



**Excavation of an 18th Century Pottery Kiln
at Ley Farm, Heath End,
Ashby-de-la-Zouch, Leicestershire.**

Interim Report

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Excavation of an 18th Century Pottery Kiln at Ley Farm, Heath End, Ashby-de-la-Zouch, Leicestershire.

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1. Introduction

- 1.1 Excavation of a site at Heath End, Leicestershire, was carried out by members of the Ticknall Archaeological Research Group (TARG) directed by staff from Mercian Archaeological Services CIC (MAS, Mercian). The excavation took place over six days between 15th and 20th of May 2013 and involved the excavation of an area of approximately 35m²
- 1.2 The excavation revealed part of the remains of an 18th century Type 3 (Musty, 1974) pottery kiln with associated features (metalled surface, possible coal store, pot dump, post hole). The kiln was firing delicate mottled ware tablewares in saggars and probably coarser bowls and jars in lead glazed earthenware, the latter having been found in quantity in the overlying ploughsoil.
- 1.3 The kiln was of brick construction and coal fired. The internal diameter of the firing chamber was 6' (1.83m). The four flues encountered in the trench suggested the kiln had been built with eight.
- 1.4 The excavation adds significantly to knowledge of the Ticknall pottery industry.

2. Archaeological and Historical Background

2.1 Historical Background

- 2.1.1 Ticknall in South Derbyshire was home to an extensive and long lived ceramics industry, producing pots from at least the late medieval to modern periods and supplying customers throughout the East Midlands region. Extensive research by Janet Spavold and Sue Brown of TARG has identified a number of certain and probable kiln sites associated with the Ticknall industry, though not all within Ticknall parish (Spavold and Brown, 2005).
- 2.1.2 The site of the excavation, Ley Farm (site 20 in Spavold and Brown), is within a small settlement known as Heath End. Ley Farm itself is the most ancient site known within the Heath End settlement, recorded as a 16th century structure on the Leicestershire HER (Heritage Gateway, accessed 16/02/2013).
- 2.1.3 However, the place name component 'End' may often reflect early settlement. At Whittlewood, on the Buckinghamshire – Northamptonshire border, an early origin for the settlement is postulated (Jones and Page 2006). Unlike the counties to the west and further south, settlement development in South Derbyshire has not been studied in any detail. However, it seems that 'End' place names are common in South Derbyshire (in distinct contrast to the situation in Nottinghamshire, where nucleated settlements seem to have been the rule from the start) and preliminary results of the study of cartographic and archaeological evidence investigation at Hilton (South Derbyshire) suggests the 'End' place names may have a similarly early origin here (Budge and Gaunt 2012),
- 2.1.4 Documentary research by Spavold and Brown indicates that Ley Farm was inhabited by the Tetley family during the 17th and 18th centuries, passing into the hands of the (related) Hough family early in the 19th century (Brown, 2012, pp3 – 10).
- 2.1.5 Henry Tetley (1637 – 1684) is the first of the Tetley family who can be certainly linked to Ley Farm, though it seems there are reasonable grounds to suspect that earlier generations of the Tetley family recorded as living in the Southwood / Heath End area may also have inhabited Ley Farm.
- 2.1.6 The probate document drawn up on Henry Tetley's death in 1684 gives details of the house but also indicates he was potting on a fairly large scale, with two wheels and 117 boards (for placing thrown pots on to dry), along with clay weathering on the common and £1 worth of unfired pots. The large quantities of lead in his possession suggests he

may also have been supplying raw materials to other potters (Brown 2012, pp4 – 6)

- 2.1.7 In addition to potting, the probate inventory demonstrates Henry had extensive farming interests and was one of the wealthier farmers in the area. He was breeding horses and had sheep, cows and swine scattered around his various holdings in the surrounding parishes and also cultivated quite a quantity of land. The total value of his inventory was £270 1s 6d (Brown 2012, p6).
- 2.1.8 The Tetley family continued to live at Ley Farm and throughout the 18th century they periodically appear in records as potters or in documents relating to clay rents (Spavold and Brown 2005, p63).
- 2.1.9 Potting at Ley Farm appears to have ceased some time between the 1770s and 1802. A lease of 1802 indicates the property, occupied at the time by Joseph Tetley, was somewhat dilapidated and was being used as a public house named 'Bird in Hand' but with no mention of anything relating to potting occurring on the site, while the lease for another property does note the presence of a kiln (Brown 2012, p11).

