled by improvement in carpentry skills, hence stronger, more precise joints could be cut. Many of the buildings which persisted in use for a long period dated from the era around 1200. At that time, peasants were comparatively affluent, so buildings were of better quality, hence durable and worth repairing. Later, wages fell, so quality and durability worsened. A further factor was that fewer new dwellings were needed after the fall in population following the Black Death. Thus, many of the houses in use at the end of the medieval period were those built or rebuilt around 1200: they outlasted later poorer-quality buildings, which were not worth repairing so fell out of use as the population declined.

One driving force behind these improvements may have been the better organisation of the manors in later medieval England. Whereas previously peasants organised their own building work, using small boughs and other easily gathered material to make lightly-built dwellings, later the manors enabled peasants to have access to (and help transport) the larger timbers needed for crucks. This resulted in higher quality houses that used less timber in total. Conservation of timber stocks may have been increasingly important during the years from 1100 to 1300 when the population was rising and more land having to be cleared for agriculture (Wrathmell 2001). It was in the manor's interest to have healthy, skilled and well-equipped (but of course, unfree) peasants, so that, during the time they were required to work for the manor, they could be as productive as possible.

F9 is a good example of a "hearth-passage" house, with entry into a passage section of the downhill part of the house, and a doorway leading into a living room that had a hearth against the cross-wall. Beyond the living room there was sometimes a parlour, used for sleeping. In F9 there is clear identification of the eastern cell as being used for animals, with animal pens and a drain. This doesn't exclude other uses. It would have also been needed for safe dry storage of foodstuffs and fodder, and would have housed farming equipment, such as scythes. In the summer it may also have served as extra living space. Hodgson (1827), describes "inferior farm-houses" in pre-Victorian Northumberland:

The room at the entrance of which was, and still continues in many places to be, a byer in winter and a bed-room in summer, and is called Out-bye: the In-bye, or inner room, with three small windows to the left of the out-door, was the dwelling of the family, and often partitioned by two pressbeds into two compartments.

Further evidence comes from excavations at West Whelpington, a medieval village on the edge of Northumberland moorland, finally deserted in about 1720 (Jarrett and Wrathmell 1977, Evans Jarrett and Wrathmell 1988). In Northumberland, village desertions occurred from the 12th to 20th centuries, but the peak period was probably between 1660 and 1760. The village was excavated before destruction in the 1970s by quarrying. The houses of the village were longhouses. There were drains down the axis of the animal end (though no outfall through the end walls as in F9). Excavation suggested that the houses had evolved through the medieval period, with the human end being divided off securely by a stone-built cross-wall (instead of wooden partition) and hearths being moved from the centre to the cross-wall. All evidence showed that the houses at West Whelpington were long-lived, at odds with the perception of many previous archaeologists and building historians that peasant dwellings were transitory, lasting only a generation or two. It was established that West Whelpington was a recognisable village before the end of the 12th century, and prospered in the 13th century. However, given the lack of dating evidence, it was unclear whether it had earlier origins.



West Whelpington

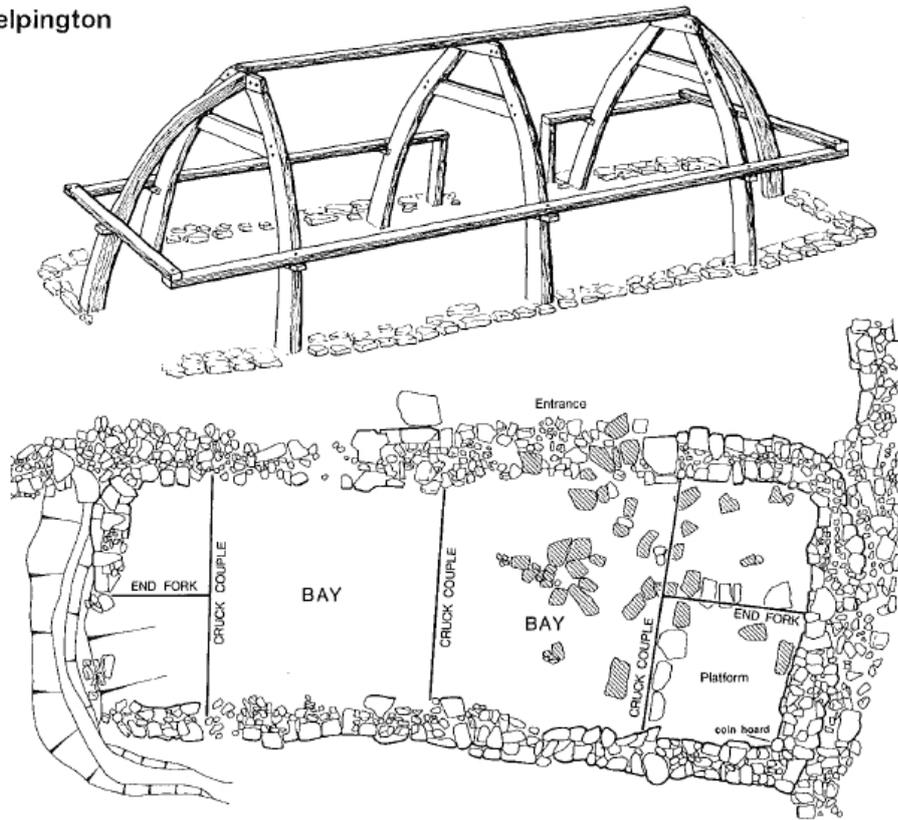


Figure 63: Excavated plan and suggested frame of a West Whelpington house.
From Wrathmell 2001.

Another deserted medieval village in the North East that has been excavated is West Hartburn (Still and Pallister 1964) in the Tees Valley east of Darlington. As with West Whelpington, the buildings are of the longhouse pattern, with hearths against the cross-wall.

7.3 Bronze Age funerary cairns

The structure found in Trench 4 was identified as a probable ring cairn, a funerary monument, by several archaeologists with specialist knowledge of prehistoric monuments. Ring cairns (normally dated to the early or middle Bronze Age) are a rather heterogenous category of monument which overlaps in form with other prehistoric circular monuments such as stone circles and henges: see figure below. They may or may not have interior and/or exterior kerbstones. Thus, some stone circles (e.g. The Cockpit) have a circular bank as well as upright stones, whereas a kerbed ring cairn may include one or more upright stones (Giant's Graves on Heathwaite Fell). On a humbler scale, smaller ring cairns of up to 7.5m may just have a low stony bank with no kerbstones (Birrel Sike), and are easily mistaken for roundhouses. Archaeological investigation often suggests these monuments have complex phasing and can be altered from one type into another, such as from a ring cairn to a mound, or be enlarged.

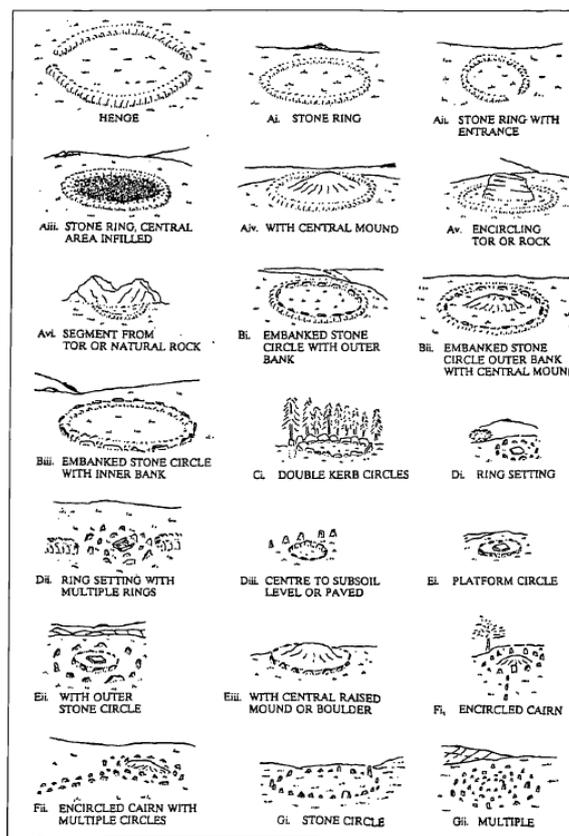


Figure 64: Classification of circular prehistoric monuments (Dartmoor).

From Turner 1990, reproduced in Johnston 2001.

The examples in the previous paragraph are all from Cumbria, given by Quartermaine and Leech (2012), who identified 17 ring cairns during their survey of some of the Lake District uplands. The diameters of the rings varied from 5.9m to 20m. They note (p345) that in the Lake District, ring cairns (unlike normal round cairns) tend to be located near to water sources, rather than in prominent elevated positions expected for Bronze Age funerary cairns.

Ring cairns also occur in Northern England in the Cheviots, the Yorkshire Dales, and the North York Moors. That at Gains Law near Wooler was excavated and found to be a ring-bank of rubble around a 16m diameter flat area that contained evidence of cremation (Frodsham 2004). The cairnfield at

Danby Rigg (North York Moors) is unusual in containing as many as six ring cairns, dated by pottery to the Bronze Age (Spratt 1996).

Ring cairns are rare in the North Pennines; Young (1984) identified none in Weardale. However, a modern excavation examined the ring cairn on Birkside Fell, on the moors to the north of Blanchland in the North Pennines. This cairn was found to be funerary, with a cremation in a collared urn near the centre of the ring. Radiocarbon dating confirmed it to be Bronze Age. The Birkside Fell ring cairn had a single line of kerbstones, with flatter horizontal stones interior to the kerb. *“Elsewhere in the interior, and especially towards the centre, the surface was covered with small stones laid horizontally and giving the appearance of paving”* (Tolan-Smith 2005).

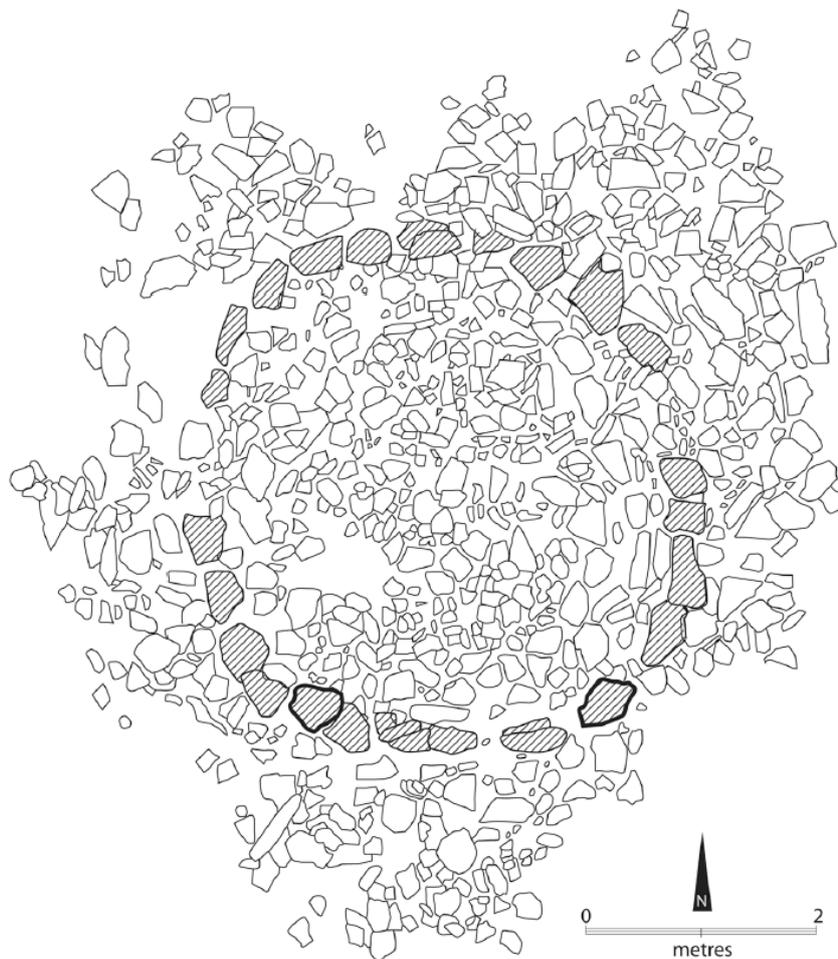


Figure 65: Plan of Birkside Fell ring cairn. *From Tolan-Smith 2005.*

An obvious anomaly is that some ring cairns, including that described in this report at Well Head, do not contain any evidence of burial or cremation, despite being categorised as funerary monuments. Of course, some modern funerary monuments contain no human remains either: a good example is the cenotaph in London which acts as the symbolic focus of the remembrance of war dead, but contains no human remains. In fact, the word “cenotaph” is derived from the Greek for “empty tomb”.

Of course, the lack of human remains in a ring cairn may simply be due to the cremation remains being strewn, not buried, so time and animal activity have dispersed them, or that it was an

inhumation not a cremation and soil conditions have destroyed all trace of the body, or that the ring-cairn was used as an exarnation site, with any remaining bones later removed.

Johnston (2001, p132-8) describes “fieldstone” being taken from the ground and used as “cairnstone” as part of a metonymic process, i.e. one in which part of the process (the building of the cairn) represents the whole process (death, burial and remembrance). Other aspects of building a ring cairn: laying the kerbstones, depositing charcoal, etc may have been similarly meaningful. Thus, a liminal zone was produced, set apart from the mundane external area but not itself fully in the realm of death, and carrying important messages about the life of those no longer physically present but of ongoing importance. This would be the case even if no human remains were present in the cairn. The presence of monuments to ancestors confirmed the right of families to occupy and use parts of the landscape, and even to mark out territories as in the case (Spratt 1996) of the lines of barrows along North York Moors watersheds. These monuments make the statement “this land is mine because my ancestors lived here (look at their funerary structure) and cleared the land for agriculture (look at the fieldstone used to create the cairn)”.



7.4 Shielings and peat-houses

Close to the Well Head deserted settlement are a group of huts on Holwick Scar, described as shielings. These were scheduled (Listing 1019458, Monument: 1338952, NMR: NY92NW153, NY90872655) in 2000. The assessment commences with the definition:

“Shielings are small seasonally occupied huts which were built to provide shelter for herdsmen who tended animals grazing summer pasture on upland or marshland”

They are clearly related to the Well Head settlement as they are connected to it by two tracks running diagonally up the hillside from Well Head. The huts were surveyed by AA in 2017 and a report of the survey result uploaded to the AA website. A revised version of the report (Eastmead 2018) discusses the use of these huts. The implication of the scheduling statement, that they were built for seasonal occupation, seems unlikely for the following reasons:

- They are only about 200m away from the presumed “mother settlement” of Well Head.
- They are not near a good water supply: the nearby gully (Bedale Gill) is usually dry.
- They are on a steep hillside, with the nearest upland pasture out of sight over the brow of the hill.
- There are more buildings than would be necessary for herdsmen to occupy from a hamlet like Well Head.
- There are no livestock enclosures apparent.
- One of the huts is marked on the First edition OS map (circa 1860), labelled “Peat House”.



Figure 66: First edition Ordnance Survey map, 1854, with “Peat House” bottom centre.

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A more likely usage of the huts is to store produce of the upland area, ready for its use in the Well Head settlement. The most important bulk product would have been peat, which benefits from being stored in a windy location to allow it to dry out before use. Being heavy and of low value, there would have been little worry about theft if stored outside the main settlement. Other possible products would have included turf (for roofing), heather, and rushes.

Winchester (1984) describes similarly located huts (by tracks down from the uplands to valley settlements) in Eskdale (Lake District) as “peat scales”. He recorded two types of peat scale. Type A, which were simple rectangular gable-ended stone buildings with a door in a long side, and Type B, which were more elaborate, with access from the hillside above it to an upper floor. All the huts at Holwick Scar are Type A, which Winchester considers the earlier type, superseded by Type B in the 18th century. He is unable to give a date of first usage of peat scales, but documentary evidence

shows that they were already in use in the 16th century. Other areas of the Lake District had peat scales in the main settlements, not on the moor edge. Peat cutting was closely regulated by the manor courts, with cutting in Eskdale allowed only after April and limited for each commoner to a maximum number of days. Peat cutting would have been an activity done in early summer, often with the peat cut in May and transported from the moors later in the summer after hay-making.

He quotes a court case of 1796 in which the need for peat scales was explained thus:

“as the places for Turbary lay upon the Tops of the Hills and it is often difficult to win their peats in Summer, every Tenant has a House or Peat Scale in some suitable place where he can conveniently go in Winter to fetch his Peats from when they are wanted and where they are deposited in Summer and stored up for that purpose.”

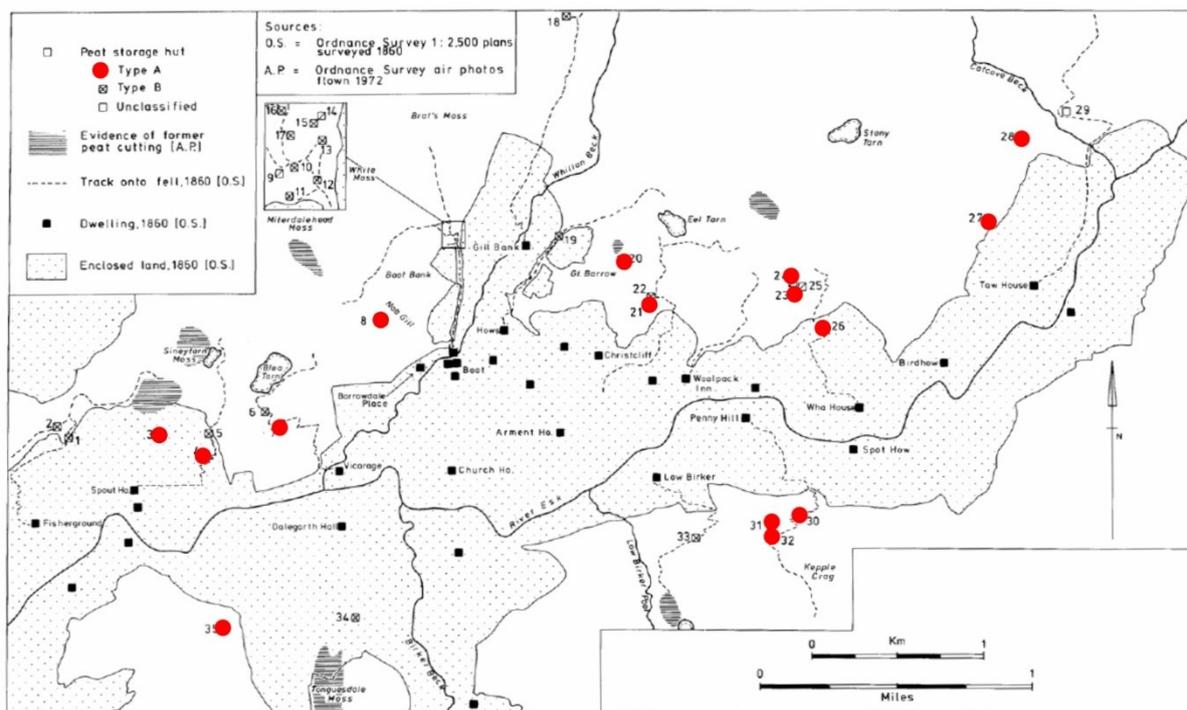


Figure 67: Map of peat scales on edge of moorland in Eskdale, Cumbria. From Winchester 1984.

Winchester reviews the occurrence of moor-edge peat-scales elsewhere. He finds examples in Caernarfonshire and the Faroe Islands, but concludes that they were not in use in most peat-cutting areas, suggesting that factors leading to use of peat scales were steep valley sides (making transporting wet peat to the main settlement difficult) and a damp climate (so that drying in a windy location was needed if peat was to be dry enough for the winter). An extensive study of peat cutting in upland Britain (particularly the Peak District) makes no mention of peat scales (Ardron 1977).

Peat consumption is difficult to assess, but several sources (e.g. Ardron 1977) suggest that the average household needed about 10 cubic metres of dry peat per year, if relying on just peat and no other fuels. Dry peat has roughly the same heat production per kg, 4kWh, as wood. The Holwick Scars structures each have a floor area of about 20 square metres. Hence a household using half the floor area of a peat scale for peat-stacks (leaving space for air circulation and human access), would need to have stacks of dry peat one metre high; the stacks would have been higher than this initially as the peat would have been wet. Although very approximate, this calculation shows that if each household in Well Head had a peat scale at Holwick Scars, then the peat scale would have held enough peat for a year’s use as their main fuel.

It is tempting to use the number of peat scales at Holwick Scars (circa 8) as an estimate of the number of households at Well Head. This would suggest that as there are the foundations of circa 10 rectangular buildings at Well Head, then most of those buildings must have been simultaneously occupied houses. There are several problems with this line of argument, including uncertainty as to whether other valley-floor settlements might have owned peat scales at Holwick Scar, and whether some households held multiple peat scales (e.g. needing peat for industrial use).

The location of peat cutting sites on the moorlands above Holwick have not been mapped, so the distance that peat had to be transported to the peat scales is unknown. Lidar has proved successful at detecting peat-cutting sites, but the Environment Agency lidar imaging programme has not yet covered the moors above Holwick.



Figure 68: Lidar image of North Pennine peat-cutting sites by Rookhope-Allenheads road. The summit of the road, altitude 538m, is at top left of image where the road crosses a fence.

Image size 500m x 400m, north at top.

The lidar image shown is of peat-cutting sites which were probably post-medieval, for lead smelting fuel as well as household use. The rate of re-accumulation of peat in the North Pennines is around 1mm per year (NPAONB 2011); hence medieval (and earlier) cuttings are likely to be less distinct than these, and thus more difficult to locate.

8 GEOLOGY OF HOLWICK AND THE SURROUNDING AREA

The dales of the North Pennines show abundant evidence of mining and quarrying operations from the last four centuries; it is more difficult to recognise evidence of mining in earlier periods. The map below covers from the River Tyne to the River Tees, showing the major mineral veins and geological faults.

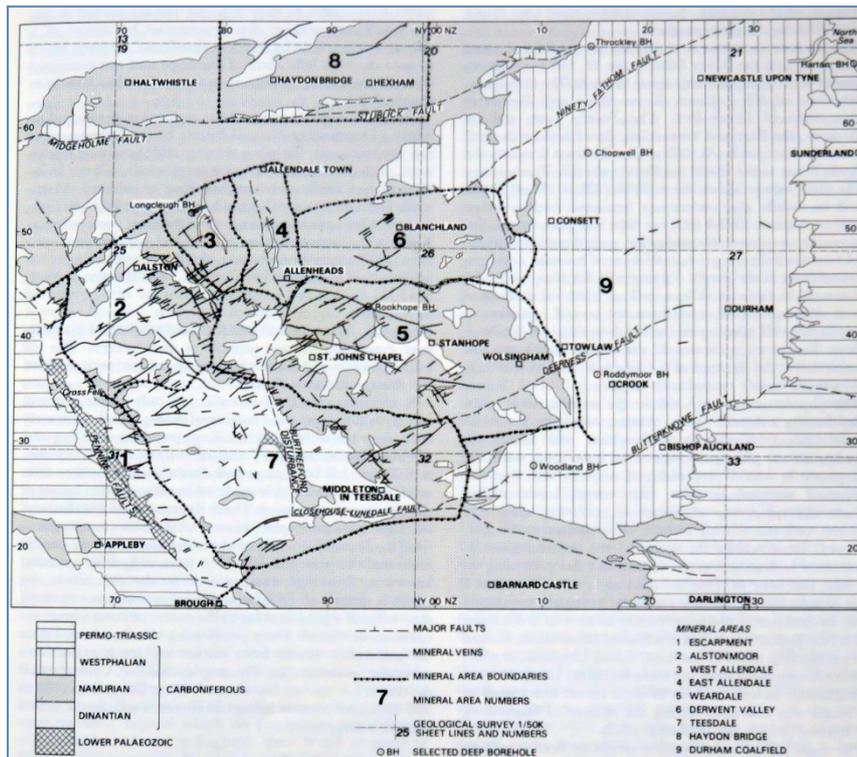


Figure 69: Main mineral areas and veins of the North Pennines. From Dunham 1990.

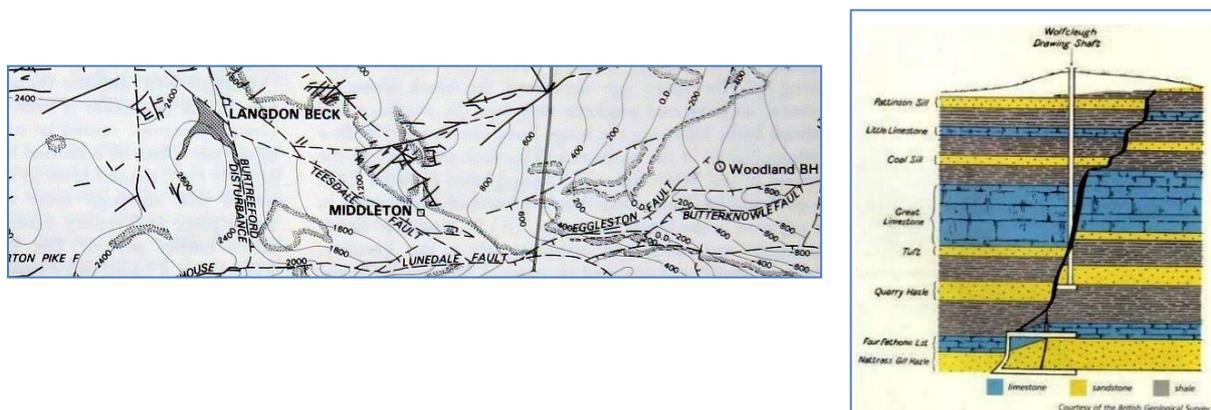


Figure 70: Veins and faults of Teesdale, and (on left) schematic section of a typical mineral vein. From Dunham 1990 and British Geological Survey.