2.2 Previous Archaeological investigation:

- 2.2.1 The land south of Ley Farm was subject to a magnetometry survey undertaken by Archaeological Project Services (APS) in 2010. The survey indicated at least three areas of enhanced magnetic response which were interpreted as the possible remains of kilns (Malone 2010).
- 2.2.2 The central feature 'J' was reported to be "some 5 – 6m across" (Malone 2010, p 4)
- 2.2.3 Cartographic evidence shows a circular structure in the centre of the yard in 1735 (Hastings Estate Map, Leicestershire, Leicester and Rutland Record Office, DG 30/MA/9/4, tracing reproduced in Spavold and Brown, 2005, fig 9) in a similar location to the central geophysical anomaly ('J' in Malone 2010, fig 13).
- 2.2.4 Investigation of the banks and bed of a stream running through the Ley Farm site by David Barker (Stoke on Trent Museum) and Spavold and Brown revealed large quantities of post medieval / modern pottery, which has been examined by David Barker and reported on by Anne Irving (Irving 2011)
- 2.2.5 In preparation for the TARG / MAS excavation, the site was surveyed using a Leica TCR805 total station by David Budge of MAS on 28/04/2013. Visible corners of buildings, boundary walls, hedges and part of the stream running through the site were surveyed in order to provide a framework into which the results of the excavation can be inserted.

2.2.6 No other archaeological work is known to have taken place on the site.

3. Methodology

- 3.1 The objective of the excavation was to investigate the central geophysical anomaly revealed by the APS survey to see if it was a pottery kiln.
- 3.2 When the APS plan was imported into GIS it was revealed to have been printed at 1:541 rather than 1:500 as the legend indicated. The scale was corrected in the GIS package and the distances to the centre of the anomaly calculated.
- 3.3 The excavation took place over six days between 15th and 20th of May 2013. It was carried out by members of TARG who were supervised by staff from MAS. David Budge (MAS) directed the work, assisted by Andy Gaunt (MAS) and Sean Crossley (MAS).
- 3.4 An initial 10x1m trench was laid out orientated to compass north, with the centre of the trench placed over the centre of the anomaly as measured from the corrected APS plan. On removal of the ploughsoil an area of burnt clay was exposed in the centre of the trench.
- 3.5 From the centre of the original trench a 4.5x1m extension was excavated to the east of the centre of the original trench and forming the shape of a t.
- 3.6 Once the extent of the burned clay to the north, south and east had been established by these trenches they were enlarged, opening an area of 4.5m (east west) x 8m (north south).
- 3.7 Trenches were excavated by hand, with some excavation by mattock but mainly by trowel.
- 3.8 Recording was on pro-forma context sheets, the site was planned at 1:20 and sections were drawn at 1:10.
- 3.9 Following the removal of the ploughsoil, the stripped surfaces were cleaned and recorded. Selected features were sectioned and excavated, including a half section of the surviving part of the firing chamber and the excavation of a post hole to the east of the kiln. Other features were further defined or investigated by further cleaning or the removal of a 0.1m spit.
- 3.10 Pottery from the ploughsoil (context (002)) was recorded on site (unwashed) on pro-forma pottery recording sheets by members of TARG in accordance with the MPRG minimum standards, using sherd count and weight. Rims, non-local wares, saggars and a representative sample of the different types of squeeze (kiln furniture) and kiln bricks

from this context were retained but the remaining material was disposed of by burial during backfilling of the site.

- 3.11 All ceramics and other artefacts from contexts other than (002) were retained, excepting that only a sample of the large quantity of burnt clay superstructure of the kiln from context (004) was retained.
- 3.12 Processing of the recovered artefacts is in progress and they will be quantified in accordance with the relevant standards and guidance.
- 3.13 On conclusion of excavation and recording, the site was backfilled and the turf was replaced.
- 3.14 Following consultation with the English Heritage Regional Science Advisor and TARG it was decided not to undertake archaeomagnetic dating of the kiln. This was mainly due to the tight chronological framework for the cessation of potting on the site derived from the documentary sources, with the scientific dating likely to offer little further refinement to this chronology. It is, however, worth noting that the better preserved portions of the over floor would have been eminently suited to sampling for this dating method.

4. Results

- 4.1 A layer of ploughsoil (002) approximately 0.19m deep was the first stratigraphic unit encountered. Plough scores were apparent in the surface of the deposits sealed beneath the ploughsoil.
- 4.2 The ploughsoil (002) contained large quantities of ceramics, the majority being oxidised lead glazed earthenware (black or brown glazed earthenware) bowls and jars, along with much fired clay, kiln furniture (mainly squeezes), fragments of saggars and fragments of burnt and vitrified brick. All these artefacts were noticeably concentrated in the centre of the trench, over what proved to be the central oven of the kiln.
- 4.3 The ploughsoil (002) also contained non-local wares of 18th – 20th century date, part of a plastic model aeroplane, aluminium foil, a silver plated spoon and pieces of plastic. Provisional examination (by the author) suggests that only a few of the sherds in this deposit might pre-date the 18th century, and possibly only by a century or so at most.
- 4.4 During a visit to the excavation, a former occupant of the farm recalled the area being ploughed and used as a market garden for growing cabbages, being grassed over around the 1960s (Harold Heath, pers comm. 18/05/2012.).
- 4.5 Beneath the ploughsoil, extensive deposits of heavily burnt clay were encountered. They proved to be the remains of a pottery kiln.
- 4.6 The remains of the kiln were truncated by ploughing and badly damaged by two later drains cutting through the structure of the kiln in a north west / south east direction ([007] and [020]). A live electricity cable (005) crossing the trench on a north north west / south south east alignment also hampered excavation. However, it proved possible to determine the plan of the kiln and to discover the range of wares produced.
- 4.7 The majority of the kiln including the entirety of the ware chamber was located within the area excavated. However, the western exterior of the kiln lay outside the excavated area.
- 4.8 The ware chamber or central oven was best preserved to the south and west, being heavily truncated by ploughing and drains to the north and east. It survived to a maximum of 0.12m below the base of the ploughsoil and, as far as could be determined, was circular.
- 4.9 The interior diameter of the ware chamber was 1.83m (6') north to south. The internal walls of the kiln were constructed partially of brick and partially of clay. In the few places where they survived, the brick

walls were no more than two courses high. The bricks were laid end on to the firing chamber and measured 250mm (10") x 121mm (4 49/64") x 50mm (2") and appeared to be unbonded. However, extensive deposits of lime mortar and pieces of burnt and glazed mortar, including fragments adhering to burnt brick fragments were encountered spread over the site and in the ploughsoil (002), suggesting the bricks of the superstructure had been bonded.

- 4.10 The floor of the firing chamber (019) consisted of a hard, flat baked clay, burnt to a purple colour. In a few places this was not so firm, but had a granular texture. Where truncated by ploughing and the construction cut for a land drain [020] to the east, the floor (019) was shown to overly the natural clay, which was oxidised by the heat of firing to a dark red to orange colour. The kiln floor did not appear to have been laid on a deposit of 'cork', as is often the case in 19th century Staffordshire kilns (Barker and Goodwin 2006).
- 4.11 Overlying the firing chamber floor (019), particularly at the edges and near the flues, were deposits of white ash (029) up to 0.02m thick. These deposits contained sherds of Manganese Mottled Ware, burnt and wasted. In the centre of the chamber, at least three saggars remained in-situ from the final firing.
- 4.12 Clear remains of two flues were encountered. These were the southern flue and its neighbour to the east. The southernmost flue (at 6 o'clock) was the best preserved, with the bricks of its east side surviving two courses high and covered with thick deposits of clinker (plate 01). Large quantities of ash and clinker (027) filled the flue itself, while two bricks of the western side of the associated firebox also remained. The firebox contained ash, some clinker and fragments of coal. Ploughing had destroyed the western side of the flue, but the spread of ash and clinker indicated a flue arch width of approximately 0.3m (1').
- 4.13 The remains of the next flue to the east (at about half past four o'clock) had been destroyed by the drain cutting through the kiln, however, the presence of the western side of this flue was indicated by a brick with a burnt and vitrified side surviving immediately to the west of the cut of the drain, along with an associated small area of heavily burnt (purple) clay outside the footprint of the kiln to the south of the brick.
- 4.14 Further east and north around the kiln ploughing had removed all structural traces of flues. However, 'blobs' of heat affected clay extending beyond the extrapolated circumference of the firing chamber indicated the existence of flues at the 3 o'clock and half past 1 o'clock positions, with that of the 1.30 position being particularly heavily burned.
- 4.15 Further north, at the 12 o'clock position where another flue might have been expected, no evidence for a flue was recognised. This was

probably due to the presence of the electricity cable (005) and drain [007] obscuring the archaeology.