Holwick, lying just to the west of Middleton in Teesdale, is on the Teesdale Fault. When walking from Wynch Bridge south-west across the valley towards Holwick Scars, the Teesdale Fault is the reason why the Whin Sill (consisting of hard dolerite) is out of sight below the valley floor at Wynch Bridge but appears above the valley floor at Holwick, forming the rocky scars. The Whin Sill has been lifted approximately 100m on the south-west (Holwick Scars) side of the fault.

The bedrock of the Northern Pennines is a series of sedimentary Carboniferous rocks, overlying older rocks of Ordovician and Silurian age. These Carboniferous rocks contain frequent limestones but also include bands of mudstone, siltstone, shales, sandstones and coal seams. These layers often repeat themselves in cyclic sequences (cyclothem) as shown in Figure 70.

The bedrock geology is largely concealed by the superficial geology – the territory of archaeologists. In the Pennine dales the most widespread superficial deposit is till (boulder clay). This is a heterogeneous mix of clay, sand, gravel and larger rocks, deposited by ice-sheets from the last period of glaciation, ending some 14,000 years ago. The relative proportions of these components vary from location to location. On top of this natural till are the geologically modern subsoil and topsoil layers, including any discovered archaeological layers.

In areas of glacial deposits, glacially formed features occur that can look man-made, but are products of glacial alluvial action e.g. drumlins, melt-water channels, belts of deposited sands, gravels and sorted rock. Thus, the stony bank in the southern half of Trench 5, may have a geological, not human, origin.

Generally, over limestone, lime rich alkaline soils occur, producing good grazing for livestock. Over outcrops of mudstone or sandstone the soil is more acidic, producing less rich and often rougher pastures. Soils on Whin Sill (dolerite) also produce acidic soils. Looking at the Holwick bedrock geology diagram (see Figure 71), there is both sandstone and Whin Sill, so the soils are likely to be acidic. Whilst modern farmers may have applied lime to reduce acidity, for centuries it is likely that the soil acidity was such that bone would have been dissolved. Significantly, very little bone was found at Well Head.

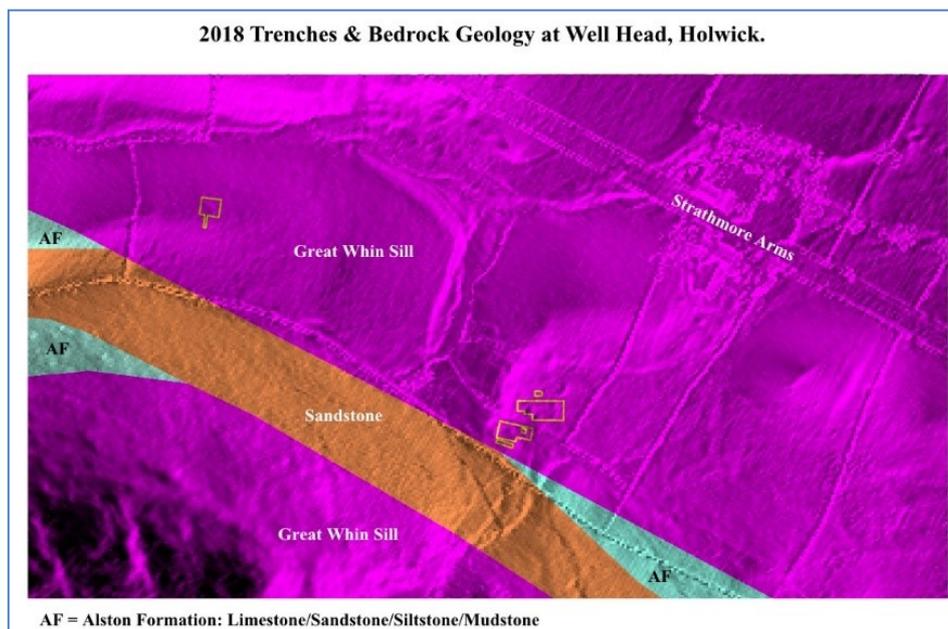
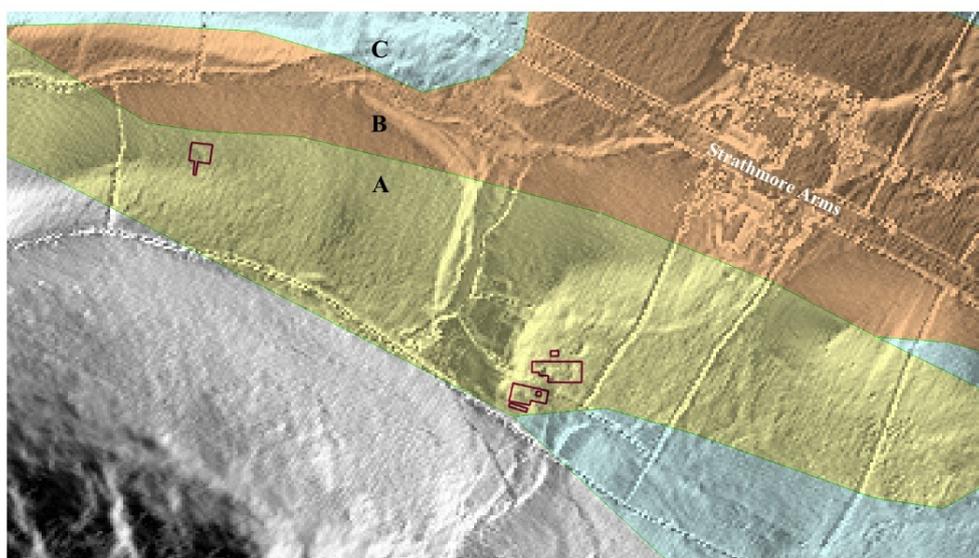


Figure 71: Bedrock geology map of Well Head: 2018 trenches are marked.

Image by Stephen Eastmead. Background is lidar, geology data from British Geological Survey.

2018 Trenches & Superficial Geological Deposits at Well Head, Holwick.



A = Alluvium: Clays / Silts / Sands / Gravels C = Diamicton: Unsorted glacial deposits of gravels and fine mud
B = River Terrace Deposits: Silt / Sand / Gravels

Figure 72: Superficial geology map of Well Head: 2018 trenches are marked.

Image by Stephen Eastmead. Background is lidar, geology data from British Geological Survey.

Huge quantities of mineral ores have been extracted from the North Pennines. The ores formed 290 million years ago when super-hot mineral-rich waters flowed through the faults, cracks and fissures of the Carboniferous rocks. As the mineral rich waters cooled, the minerals crystallised out within the rocks as vertical 'veins' and horizontal 'flats'. In the case of iron ores, the carboniferous rocks themselves became impregnated with iron-containing minerals.

The estimated (Dunham 1990) North Pennine total mineral ore mine output is (in kilotonnes): Lead 4,000kt, Zinc 300kt, Iron 1700kt, Copper 1.6kt, Silver 0.17kt, Fluorspar (calcium fluoride) 2,100kt, Barytes (barium sulphate) 1,500kt, Witherite (barium carbonate) 1000kt.

Iron extraction stopped in the North Pennines after 1945 because of the relatively poor quality of the ore. However, there is good evidence that in earlier times (Iron Age, early Medieval and Medieval) iron was extracted and smelted very close to Well Head. For instance, smelting sites have been found within a few kilometres of Well Head at Monument Numbers 961862 and 1302740, at the Orepit Holes Vein on the western side of Holwick Fell (Beadle 1980), and at Simy Folds (Coggins, Fairless and Batey 1983).

An outcrop of intrusive whinstone runs along the south-west edge of upper Teesdale, from near Middleton and continuing past Holwick. Well Head lies beside crags of this hard basalt. Beadle (1997) notes that whinstone, being hard and unbedded so difficult to quarry, is only used where it is available locally; he gives Holwick as an example of where whinstone has been used in field-walls and buildings. Clearly its use at Holwick is because of ready availability (loose from the crags) rather than suitability.

The use of this relatively unusual building material, which would be difficult to dress to regular blocks, has probably meant that the walls of buildings at Well Head are cruder than they would otherwise have been, with the stones more variable in size and shape, giving less regularly coursed masonry. It may also have influenced the decision to use timber cruck framing, rather than relying on the stone walls to support the weight of the roof (see discussion in Sections 7.1 and 7.2).

9 ACKNOWLEDGEMENTS

AA thanks the farmers, the Robinson family of Middle Farm, for their interest and assistance. Thanks also for permissions to the Strathmore estate and for the hospitality of the landlords of the Strathmore Arms. The Swaledale and Arkengarthdale Group (swaag.org) have made their magnetometer and GPS unit available for use by Stephen Eastmead on our site. We are grateful for grant funding from Northern Heartlands, help from their staff, and for the enthusiastic involvement of Anna Collins (Community Facilitator). AA has also benefitted from anonymous donations. The Community Archaeology Radiocarbon Dating Fund has agreed to fund one radiocarbon date from the 2018 excavation (result not yet available). We have had discussions with, among others: Stewart Ainsworth, Nathaniel Alcock, Mark Gardiner, Perry Gardner, Andrew Newton, Sheila Newton, Al Oswald, and Martin Roberts.

Open source data were used in this report from the Environment Agency (lidar), British Geological Survey (geology), Google Earth (aerial views), National Library of Scotland (old maps) and Ordnance Survey (mapping). We are grateful for the chance to use this information; copyright notices are given at the front of this report.

We respectfully remember Ken Fairless who attended the initial meeting in Middleton and helped with processing finds in 2017, but died in May 2018. With the late Denis Coggins, he did more than anyone, either before or after, to further archaeological knowledge of Teesdale. Our current investigations are built on their ground-breaking work. Ken was a link to a previous generation of Teesdale archaeology and will be sadly missed.



Figure 73: Excavation in progress: Trench 5 in foreground with Trench 3 beyond.