- 4.16 Flues to the west were not seen as they largely fell outside the excavation area.

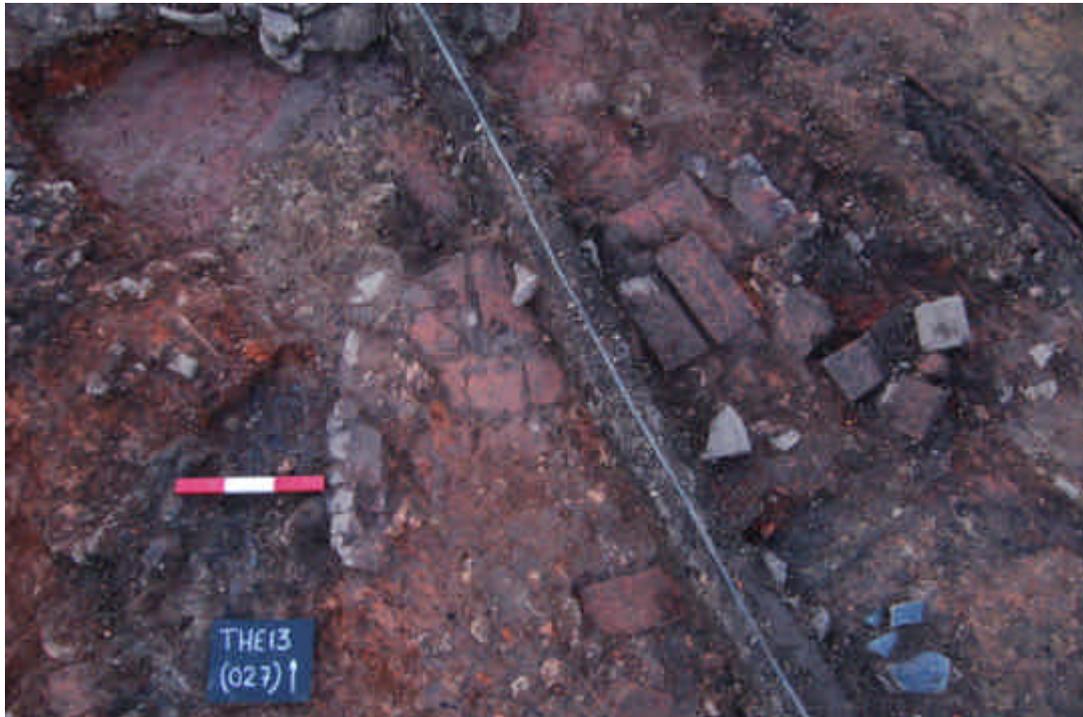


Plate 01 – the best-preserved part of the kiln with interior of firing chamber at top of photograph. Photo board is in the fire box of the southern flue while the 0.3m scale (0.1m divisions) is within the flue itself, on top of ash and clinker deposit (027). Ash deposit (029) can be seen spilling out of the flue and on to the firing chamber floor (019) to the north of the flue. To the east, east of electricity cable (005), a single brick of the western side of another flue can be seen. Remains of in-situ saggars are partially visible at the centre top of the photograph.

- 4.17 Where better preserved, the firing chamber was filled with a demolition rubble (004) consisting largely of fragments of pink / peach fired clay, mortar and fragments of vitrified brick, along with wasted sherds of Manganese Mottled Ware and a couple of sherds of Blackware vessels of a finer character than the bowls and jars of (002).
- 4.18 To the north east of the kiln a metalled surface (015) was discovered. This consisted of fragments of CBM, pot and stone and was deliberately laid.
- 4.19 To the north of the kiln, extending as far east as the metalled surface and into the western section of the trench, a west – east aligned linear feature (017) consisting of unbonded fragments of vitrified bricks was encountered. To the south of this feature and north of the kiln relatively thick deposits of coal (022) lay above dirty clay (023) that quickly graded into the natural clay.

- 4.20 To the east of the kiln and south of the metallated surface a rectangular post hole [025] was seen, approximately 0.3m across at the base. The post hole was filled with burnt clay, coal and pot sherds (016) and the morphology of the hole suggested the post had been deliberately loosened by rocking prior to being removed.