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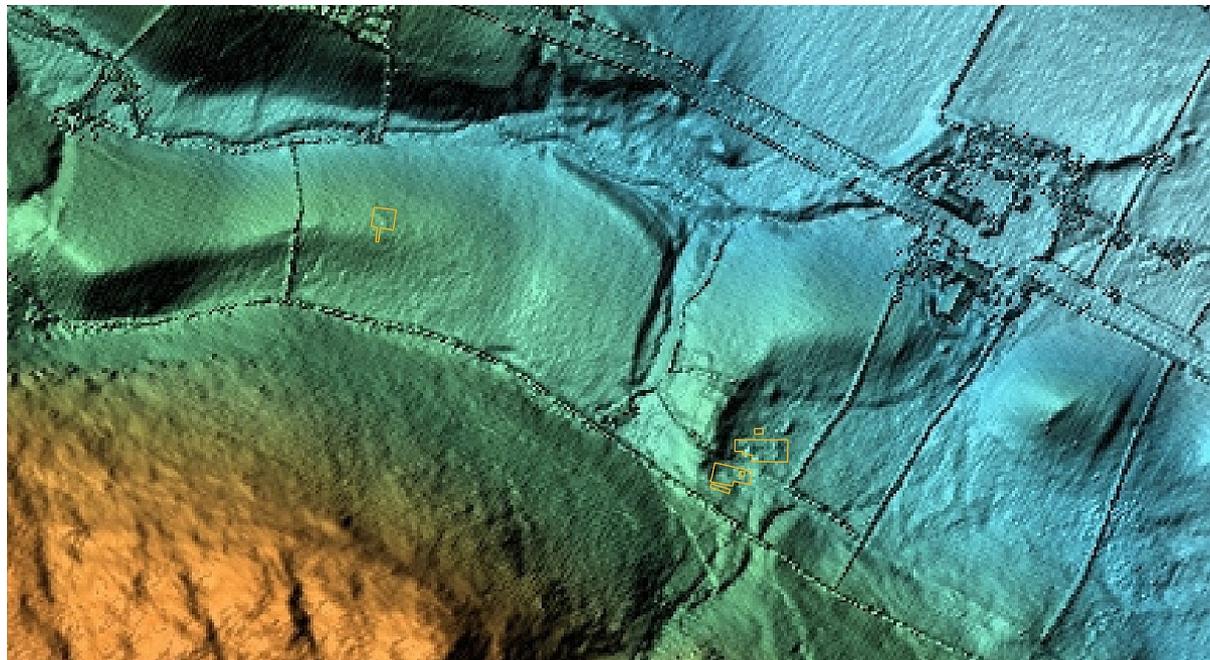
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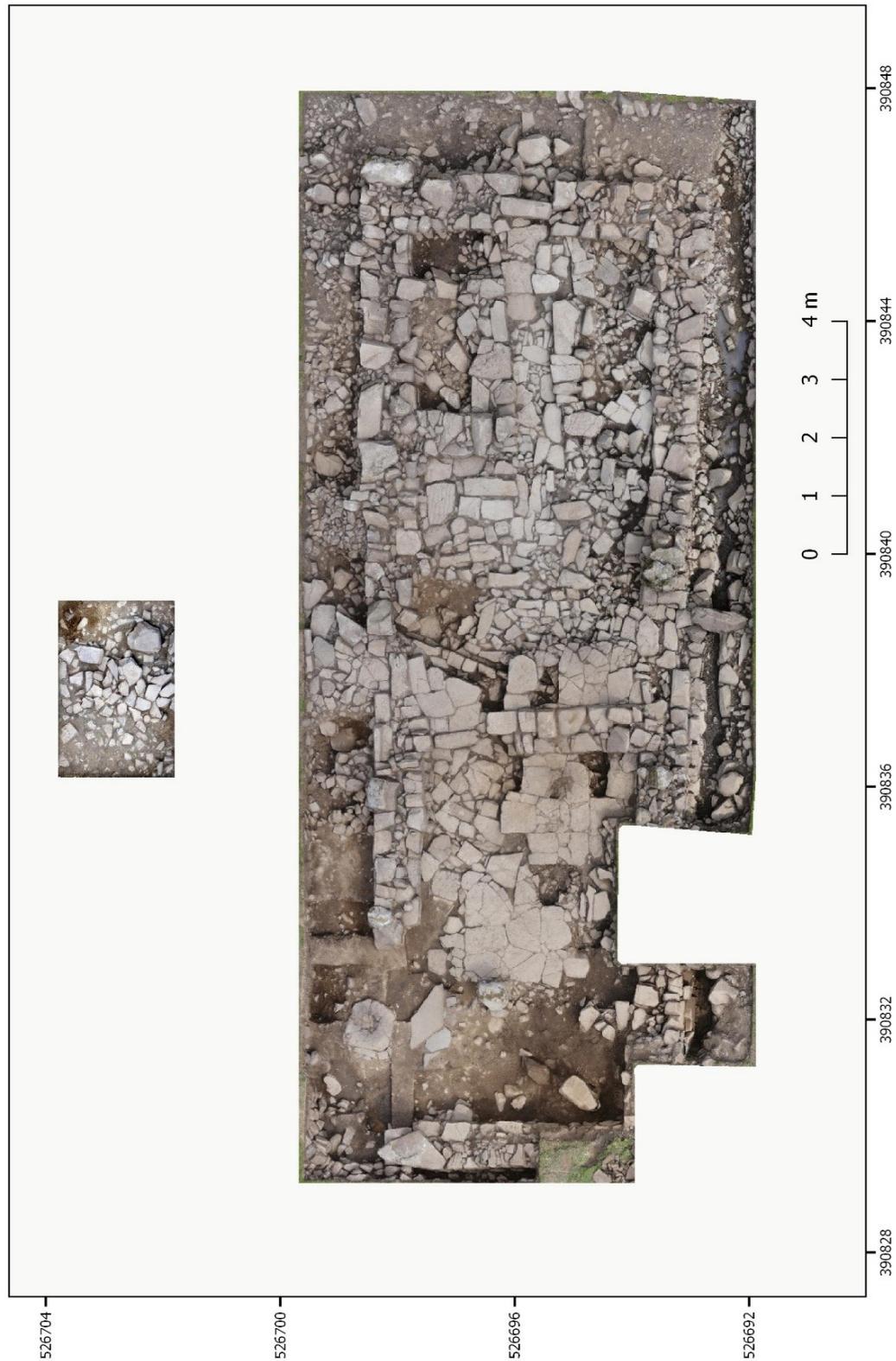
11 APPENDIX 1: TRENCHES 3, 4, 5: POSITIONS ON LIDAR & GOOGLE EARTH



2018 Trench positions plotted on Google Earth (top) and lidar (bottom). *Images by Stephen Eastmead.*

12 APPENDIX 2: PHOTOGRAMMETRY PLANS OF TRENCHES 3, 4, 5

Holwick Well Head Settlement Trench 3 & 3a on 26/05/2018

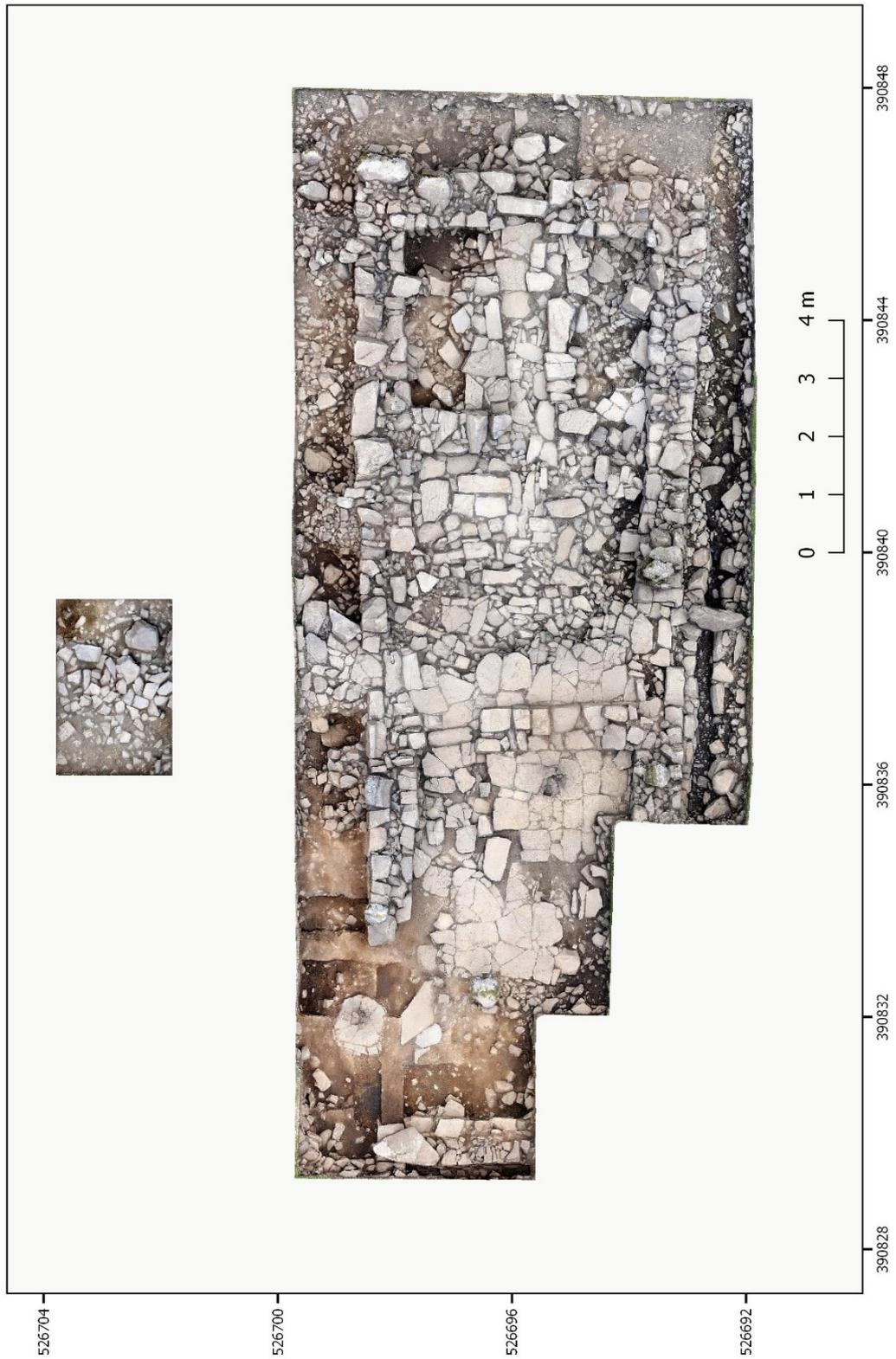


Trenches 3 and 3a. Final photogrammetry.



Trench 3: Overlapping enlarged views of east (top) and west (bottom) ends of building F9. North is at the top. Final photogrammetry.

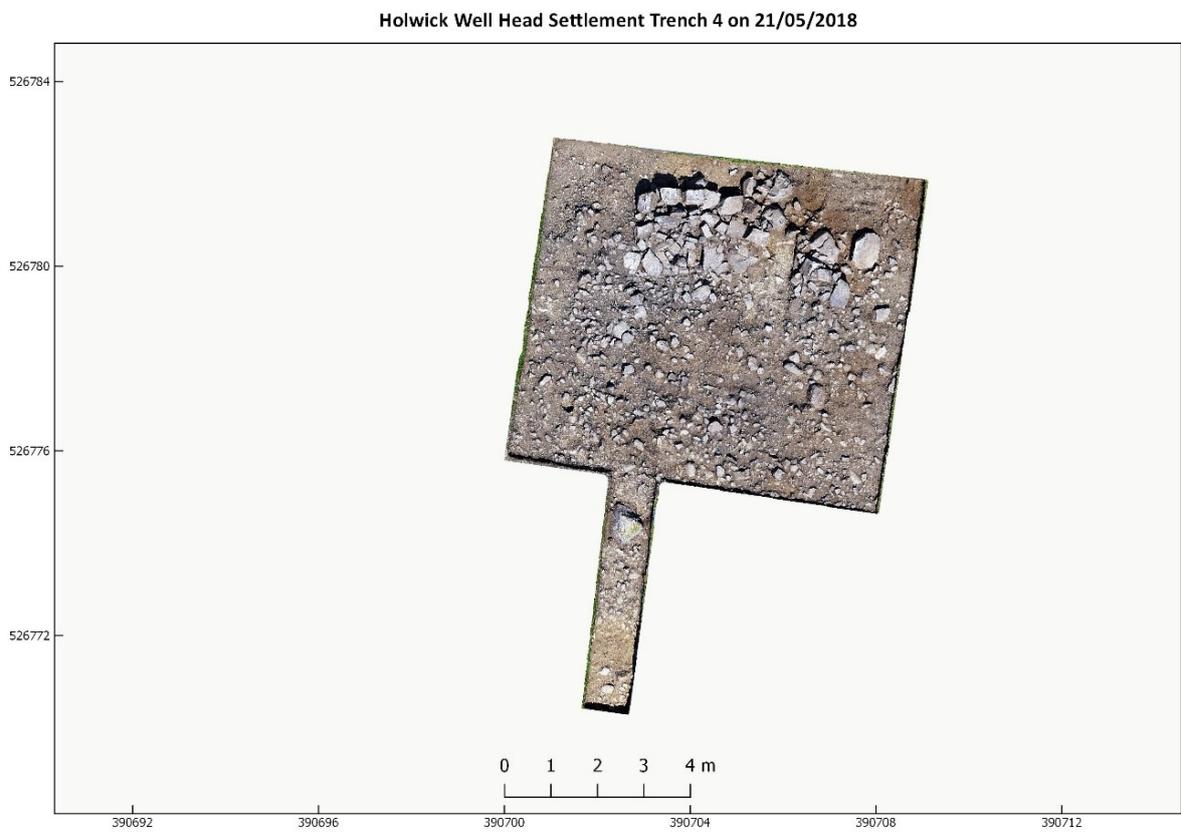
Holwick Well Head Settlement Trench 3 & 3a on 25/05/2018



Trench 3: before partial removal of upper flagged floors in cross passage and western cell and before excavation of south-west corner of building.



Trench 3: Oblique photogrammetry image, looking north-west.

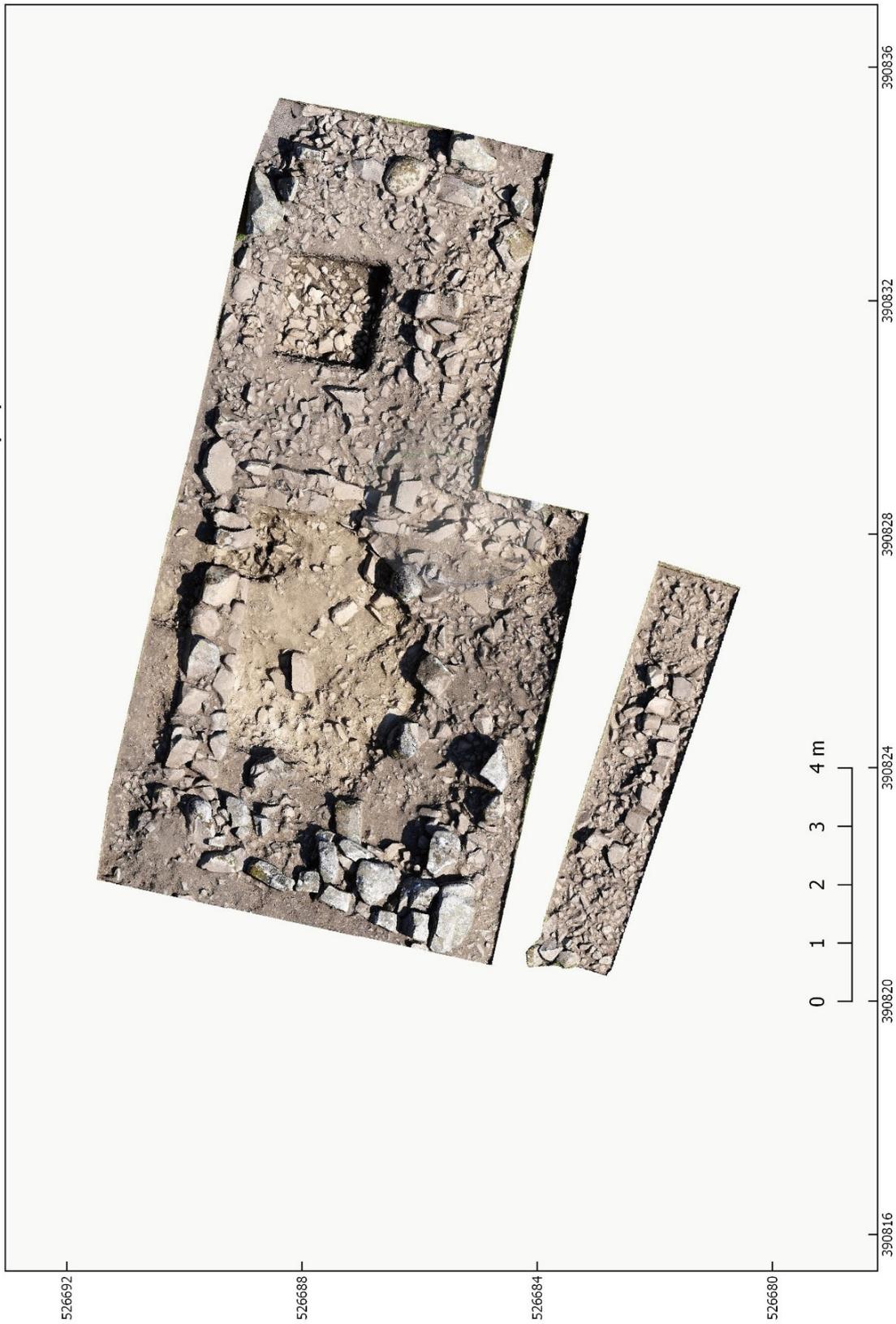


Trench 4: Final photogrammetry after removal of some flat stones. North at top.



Trench 4: At end of excavation (top). Before removal of flat stones (below). North to left.

Holwick Well Head Settlement Trench 5 & 5a on 24/05/2018



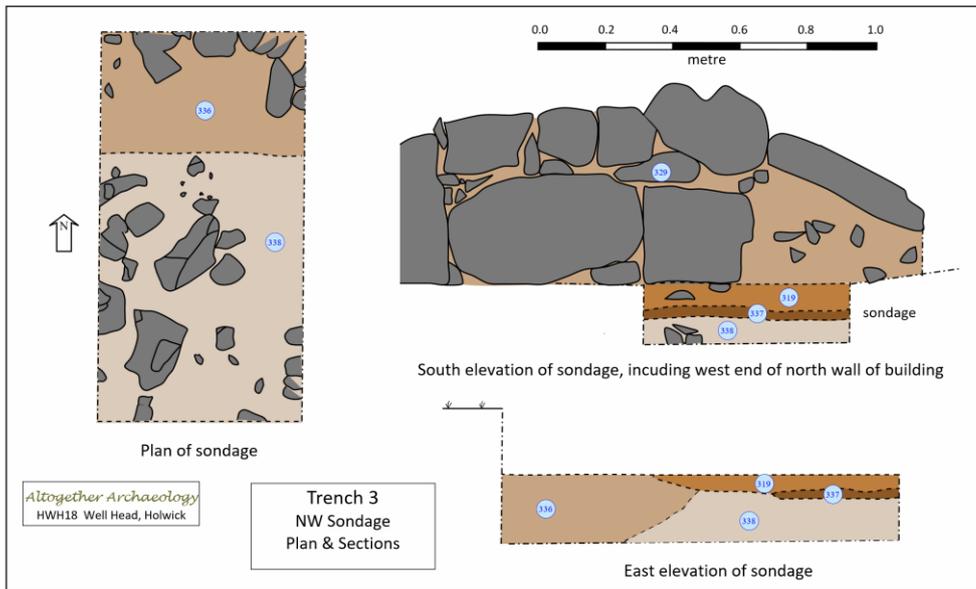
Trench 5: Final image.



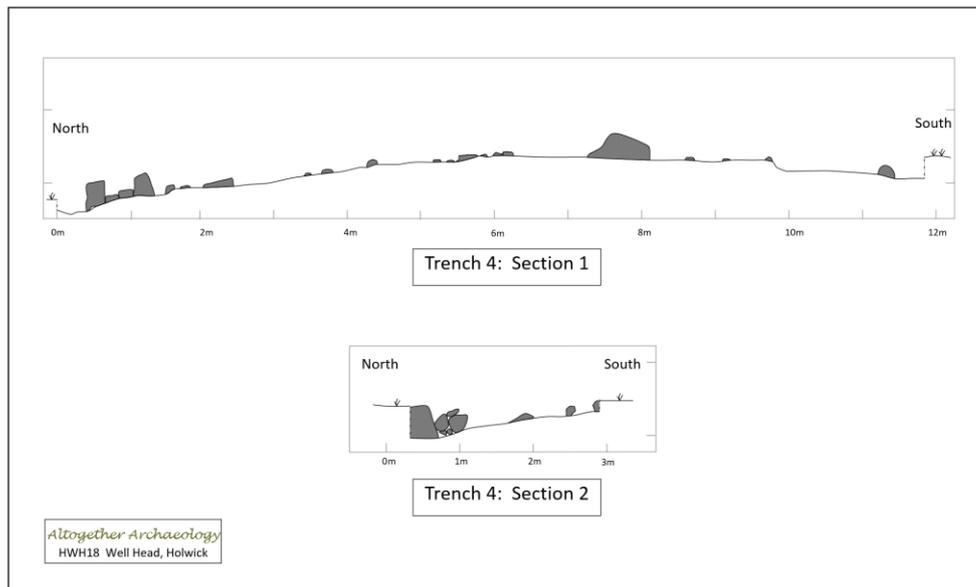
Trench 5: Final image (enlarged version). North is to left.

All photogrammetry images are by Stephen Eastmead, <https://eastmead.com/>.

13 APPENDIX 3: PLANS AND SECTIONS OF TRENCHES 3, 4, 5



Trench 3: Section and plan of sondage at external face of west end of north wall of F9.



Trench 4: Sections. Section 1 is north-south along diameter of monument. Lines of sections are shown on the levels and samples plan (Appendix 10).

14 APPENDIX 4: CONTEXT TABLE: TRENCH 3

Context #	Context Type	Trench	Is above	Is below	Adjoins	Description
301	Topsoil	3	306 307 308 326 330 331 344		302 303	Modern topsoil located within and over the wall bases of the eastern cell of building F9. Mid grey brown, soft and friable silty sandy loam. <1% small stone <5cm inclusions and occasional charcoal flecks, and occasional small (<3cm) coal fragments.
302	Topsoil	3	304 309 310 317 319 320 321 323 324 343		301 303	Modern topsoil located outside of the wall bases of building F9. Mid grey brown, soft and friable silty sandy loam. <1% small stone <5cm inclusions and occasional charcoal flecks, and occasional small (<3cm) coal fragments.
303	Topsoil	3	305 311 327 328 329 332		301 302	Modern topsoil located within and over the wall bases of the western cell of building F9. Mid grey brown, soft and friable silty sandy loam. <1% small stone <5cm inclusions and occasional charcoal flecks, and occasional small (<3cm) coal fragments.
304	Deposit	3	319 329 343 346	302		Rubble banked externally against the north wall of the west cell of building F9 for a length of 2.5m, from western terminus of north wall to (but not across) the north entrance into cross-passage of F9. Angular sandstone rubble 10cm-25cm in topsoil-like matrix. Extends from wall to edge of trench. Deeper (50cm) by wall than at trench edge (20cm).
305	Deposit	3	311 318 333 334	303		Rubble in western cell of building F9 forming a variable thickness layer on top of the upper flagged floor. Angular 10cm – 40cm in topsoil-like matrix. Deepest (80cm) in NE corner of cell.
306	Deposit	3	315 316 344	301	307 308	Rubble in south side of eastern cell of building F9, forming a variable layer on top of flagged floor and SE bay structure. Angular rubble 10cm – 30cm in topsoil-like matrix.
307	Deposit	3	312 313 314 344	301	306 308	Rubble in north side of eastern cell of building F9, forming a variable layer on top of flagged floor and NE bay structure. Angular rubble 10cm – 30cm in topsoil-like matrix.
308	Deposit	3	342 344	301	306 307	Rubble in western end of eastern cell of building F9, forming a variable layer on top of flagged floor and cross-passage floor structure. Angular rubble 10cm – 30cm in topsoil-like matrix.
309	Deposit	3	323 324	302	317	Rubble banked externally against south wall of building F9 from entrance to SE corner of F9, overlying drain 323 and drain-fill. Angular sandstone rubble 10cm – 30cm in topsoil-like matrix. Included incised stone panel.
310	Deposit	3	343	302	317	Rubble banked externally against north wall of building F9 from entrance to NE corner. Angular sandstone rubble 10cm – 30cm in topsoil-like matrix. Included creeing-trough.
311	Surface	3	318 340	303 305	333	Upper flagged floor of western cell of building F9, west of cross wall (332). The floor is well-laid with irregular shaped flags, and generally well preserved, although some flags are lost and some cracked. The floor is horizontal despite F9 being built on a slope (downwards to the east). Below this floor is an earlier more sloping floor (347), with a soil-like deposit (340) between the floors to level the upper floor. One area of flagstones in the SE corner of the cell has been used as a hearth (333). This floor is only present in the eastern 4m of the cell: it is absent in the western 2m.



Context #	Context Type	Trench	Is above	Is below	Adjoins	Description
312	Structure	3	313 314 344	307	330	Bay structure in NE corner of building F9. Approximately 3.2m (E-W) by 1.8m (N-S). Keyed into external wall of F9. The eastern 1m appears to be separate divided from the main bay by a line of stones, including a large (50cm x 35cm) stone, keyed into the outside wall: one of the padstones. The bay structure is defined by a wall-base of a single course of large stones which clearly overlie the flag/cobble floor of the building. The internal floor of the bay (313) is continuous with the floor (344) of this end of the building. This structure is likely to have been an animal stall.
313	Surface	3		307 312	314 344	Floor of main (western section) of NE bay structure. Topsoil-like matrix, with frequent (50%) medium and large irregular stones (up to 50cm). The stones may be natural in situ as some extend under adjacent main wall of building. This context may merge with natural subsoil below: no clear distinction found. Sample taken. Lack of finds. Sample number 301
314	Surface	3		307 312	313 344	Floor of small (0.8 x 1.5m) eastern section of NE bay structure. Is similar to floor (313) of adjacent animal stall. This area may have been a dog-kennel or used for storage.
315	Structure	3	316 344	306	326	Bay structure in SE corner of building F9. Approximately 3.5m (E-W) by 1.6m (N-S). Keyed into external wall of F9. The bay structure is defined by a wall-base of a single course of large stones which clearly overlie the flag/cobble floor of the building. At the NE corner the stones appear mis-aligned. The internal floor of the structure (316) is continuous with the main floor (344) of this cell of the building. This structure is likely to have been an animal stall, similar to (312). There is a padstone 35cm x 35cm in this bay, adjacent to the main south wall of F9 and 1m from the building's east end.
316	Surface	3		306 315	344	Floor of SE bay structure (316). Topsoil-like matrix, with frequent (50%) medium and large irregular stones (up to 50cm). At east and west ends of bay, there are a few flagstones. Some stones may be natural in situ. This context may merge with natural subsoil below: no clear distinction found. Presumably it has been disturbed by animal trampling. Lack of finds. Samples numbers 304 and 314.
317	Deposit	3		302	309 310	Rubble banked externally against east wall of building F9. Angular sandstone rubble 10cm – 20cm in topsoil-like matrix. Maximum height (against wall of F9): 25cm. No structure apparent. May be field clearance.
318	Deposit	3		311 305	319	A lens of black material in the NW corner of the inside of F9. Fragments of charcoal (?and coal) in dark topsoil-like material. Similar to one of the laminae of darker material found in 320 but appears different as the main yellow clay surface of 320 has been cut away on the interior of F9. Lies below slabs of the fragmentary west end of flagged floor 311.