Plate 02 – looking south across excavated area. Scale bars 1m each, 0.5m divisions. Metallated surface (015) is in the left foreground with post hole [025] immediately above. Linear brick feature (017) is in the foreground to the right of (015). Remains of the kiln are in the centre of the photograph, extending into the right hand section.

- 4.21 To the south of the kiln a dump of pottery (026) was encountered. The pottery assemblage from this deposit was the most complete encountered during the excavation and observations made by the author during the course of washing part of it indicate it appears to contain the complete profiles of a number of vessels.
- 4.22 Preliminary examination of part of the assemblage from (026) indicates a fairly unusual composition in relation to the material encountered in the ploughsoil (002), with no bowls present in (026). Vessels present in (026) include jars and kiln furniture (bats, kiln props and well used saggars with remains of multiple Manganese Mottled Ware vessels stuck to their interior and exterior). The condition of the clay component of this context (partially burnt) suggests (026) was deposited before the kiln went out of use.
- 4.23 Initial impressions of the ceramic assemblage from (026) gained during washing suggest it is vaguely possible the ceramics from (026) represent entirely vessels used as kiln furniture rather than being a dump consisting of wasters from failed firings, though further analysis may indicate otherwise. Unfortunately it did not prove possible to fully define the extent of this deposit in the time available.

- 4.24 The land drain crossing the site consisted of horseshoe tiles laid in a cut [020] and the northern half as exposed in the trench had been entirely destroyed by ploughing. The surviving length showed indications of possibly having been repaired.
- 4.25 Land drain [020] cut an earlier drain [007] on approximately the same alignment. Drain [007] consisted of a trench with vertical sides into the base of which large rounded sandstone rubble had been placed (to leave voids through which water could pass). The drain was then backfilled with the clay and soil dug from the trench [007]. The workman digging the ditch appeared to have found it thirsty work as a free blown beer bottle had been deposited, whole and upside down, in the backfill of the drain. Once identified and dated this bottle should provide good evidence for when the kiln had been demolished by.

5. Conclusions

- 5.1 Excavation at Ley Farm confirmed the geophysical anomaly 'J' (Malone 2010) represented the remains of a pottery kiln.
- 5.2 Though extensively truncated by ploughing, damaged by drainage ditches and partially obscured by a live electrical cable, the date, form and function of the kiln could be determined.
- 5.3 Based on the documentary evidence and the wares produced within, the kiln was of 18th century date. It had been used to fire a limited range of wares, viz large jars and bowls with an oxidised fabric and an internal iron rich (red) slip and lead glaze (brown or black glazed earthenwares, BERTH or BL), and fine tableware in Manganese Mottled Ware.
- 5.4 The kiln was a Type 3 (Musty 1974) multiple flued updraft kiln. It had a floor of baked clay directly overlying the natural clay geology of the site and had probably been dug slightly into the original ground surface.
- 5.5 The internal diameter of the firing chamber was 6' (1.83m). Walls were of brick and clay, with the clay potentially representing repairs to the structure during its lifetime, patching areas where intense heat had caused the bricks to crumble. The wares to be fired were placed directly on the floor of the kiln.
- 5.6 Evidence of four flues was encountered, with the remains suggesting a probable flue arch width (internally) of 1'. Extrapolation based on the surviving evidence suggests the kiln originally possessed eight flues.
- 5.7 The kiln was fired with coal.
- 5.8 The kiln was certainly used to fire a range of fine vessels in Manganese Mottled Ware. This ware is generally referred to as Staffordshire type though it has been suspected it may have been manufactured at Ticknall (eg Irving 2011). This excavation has provided unequivocal evidence that it was indeed produced here.
- 5.9 The delicate mottled ware was fired in saggars placed in the centre of the kiln (a number of in-situ saggars were found in the centre of the kiln, with no evidence of their presence closer to the edge), while the space around the edges (more susceptible to sudden changes of temperature and probably at more risk of failure of the pots placed here due to this) was probably used to fire the coarser bowls and jars. However, no direct evidence for the production of these latter vessels in this kiln was recovered.
- 5.10 Evidence for the firing of bowls and jars in lead glazed oxidised earthenware (BL or BERTH) consisted of drips of lead glaze on

fragments of loose clay kiln structure, bats and squeezes, the dump of pottery (026) to the south of the kiln and the large quantities of such wares encountered in the ploughsoil (002) overlying the kiln which were notably concentrated over the centre of the firing chamber. While these factors indicate it is likely such wares were indeed fired in the excavated kiln, the possibility remains that they were manufactured in the other possible kilns on site identified in the geophysical survey (Malone 2010) and merely spread or dumped on the site of the excavated kiln following demolition.