Context #	Context Type	Trench	Is above	Is below	Adjoins	Description
319	Surface	3	336 337 338	302 304 328 329	318 320 346	<p>Surface of compacted clay with charcoal and ?coal. Hearthstone 320 is set into this surface. Has laminations/lenses of darker material (?burnt) and lighter whitish grey material too (clay?). This surface extends under both north and west walls of building F9. The southern limit of this surface is well-defined, a line along the projected line of the inner face of the north wall of F9 (which would be consistent with the surface being cut away to lay the floor of F9 up to the inside face of the wall, which was later robbed out). Black patches may be stake-holes. Suggestive of industrial activity. No floor slabs in this surface except for several small ones adjoining hearth. Not clear why the wall of the building is missing from this, and only this, area. Maybe there was an industrial structure e.g. kiln, worth robbing. Overlies the fill 336 of cut 335. A heat-discoloured and hardened part of this context to the east of the hearth is recorded and sampled separately as 346.</p> <p>Sample numbers 307, 312, 313</p>
320	Structure	3		302 321 322	319 346	<p>A flat stone hearth consisting of a large flat slab 0.8m x 0.9m, with several small flat stones adjacent/fringing it on the east side. The large stone is radially cracked and the central 0.4m diameter is blackened and eroded by heat damage. The central depression thus formed is filled with burnt material including charcoal 321, 322. It is embedded in surface 319. It was not lifted but left in situ.</p>
321	Deposit	3	320 322	302		<p>Upper fill of central depression of hearth 320, consisting of burnt material including charcoal.</p> <p>Sample number 302 (100%, weight 1.4kg)</p>
322	Deposit	3	320	321		<p>Lower fill of central depression of hearth 320, consisting of burnt material including charcoal. It was 100% sampled.</p> <p>Sample number 303 (100% weight 0.4kg)</p>
323	Structure	3		302 309 324		<p>An open (i.e. without covering slabs) drain along the outside of the south wall of building F9. It is about 20cm wide internally and centred 30cm from the outer face of the building wall. The western (upper) end was only partially excavated with a 1.5m section seen. Hence its upper end may be at the west end of F9, or it may extend further west. It is stone edged and rubble based (without bonding) as it passes eastward beside the south entrance to F9, but becomes a simple gully from 3m east of the cross-wall. The north side stones butt against, but are not keyed into, the wall of the building. The fill of the drain is 324. The side walls of the drain are most robust passing the building entrance, possibly to support a bridging slab (which is not now present). Two massive irregular stone slabs were lying across the drain to the east of the entrance (one incised with a design on its lower surface).</p>
324	Deposit	3	323	302 309		<p>The fill of drain 323. Dark grey silty material with small stones. Wet! Several finds in this context including green-glaze potsherds a clay pipe fragment and a spindle whorl.</p> <p>Sample number 305</p>
325	Topsoil	3a	343			<p>Modern topsoil in Trench 3a over the flagstone path 343 approaching north door of building F9. Mid grey brown, soft and friable silty sandy loam. <1% small stone <5cm inclusions.</p>



Context #	Context Type	Trench	Is above	Is below	Adjoins	Description
326	Structure	3		301	315 331	South wall of F9, east of entrance to building. No large corner stone, may have been lost or washed away. Partially overlain by tumbled field-wall of massive whinstone blocks. Inner & outer faces of large blocks, mostly sandstone, some whin. Rubble infill. Up to 3 courses. Average width 0.80m. No mortar or clay bonding. A padstone is keyed into inner face.
327	Structure	3		303	328 332	South wall of F9, west of entrance to building. Partially overlain by tumbled field-wall of massive whinstone blocks. Similar in size/structure to 326. Includes junction with cross-wall 332, which appears to be keyed into it and therefore part of same construction phase. A padstone is keyed into it. Two 2m sections at east end not excavated due to overlying field wall.
328	Structure	3	319	303	327	West wall of F9. 2.9m of wall seen in trench, average width 0.85m. Well built, up to 4 courses. Large corner stone at N end. Inner & outer faces of stone blocks, rubble fill, no mortar/clay bonding. Height 0.8m. Beside base of outer face is layer of flat rubble ?drain. Revetment wall, 339, to north is not keyed into it, passing just west of north corner. A stone projects internally from lowest course of inner face, with stone to south missing. The wall narrows slightly at the north end of its outer face, possibly to avoid the revetment wall.
329	Structure	3	319	303 304		North wall of F9, west of the north entrance. Extant length 4m. The west end is absent, probably robbed across the position of hearth 320. Wall is of large irregular blocks. A short section of Mycenaean masonry at E end of inner face, possibly a repair. Width average 0.8m, Height 0.5m. The westernmost stone in the second course is unsupported and hence dropped at its west end, presumably from robbing of surrounding stones.
330	Structure	3		301	312 331	North wall of F9, east of the north entrance. Mostly just a single course on external and internal faces. The remnant of a second course is present in places but show signs of slippage. Large facing stones, rubble infill. No bonding (as is case for all building walls). Width average 0.8m. Mostly sandstone blocks, some crudely shaped. There is a massive block forming the building's NE corner. A padstone is keyed into the inner face of the wall.
331	Structure	3		301	326 330	East wall of F9. Average 0.95m wide. There are eight large boulders in the external face, the four to the east being particularly massive. The SE corner stone is missing. There is a drain hole in centre of wall, in-line with the central passage/drain in the building between the possible animal stalls 312 & 315. A single large block forms a lintel over the drain-hole. The lower corner of this block shows signs of damage along its internal edge, possible the result of attempts to clear the drain. The wall lies on soil and stones, presumably the ground was roughly levelled prior to construction of the building.



Context #	Context Type	Trench	Is above	Is below	Adjoins	Description
332	Structure	3	347	303	327	The internal cross-wall of building F9. It lies immediately to the west of the opposed north and south entrances. Average width 0.75m. There are two good faces but no evidence of a core or bonding. There are 2 courses at the S end, just a single course elsewhere. At its north end it incorporates a threshold stone (0.28m x 0.76m) that has a pivot hole at its north end. This would have held the door into the western part of the building from the cross-passage. The flagged floors to the east and west of the cross wall (342 & 311) are neatly laid up against it. There are two padstones incorporated in the cross-wall, one at each end at the join with the outside walls.
333	Structure	3	340	305 334	311	A hearth consisting of an area of flagstones affected by heat, with blackening and heat-shattering. Part of flagstone floor 311. Blackened area is approximately 0.8m diameter, heat shattered area 0.4m diameter. Centred 0.6m from face of cross-wall 332 and 1.2m from inner face of south wall 327 of building. No sign of any structure around hearth slabs. Contents 334 of hearth sampled.
334	Deposit	3	333	305		Fill of the central depression (caused by heat-shattering) of hearth 333. Burnt material with charcoal. Sample number 306 (100%, weight 0.4kg)
335	Cut	3	337 338	336		Cut into 337 & 338 seen in north-south section of sondage to east of hearth 320 and in section beside hearth. Cut into subsoil. Maybe of ditch running parallel to the north wall of building F9, with north side of ditch being outside area of trench. Fill is 336. Is overlain by surface 319. Is to the north of, not underneath, hearth 320. See photographs.
336	Deposit	3	335	319		Fill of cut 335. Probably ditch fill. Dark brown humic, silty. Sample number 311.
337	Deposit	3	338	319 335		Dark layer, seen in south section of sondage, appears to be an old turf layer beneath surface 319 which underlies the north wall of building F9. Extends to north, where it is terminated by cut 335.
338	Natural/ geology	3		319 335 337		Subsoil, cut by cut 335, under 319 and 337. Seen in sondage base & elsewhere in trench.
339	Structure	3				Curving revetment wall in NW corner of trench. Passes with small gap outside the NW corner of building F9: is not keyed into it. Surface 319 doesn't pass under it. About four irregular courses of undressed stones up to 0.4m, no bonding, some tumbled. Leaning back into slope of hillock. Only 2m seen in trench: extends at both ends beyond trench.
340	Deposit	3	347	311 333		Topsoil-like layer under 311, the flagged floor, at the west end of the building. Grey-brown, gritty, with some fragments of coal, charcoal, potsherds and pipe-stems. Probably redeposited material, used to level up the flagged floor 311 which is horizontal, whereas the older under-lying flagged floor 347 sloped downwards to the east. Hence this deposit is thickest, 0.3m, in the east and tapers to disappear at its eastern margin, 2m west of the cross-wall 332. Sample numbers 309 and 310



Context #	Context Type	Trench	Is above	Is below	Adjoins	Description
341	Structure	3				North entrance of building F9. Approached externally by flagged path 343. Possibly at some time after construction was reduced in width to its current 0.6m. A threshold stone circa 0.3m x 0.8m is set on the mid-line of the building wall. There is a slot in the E end of the stone, 22cm x 6m (and 7cm deep) containing an in-situ small stone, maybe some kind of locking device. Evidence of heavy wear of the threshold stone, but the floor slab adjacent to it is smooth and flat, may different type of stone.
342	Surface	3	350 351 352	308		Flagstone floor of cross-passage of building F9. Well-laid. Overlays the floor 344 of the central and eastern parts of F9 (which is continuous with the lower floor 347 of the western cell of the building). Neatly abutting the cross-wall 332 to the west and also abuts the internal face of the north wall, but is lost where it approaches the south wall. Surviving width circa 1m. The east edge is irregular and some slabs may have been lost. There may have been a screen along at least part of this side of the passage, but no post-holes or slots were found. Directly below this surface (and above the lower floor 344) is a drain 350 running through the deposit between the floor levels.
343	Surface	3 3a		302 304 310 325		Flagstone path leading externally to the north entrance to building F9. Overall width 0.8m. Stones are worn smooth close to entrance, less so in Trench 3a (circa 5m from the building). Is laid on a terrace on the hillside, clearly visible on the surface; the terrace continues further north from Trench 3a, rising up the side of the hillock. The stones are irregularly laid.
344	Surface	3	348	301 306 307 308 312 315 350 352	313 314 316 347	Slabbed floor of central and eastern part of F9. Is overlain by cross-passage floor 342 with an intervening drain 350. very worn in places Some areas of large flags, some of smaller cobbling, all a bit higgledy-piggledy. Slopes downwards to east.
345	Structure	3				South entrance of building F9. Width probably 1.1m, though west side is unclear. On the east side flags are set within the thickness of the wall, extending into the interior, and are overlain by later upper floor of the cross-passage. The entrance may have been reduced in width at some time. The drain 323 passes the entrance externally, presumably there would have been flagstones over the drain to ease crossing.
346	Surface	3		304	319 320	Part of clay surface 319 around hearth 320. This is the 0.5m diameter part of 319 that is baked hard, with heat darkening. It is adjacent and to the east of the hearth, between it and the terminus of the north wall (though not extending to it). Sample number 308.
347	Surface	3	349	332 340	344	Lower flagged floor in the western cell of the building F9. It extends under the cross-wall and is continuous with the flagged floor in the central part of the building. It is cruder than the upper floor level (311) and slopes downwards to the east. It extends 2m westwards from the cross-wall 332: further west it has probably been replaced by the laying of the new floor 311.
348	Deposit	3		344		Soil-like layer under the flagged floor of centre of building. Dark greyish brown friable. Some charcoal and potsherds. Probably material redeposited during levelling of site prior to construction of floor. Sample number 315



Context #	Context Type	Trench	Is above	Is below	Adjoins	Description
349	Deposit	3		347		Deposit under the lower flagged floor 347 of the western cell of building F9. Mid-brown silty/humic, with some clay inclusions. Medium stones common. Charcoal and medieval potsherds. Probably redeposited material during levelling of site prior to construction of floor. Sample number 316
350	Structure	3	344	342 351	352	Drain internal to building F9. Constructed of unbonded stones, lying on top of lower flagged floor 344. Overlain by cross-passage floor 342. Extends 3.5m. Internal width 0.12m, height 0.12m. Runs slightly downhill in NNE direction from centre of cross passage, exiting building through north wall, just to the east of the north entrance. Fill is context 351.
351	Deposit	3	350	342		Fill of drain 350 running under floor of cross-passage. This filled the drain completely. Wet, dark grey/brown silty deposit. Sample number 317.
352	Deposit	3	344	342	350	Deposit below cross-passage floor 342, and over lower flagged floor 344. Presumably this deposit was used to raise the level of the new cross-passage floor to be the same as the upper floor 311, of the western cell of the building F9. This allowed a drain to be inserted and the new cross-passage floor to be raised above the animal-occupied east end of the building.