- 5.11 The metallised surface to the north east of the kiln represented an in-situ working surface at a point where the original ground surface sloped away from the kiln.
- 5.12 The linear brick feature west of the metallised surface and north of the kiln may have represented a low retaining wall. Based on the presence of layers of unburnt coal overlying the clay in the space to the south of the wall and north of the kiln, this feature could possibly represent a coal storage area immediately adjacent to the kiln.
- 5.13 The fill of the probable post hole east of the kiln was formed of re-deposited burnt clay, pot sherds and coal, suggesting filling of the hole occurred after the kiln had been in use for long enough to generate enough heavily burnt clay or at the demolition of the kiln. Seen in isolation the post hole is difficult to interpret, however, excavations elsewhere have indicated the presence of wooden lean-to structures designed to direct rain away from the fires in the stoke holes and to keep workers firing the kiln dry (eg Gypsy Lane kiln, Northamptonshire, Johnston et al, 1997) and this may be the purpose here.
- 5.14 The deposit of pots (026) to the south of the kiln accumulated during the life of the kiln and may represent a single event of the dumping of unwanted kiln furniture.
- 5.15 The Ley Farm kiln provides important evidence for the later Ticknall industry. It demonstrates that, at the time when the innovation and industrialisation of the Staffordshire potteries was finally allowing them to catch up with and overtake the Ticknall industry, the kilns in use at Ticknall were very similar in design and construction to contemporary examples in Stoke (eg Old Hall Street kiln, Hanley, Kelly and Greaves 1974) and were producing wares virtually indistinguishable from those produced in Staffordshire (though in a much more limited range of wares) using saggars virtually indistinguishable in form from those used in Staffordshire.

6. Post Excavation Assessment, Reporting and Publication Timetable.

- 6.1 An OASIS record for the work has been created. The record ID is merciana2-151526.
- 6.2 Washing, marking and quantifying of the retained assemblage is in progress. The quantification of the ceramic assemblage will conform, as a minimum, to the minimum standards set out by MPRG (MPRG 2001) and will use sherd count, sherd mass and percentage of rim present.
- 6.3 Specialist input will be required to date the glass bottle and fragments. Specialist input may also be required for the ceramic assemblage.
- 6.4 A full factual report will be submitted to the client and the Leicestershire HER within six weeks of receipt of specialist reports or completion of finds processing.
- 6.5 The final deadline for submission of the report is the end of August 2013.
- 6.6 The report will conform to the standards set out by the IFA and will include a Non-technical summary, Introductory statement, Aims and purpose of the project, Methodology, An objective summary statement of results, Conclusion along with Supporting illustrations at appropriate scales, Illustrative site photography, Supporting data (tabulated or in appendices), including as a minimum a basic quantification of all artefacts, Index to archive and details of archive location, confirmation of archive transfer arrangements including a provisional timetable for deposition, References, Acknowledgments.
- 6.7 A report on the work and its findings will be prepared for submission to an appropriate journal, with the appropriate journal to be determined following consultation with interested parties, specialists and the publishers of the likely journals. This report will be prepared within one year of the receipt of specialist reports and possible thin section analysis of the ceramics.
- 6.8 A talk regarding the work and its results will be offered to TARG and other local societies and interested parties.

7. Copyright

- 7.1 Mercian Archaeological Services CIC and the individual authors retain copyright on all reports and documentation produced as part of the project and retain the right to be identified as the author of said work.
- 7.2 Mercian Archaeological Services CIC and the individual authors grant Ticknall Archaeological Research Group permission to use, modify, or adapt this report on the work freely, though copyright for the original report remains with MAS and MAS requests that their contribution be acknowledged in any works or products deriving from the report.

8. Acknowledgements

- 8.1 The author and Mercian Archaeological Services CIC would like to extend their sincere gratitude to TARG for commissioning the work and to the TARG volunteers for all their hard work and enthusiasm throughout the course of the fieldwork.
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