15 APPENDIX 5: CONTEXT TABLE: TRENCH 4

Context #	Context Type	Trench	Is above	Is below	Adjoins	Description
401	Topsoil	4	402 403 404 405 407			Modern topsoil: brown sandy loam. with small stones grit to 5cm. Friable, soft. Over whole area of trench.
402	Structure	4	405	401	403	Curving roughly built stone wall with outer and inner faces, infilled with small stones and earth. No bonding. Length 5m, width 1m. Height 0.5m maximum. Mostly a single course of large (0.4m) irregular undressed stones.
403	Surface	4	405 408	401	402	Very irregular flagstone surface adjacent to inner (concave) face of wall 402. Length 5m, width 1.3m but ill-defined southern edge. Stone very variable in size, undressed. e.g. 0.64m x 0.40m, 0.55m x 0.50m. Depth about 0.1m. Sample taken of soil in between flags. This surface overlies a deposit, 408, which includes charcoal fragments. Sample number 401
404	Surface	4	405	401		An area of irregular flagstone surface, about 2m x 4m in centre of trench, centred approximately 4.5m from inner face of wall 402. Stones very variable in size, up to 0.6m. All stones lifted, and the underlying subsoil 405 cleaned, but no features found. If wall 402 was originally circular (with most of it now lost), then this surface may have been situated in the centre.
405	Natural Subsoil	4		401 402 403 404 406		The natural subsoil consisting of yellowish compacted clay with sand. Many inclusions of all sizes of irregular stones.
406	Cut	4	405	407		A 0.3m x 0.25m cut into subsoil 405. Almost circular, depth 0.21m maximum. Rounded irregular bottom. Fill is 407. May be post-hole or animal-hole. Situated to west of surface 404, 1m east of trench margin.
407	Deposit	4	406	401		Fill of 406. No finds. sandy loam, some small stones. No organic fragments. Scanty small stones 1cm. Sample number 402
408	Deposit	4	405	403		Deposit underlying stone surface 403 and over subsoil 405. Thin irregular layer up to 0.4m deep. No finds. Some charcoal fragments. Orange sand/clay compacted but looser than subsoil. Small stones included. ?redeposited subsoil with old topsoil? Sample taken, which includes charcoal fragments. Sample number 403



16 APPENDIX 6: CONTEXT TABLE: TRENCH 5

Context #	Context Type	Trench	Is above	Is below	Adjoins	Description
501	Topsoil	5	504 509		502 503 505 506 507 522	Modern topsoil located within the western cell of structure F12. Mid grey brown, soft and friable silty sandy loam. <1% small stone <5cm inclusions and occasional charcoal flecks, and occasional small (<3cm) coal fragments. The topsoil surrounds several large foundation stones (50-100cm) that have been displaced; most probably when the site was robbed to build the enclosure wall approximately 10m to the south of Trench 5. Many smaller rocks size:10-30cm are scattered amongst the topsoil too. Depth 0.05m to 0.20m.
502	Topsoil	5	504 520		501 503 505 506 507 514 522	Modern topsoil located outside of the foundation walls. Mid grey brown, soft and friable silty sandy loam. <1% small stone <5cm inclusions and occasional charcoal flecks, and occasional small (<3cm) coal fragments. The topsoil surrounded several large foundation stones (50-100cm) that are in or very close to their original foundation stone locations. Several smaller rocks <1% size: 10-30cm are scattered amongst the topsoil too. Depth 0.05m to 0.20m.
503	Structure	5	504		501 502 505 507	The western end of the southern foundation wall remnant measured 3.70m long and approximately 0.70m wide, with heights ranging between 0.37m to 0.45m, constructed using monolith type boulders. Some are now earth fast and some are sitting on what appears to be a natural scree bank 504, that was probably originally terraced along the line of the wall. The eastern section of the wall is absent. It has either been robbed out or displaced down the scree bank into the scooped interior. This wall does not extend to the eastern of the two cells of the building.
504	Natural	5		501 502 503 505 507		The continuation of the scree bank described under 503. It is 4.35m long, where the eastern 1.05m was used as the foundation to the eastern wall of the western cell 505. Any sign of terracing has been either eroded or subsided away. There are no building foundation stones present. This deposit looks to be of glacial origin rather than hill wash from Holwick Scar. The scree bank disappears halfway across the scooped cell. Total depth is unknown.
505	Structure	5	504 512		501 502 503 506 508 509 510 514 523	This intermediate foundation wall appears to divide the western scooped cell from the smaller eastern cell. The eastern cell was probably constructed after the western cell and shares context 505 as a common wall. The eastern cell is not as wide 3.75m (externally) whereas the western cell is 5.80m wide (externally). The northern 1.85m of the wall has large foundation stones present, then there is a 0.90m wide doorway 523 between the two cells. The section of foundation wall to the south of the doorway then gradually gets more indistinct as it climbs the scree bank 504. The foundation stones to the north of the doorway appear to be set on top of 512.



Context #	Context Type	Trench	Is above	Is below	Adjoins	Description
506	Structure	5	512 524		501 502 505 507 508 520	The northern foundation wall to both western and eastern cells. The length that marks the western cell is the most complete section of wall constructed using monolith type boulders again set on a natural boulder clay 524 towards the NW corner, then as the 524 dips down eastwards on top of two or three courses of much smaller stones which in turn are set on top of clay layer 512. The eastern section of northern wall then becomes indistinct beyond the western cell, although the north-east corner is delineated. There are no identifiable external entrances to either cell. The most probably site for such an entrance is through the northern wall between 2m and 5m from the north-east corner. The northern wall is 12.5m long externally and varies in width between 0.65m and 0.90m. There is a large earth fast boulder close to but just outside of the line of the northern wall at the north-east corner.
507	Structure	5	504		501 502 503 506	The western foundation wall which is largely constructed of large monolith type boulders set at the back of the 'scoop'. They appear to have been disturbed whilst being robbed to construct the modern field-wall or have slightly subsided down the scooped bank. The wall measures 4.20m internally and 5.80m externally, and 0.90m to 1.00 m wide and ranging from 0.15m to 0.45m high. The southern half of this wall lies on top of the natural scree layer 504.
508	Topsoil	5	515 523		505 506 514 522 523	Modern topsoil within the walls of the eastern cell. Mid reddish brown, soft and friable silty sandy loam. <1% small stone <5cm inclusions and occasional charcoal flecks, and small (<3cm) coal fragments. The topsoil surrounded several large foundation stones (50-100cm) that have been displaced most probably when the site was robbed to build the enclosure wall approximately 10m to the south of Trench 5. Many smaller rocks size:10-30cm are scattered amongst the topsoil too. Depth between 0.10m and 0.20m
509	Deposit	5	510	501	505	This context is below topsoil 501 in the central area of the western cell, and above 510. It appeared as a possible surface, but on later evaluation, it was adjudged to be a stonier and slightly more compact version of 501 but not sufficiently compact to have been used as a floor surface. This could have been generated when the foundation walls were being robbed out. The area excavated is of irregular shape 4.3m x 3.2m. Depth 0.10m and 0.20m. This topsoil is a reddish brown and slightly clayey loam when damp.
510	Deposit	5	512	509	505	This context extends below 509. It is a less stony version of 509. The deposit appears a mid-reddish brown clayey loam. Depth 0.05m to 0.10m.
511	Topsoil	5a			513	This topsoil surrounds the wall in Trench 5a. It is a soft clayey sand with no significant inclusions. A small number of angular scree type rocks 5cm to 25cm are found randomly. The trench is 7.40m x 1.45m.
512	Surface	5	521 524	505 506 510 523	519	A firm clayey sand surface, light yellowish brown with approximately 5% small stone inclusions up to 10cm. The wall in this area appears to be set on top of this layer. A sondage 518 was excavated on the opposite side of the wall which confirmed that this layer continued beneath and beyond the wall as 519. A heat damaged area 521 was contiguous with 512. The appearance of layer 512 was similar to a layer in Trench 3 that surrounded an ?early round hearth.



Context #	Context Type	Trench	Is above	Is below	Adjoins	Description
513	Structure	5a			511	Is consistent with it being a partially robbed medieval wall appearing to be of later period construction than the Trench 5 rectangular building. There appears to be a second earthwork close to the modern field-wall that is likely to relate to 513. What is left of the wall measures 5.40m and approximately 0.63m wide. Height ranged from 0.1 to 0.35m
514	Structure	5			502 505 508 522	The eastern cell's southern wall remnant which extends westwards 3.55m from its SE corner, and is approximately 0.80m wide. This wall appears of a later date than the relatively crude bolder type foundations present in the western cell. The last 1.70m of the wall before it meets the dividing wall 505 has been robbed out. It connected to 505 immediately south of the interconnecting doorway 523.
515	Deposit	5	517	508		This context is below topsoil 508 in the eastern cell. It is a similar soil to 508 but with an increased quantity of 10-30cm of random sandstone rocks which do not form a useable surface. Size is 5.00m x 2.40m. Depth 0.12m-0.15m.
516	Sondage	5				A sondage was excavated through 515, measuring 1.80m x 1.70m and 0.35m-0.40m in depth, with the object of finding a recognisable floor surface. No surface was found.
517	Deposit	5		515		The deposit under 515 through which the sondage was excavated: it is similar to 515. However, two finds were unique to this context. Across the rest of Trench 5 a uniform scatter of charcoal specks can be found in the lower topsoil and other layers above the glacial boulder clay natural. However, 517, especially at the eastern end, contained a much larger collection of sizable charcoal lumps in the order of 1-5cm in size. In the same area a single piece of possible bloomery iron slag was found. There was no indication of burning in this area. Iron deposits were being mined on the adjacent moorlands to the south of Well Head. Sample number 503
518	Sondage	5				This sondage 1.00m x 0.70m was excavated through 102 on the north side of wall 506 (i.e. outside the structure F12). The intention was to see if clayey surface 519 extended beneath wall 506. This was confirmed.
519	Surface	5		520	512	Surface outside the wall: a continuation of surface 512 under the wall 506. A firm clayey sand surface, light yellowish brown with approximately 5% small stone inclusions up to 10cm. Sample number 501
520	Deposit	5	519	502	506	This topsoil-like material is similar to 510, a mid-reddish-brown clayey loam. It was found in the sondage north of wall 506, lying below topsoil 502 and above clay surface 519. With small sandstone rocks 5cm-25cm. Size 1.00m x 0.70m and approximately 0.20m-0.25m deep.
521	Deposit	5	524	512		This context appears to be an area of heat affected rock and / or baked clay. There is no defined structure, but the heat appears to have been intense. There may be some animal interference undermining the area too. Samples were taken which included charcoal. The area is in the NE corner of the western scooped cell of F12, embedded in and underlying clay surface 512. There is no indication that it extended under the foundation walls. The size was 1.50m x 1.08m. Sample number 502



Context #	Context Type	Trench	Is above	Is below	Adjoins	Description
522	Structure	5			501 502 508 514	Eastern wall to the eastern cell of F12. 3.75m (external) x 0.90m wide. Internal width 2.25m. Made from a mix of slightly smaller boulder type stones and the more conventional rectangular stones.
523	Structure	5	512	508	502 505 508	Relatively crude interconnecting doorway between eastern and western cells. 0.90m wide with a large stone on the south side that appears to act as a door jamb.
524	Natural	5		506 512 521		Located to the western border of the excavated region in the scooped western cell consisting of a compacted yellowish brown stiff sandy boulder clay containing in the order of 50% rocks between 10cm-35cm. The west end of north wall was built on top of this clay, but the clay dips lower to the east, so the wall further east rests on 512.

17 APPENDIX 7: SAMPLES LIST: TRENCHES 3, 4, 5

This table gives all samples taken in Trenches 3, 4, and 5. For location plans of these samples, see Appendix 10.

Sample #	Trench #	Weight kg	Context #	% of context	Context Description	Reason
301	3	0.43	313	5	Floor of NE animal stall	Environmental info as to animal usage
302	3	1.4	321	100	Upper fill of hearth 320	Dating. Use of hearth
303	3	0.4	322	100	Lower fill of hearth 320	Dating. Use of hearth
304	3	5.3+4.5	316	5	Floor of SE animal stall	Environmental info as to animal usage
305	3	3.7	324	10	Fill of drain outside S wall of F9	Environmental info/dating
306	3	0.4	334	100	Fill of hearth 333	Dating. Use of hearth
307	3	>5+5.2	319	10	Surface 1.5m E of hearth 320	Use: industrial?
308	3	1.7	346	20	Fire-baked surface 0.2m E of hearth 320	Use: industrial?
309	3	4.3+3.5	340	5	Deposit under upper flagged floor 311 in west cell of F9, N of hearth 333	Environmental info/dating
310	3	3.3	340	5	Deposit under upper flagged floor 311 in west cell of F9, S of hearth 333	Environmental info/dating
311	3	5.9	336	10	Fill of cut under surface 319 around hearth	Industrial use/dating
312	3	2.0	319	10	Surface around hearth 320, sampled at terminus of north wall of F9	Use: industrial?
313	3	3.2	319	10	Surface around hearth 320, sampled beside N end of W wall of F9	Use: industrial?
314	3	4.9	316	5	Floor of SE animal stall, below slabs	Environmental info as to animal usage. Dating



Sample #	Trench #	Weight kg	Context #	% of context	Context Description	Reason
315	3	2.0	348	1	Deposit below floor in middle of F9	Environmental info/dating
316	3	4.9	349	1	Deposit below lower flagged floor 347 in west cell of F9	Environmental info/dating
317	3	4.1	351	10	Fill of drain under upper floor of cross-passage of F9	Environmental info/dating
401	4	2.9	403	2	Flagstone surface on inner side of curving wall	Includes charcoal: Dating, environmental
402	4	5.4	407	100	Fill of small post or animal hole	Environmental/dating
403	4	2.3	408	2	Deposit below flagstone surface on inner side of curving wall	Environmental, dating. Includes charcoal.
501	5	>5	519	3%	Clay floor surface near burnt area 521	Industrial use?
502	5	3.5	521	5%	? hearth / furnace in corner of scooped cell	Industrial/ domestic use?
503	5	0.07	517	1%	From area around large charcoal deposit	Industrial/ storage use?

18 APPENDIX 8: SMALL FINDS LIST: TRENCHES 3, 4, 5

Description	Easting	Northing	AOD
	BNG	BNG	(m)
Trench 3			
SF301	390833.97	526700.51	279.34
SF302	390834.85	526698.67	279.01
SF303	390846.31	526700.47	278.13
SF304	390844.36	526697.73	278.22
SF305	390839.61	526698.44	278.59
SF306	390837.62	526697.26	278.98
SF307	390837.28	526696.58	278.93
SF308	390836.14	526697.18	279.10
SF309	390835.58	526696.98	279.07
SF310	390835.84	526697.27	279.08
SF311	390846.58	526699.28	277.61
SF312	390833.68	526701.16	279.06
SF313	390842.80	526693.98	279.05
SF314	390843.68	526695.59	279.07
SF315	390830.93	526698.96	279.37
SF316	390830.44	526699.51	279.38
SF317	390830.73	526699.32	279.41
SF318	390830.30	526699.14	279.49
SF319	390839.40	526695.86	278.59
SF320	390844.05	526694.15	279.08
Trench 4			
SF401	390706.25	526775.84	284.66
SF402	390704.58	526780.29	284.33
SF403	390704.71	526781.17	284.36
Trench 5			
SF501	390826.93	526690.58	281.28
SF502	390831.69	526688.90	280.58
SF503	390831.23	526689.80	280.72
<p>Note: Map Accuracy: Data corrected using OS Net 1 minute Rinx downloads. The geoid used consistently offsets the grid references about 2.4m to the north of their actual locations.</p>			

19 APPENDIX 9: LIST OF LEVELS: TRENCHES 3, 4, 5

Level Number	Trench Number	Level O.D. metres	Level Number	Trench Number	Level O.D. (metres)	Level Number	Trench Number	Level O.D. (metres)
TBM		281.70	29	3	277.82	11T	4	281.77
1T	3a	278.26	30	3	278.05	11B	4	281.60
1B	3a	278.16	31	3	278.22	S1	4	282.77
2T	3a	278.75	32	3	278.09	S2	4	281.24
2B	3a	278.63	33	3	278.31	S3	4	281.31
3T	3a	278.69	34	3	278.47	S4	4	281.66
3B	3a	278.53	35	3	278.50	S5	4	281.62
4T	3a	278.06	36	3	278.18	S6	4	281.57
4B	3a	277.96	37	3	278.55	S7	4	281.94
5T	3	279.78	38	3	278.98	S8	4	281.80
5B	3	279.09	39	3	278.50	S9	4	281.54
6T	3	277.29	40	3	278.83	S10	4	281.52
6B	3	277.19	41	3	279.02	S11	4	281.32
7T	3	277.89	42	3	279.82	S12	4	281.42
7B	3	277.55	43	3	279.02	S13	4	281.23
8T	3	279.11	44	3	278.72	S14	4	281.52
8B	3	278.43	45	3	279.02			
9T	3	279.08	46	3	278.72	1T	5	281.44
9B	3	278.76	47	3	278.95	1B	5	281.40
10T	3	279.14	48	3	278.72	2T	5	281.89
10B	3	278.80				2B	5	281.77
11T	3	279.30	1T	4	281.50	3T	5	281.86
11B	3	278.92	1B	4	281.25	3B	5	281.95
12T	3	279.84	2T	4	281.68	4T	5	281.27
12B	3	279.44	2B	4	281.53	4B	5	281.19
13	3	278.89	3T	4	281.31	5T	5	281.96
14	3	278.78	3B	4	281.21	5B	5	281.85
15	3	278.63	4T	4	280.36	6T	5	281.06
16	3	277.79	4B	4	280.27	6B	5	280.96
17	3	277.81	5T	4	280.75	7T	5	280.67
18	3	277.82	5B	4	280.65	7B	5	280.57
19	3	277.79	6T	4	280.90	8T	5	280.00
20	3	277.78	6B	4	280.78	8B	5	279.80
21	3	278.62	7T	4	281.88	9T	5	279.49
22	3	278.76	7B	4	281.71	9B	5	279.38
23	3	278.57	8T	4	281.77	10T	5	281.34
24	3	278.84	8B	4	281.63	10B	5	281.13
25	3	279.39	9T	4	281.53	11T	5	279.89
26	3	278.92	9B	4	281.28	11B	5	279.46
27	3	277.42	10T	4	281.04	12T	5	279.77
28	3	277.56	10B	4	280.91	12B	5	279.31

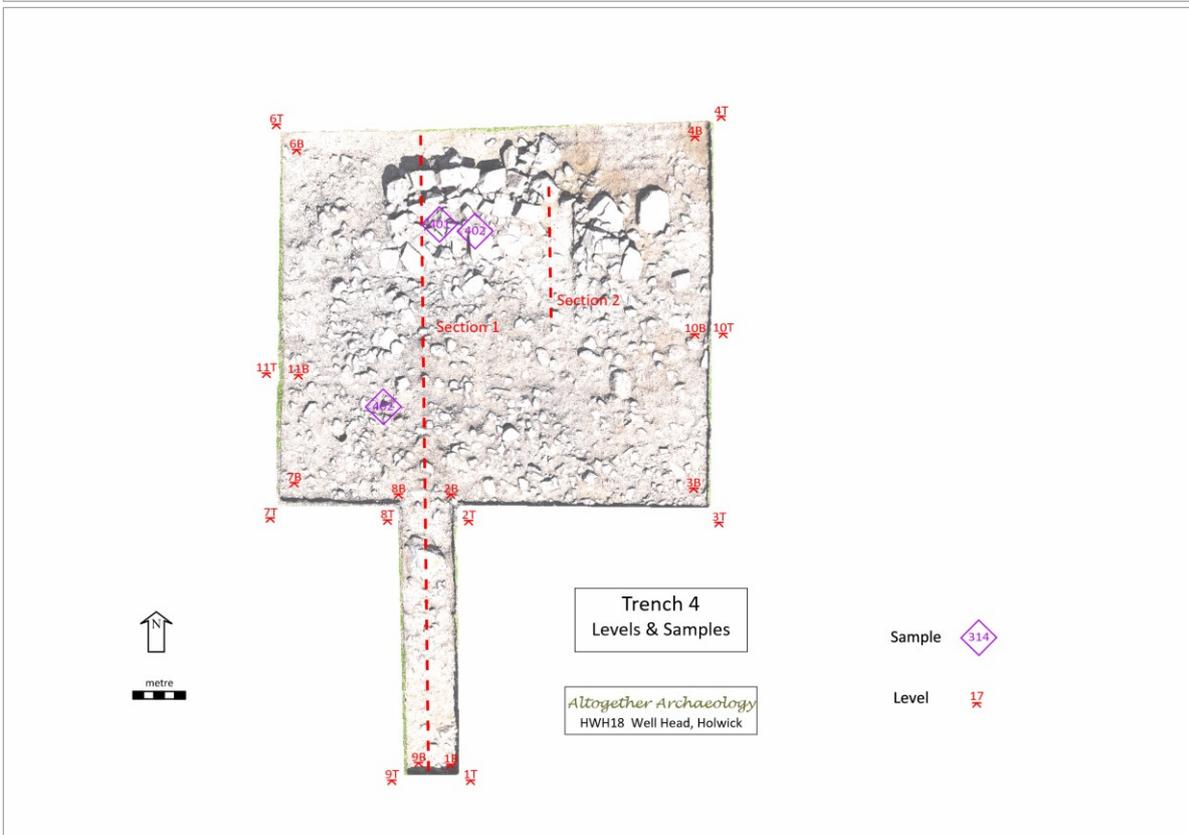


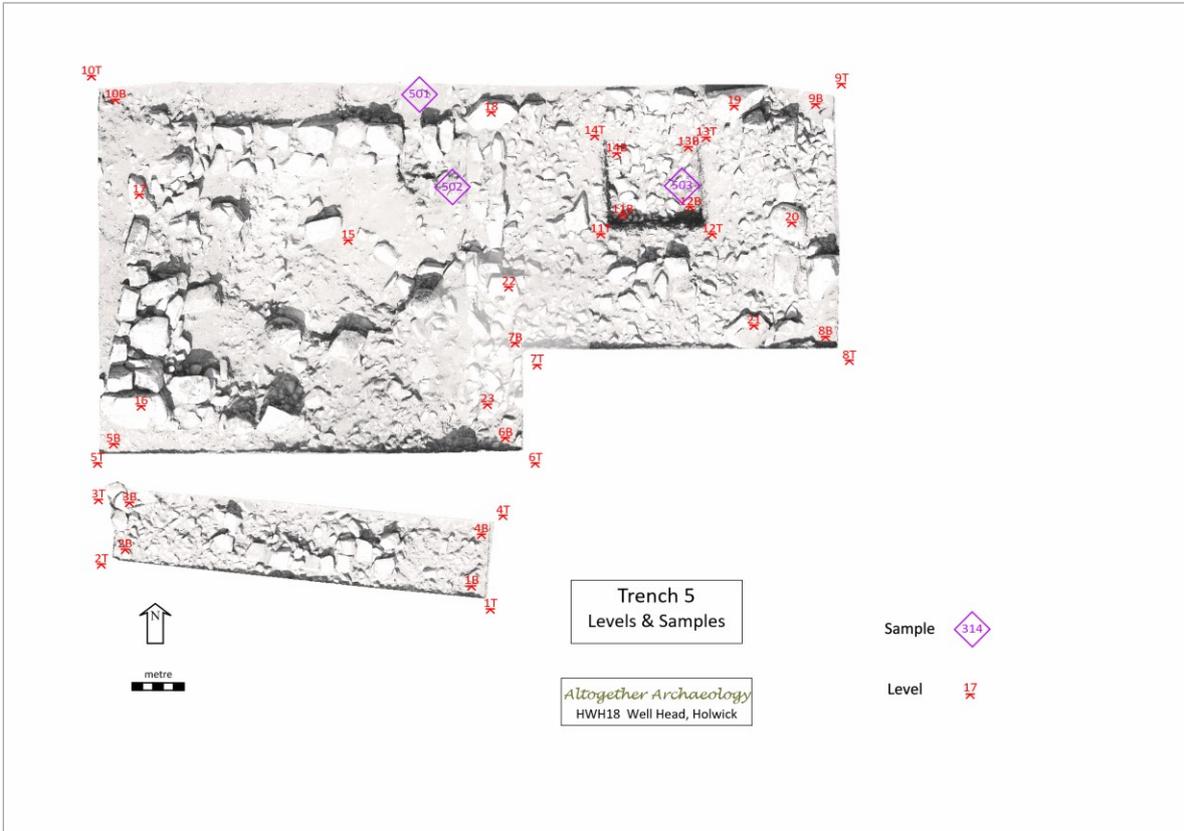
Level Number	Trench Number	Level O.D. metres	Level Number	Trench Number	Level O.D. (metres)	Level Number	Trench Number	Level O.D. (metres)
13T	5	279.75	16	5	282.05	21	5	280.18
13B	5	279.24	17	5	281.54	22	5	280.45
14T	5	279.74	18	5	280.09	23	5	280.94
14B	5	279.54	19	5	280.37			
15	5	280.35	20	5	280.12			

For position of the levels, see plans in Appendix 10, except for Trench 3a levels which positioned as follows:

- 1B & 1T: NW corner of trench (bottom of trench & top of turf)
- 2B & 2T: NE corner of trench (bottom of trench & top of turf)
- 3B & 3T: SE corner of trench (bottom of trench & top of turf)
- 4B & 4T: SW corner of trench (bottom of trench & top of turf)

20 APPENDIX 10: LEVELS & SAMPLES LOCATION PLANS: TRENCHES 3, 4, 5





21 APPENDIX 11: PHOTOGRAPHS OF PADSTONES

Photographs are shown of each padstone. See section 7.1 for location of padstones in Trench 3.



Padstone 1s, looking SE.



Padstone 1n, looking NW.



Padstone 2s, looking S.



Padstone 2n, looking NW.



Padstone 3s looking NW. Padstone is to left of tip of left ranging pole.



Padstone 3n looking NE. Padstone is to right of tip of ranging pole.



Padstone 4s, looking SW.



Padstone w, looking SW. Padstone is to right of 30cm scale. The diamond shaped slab in the foreground, although different to other padstones, may have supported **padstone 4n**.