

# Northamptonshire Archaeology

Archaeological Trial Trench Evaluation  
of land at Tollemache Road, Spittlegate,  
Grantham, Lincolnshire

September 2008

Planning application S08/0448/35

Oasis No. 65748



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November 2008 (Revised October 2009)

Report 08/160

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**OASIS REPORT FORM**

<b>PROJECT DETAILS</b>		OASIS: 65748
Project name	Archaeological Trial Trench Evaluation on land at Tollemache Road, Spittlegate, Grantham, Lincolnshire	
Short description (250 words maximum)	Following geophysical survey, NA conducted a trial trench evaluation during September 2008. Twenty-one trenches, measuring a total of 420m were excavated within the 16ha application area. Only a few features were present, confirming the results of the geophysical survey, and these included a small Middle Iron Age enclosure, dated by a small pottery assemblage, which contained at least one iron smelting furnace with accompanying deposits of ferrous slag.	
Project type	Trial Trench Evaluation	
Site status	None	
Previous work	Desk-based assessment (CgMs 2008), Geophysical survey by NA (Clements and Fisher 2008). OASIS 65757	
Current Land use	Arable farmland	
Future work	Unknown	
Monument type/ period	Iron Age settlement 3rd - 1st century BC	
Significant finds	Iron Age Pottery, Metalworking debris	
<b>PROJECT LOCATION</b>		
County	Lincolnshire	
Site address	Land adjacent to Tollemache Road, Spittlegate, Grantham	
Study area (sq.m or ha)	Approximately 16ha	
OS Easting & Northing	NGR SK 49168 33340	
Height OD	110 – 162m above OD	
<b>PROJECT CREATORS</b>		
Organisation	Northamptonshire Archaeology	
Project brief originator	Lincolnshire County Council	
Project Design originator	Jim Brown, Northamptonshire Archaeology	
Director/Supervisor	Paul Kajewski, Northamptonshire Archaeology	
Project Managers	Myk Flitcroft, CgMs Consulting Jim Brown and Adam Yates, Northamptonshire Archaeology	
Sponsor or funding body	CgMs Consulting	
<b>PROJECT DATE</b>		
Start date	September 2008	
End date	September 2008	
<b>ARCHIVES</b>	<b>Location (Accession no.)</b>	<b>Content (eg pottery, animal bone etc)</b>
Physical	LCNCC : 2008.84	Pottery, animal bone, boiling stone, metal working debris
Paper	LCNCC : 2008.84	Context record, site registers, photographic record, plan and section sheet on permatrace
Digital	LCNCC : 2008.84	PDF of client report and illustrations.
<b>BIBLIOGRAPHY</b>		
Title	Archaeological Evaluation on land at Tollemache Road, Grantham, Lincolnshire	
Serial title & volume	08/160	
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**ARCHAEOLOGICAL TRIAL TRENCH EVALUATION  
OF LAND AT TOLLEMACHE ROAD, SPITTELEGATE  
GRANTHAM, LINCOLNSHIRE  
SEPTEMBER 2008**

*Abstract*

*Following geophysical survey, Northamptonshire Archaeology conducted a trial trench evaluation on land at Tollemache Road, Spittlegate, Grantham, Lincolnshire during September 2008. Twenty-one trenches, measuring a total of 420m, were excavated within the 16ha application area. Only a few features were present, confirming the results of the geophysical survey, and these included a small Middle Iron Age enclosure, dated by a small pottery assemblage, which contained at least one iron smelting furnace with accompanying deposits of ferrous slag.*

**1 INTRODUCTION**

An archaeological trial trench evaluation was carried out by Northamptonshire Archaeology in September 2008 for CgMs Consulting on land at Tollemache Road, Spittlegate, Grantham, Lincolnshire, (NGR SK 49168 33340; Fig 1). The work was carried out in accordance with a Written Scheme of Investigation (WSI) produced by Northamptonshire Archaeology (NA) in response to the Brief issued by the South Kesteven District Council (SKDC) for planning application S08/0448/35 (Brown 2008; Young 2008). The work was a pre-determination attached to planning consent, and the archaeological works were monitored by SKDC.

Previous work has included a desk-based assessment by CgMs Consulting (2008) and a geophysical survey by NA (Clements and Fisher 2008). The results of the geophysical survey had indicated the potential presence of archaeological remains, particularly in the northern and eastern parts of the application area.

The site archive has been issued the accession code LCNCC: 2008.84 by The Collection: Art and Archaeology in Lincolnshire, where it will be deposited at the conclusion of the project. The material archive will be prepared according to the *Guidelines for the preparation of excavation archives for long term storage* (Walker 1990), *Standards in the care of archaeological collections* (MGC 1994) and the standards of the Institute for Archaeologists (IfA 1999 & 2008), English Heritage (EH 1991), and the standards for Lincolnshire (LCC 1997). Copies of the report will be submitted to SKDC and their archaeological advisor in support of the current application. A copy will be submitted to the Lincolnshire Historic Environment Record following approval. A digital copy of the report will be submitted to the Archaeology Data Service (ADS) through the OASIS scheme (OASIS No. 65748).

## **2 BACKGROUND**

### **2.1 Topography and geology**

The proposed development site lies on the southern edge of Grantham between Tollemache Road and the B1174 in the east, Gorse Lane to the north and the A1 trunk road to the west (Fig 1). The site is immediately bounded by fields to the north and south and a quarry to the east. The north and east of the site lay approximately 160m above Ordnance Datum with the ground sloping down to the south-west to approximately 145m above Ordnance Datum.

The underlying geology and soil associations of the proposed development site are noted as glaciofluvial drift (Escrick 2) across the centre of the field and Jurassic limestone (Marcham) to the north and south (SSEW 2003).

### **2.2 Archaeological background**

A full archaeological background can be found in the desk-based assessment (CgMs 2008), and this is summarised below.

Neolithic and Bronze Age worked flint has been discovered 600m to the east of the survey area (HER 35057) (Fig 1). These are the earliest archaeological remains in the area. Bronze Age barrows have been identified 700m to the north-west of the site (HER 36407), 300m to the north-east of the site (HER 33895), 50m and 400m to the south of the site (HER 36290; 33819). Within the survey area itself, faint cropmarks indicate two possible Bronze Age barrows and a double-ditched enclosure (HER 33848; 36405).

Late Iron Age settlement remains have been identified from geophysical survey and trial excavation north-east of the site (HER 35362). Fieldwalking has also identified Iron Age pottery 400m east of the site (HER 30510).

Roman artefacts have been found around the site but not within the study area. A Roman site was noted at Saltersford 800m to the east of the site. Pottery and tile that could relate to a building were identified during fieldwalking 500m to the south of the site (HER 33973).

Saxon and medieval finds have been recorded from the surrounding area. Saxon pottery (HER 30509) and metalworking (HER 33970) have been recorded 500m and 750m to the east of the site. The deserted medieval village of Walton, which probably lay in the area of the current Walton Farm (HER 30507), is located 125m to the south-west of the site. The site lay within the open fields associated with the village. The medieval village of Spittlegate lay 650m north of the site, and is now incorporated into modern Spittlegate.

Limestone quarries to the east have dramatically reduced the level of the area thus removing any traces of archaeology. The Ordnance Survey map of 1984 shows 'opencast working' on part of the site (Fig 1).

### 3 OBJECTIVES AND METHODOLOGY

#### 3.1 Objectives

The aims of the trial trench evaluation as outlined in the WSI (Brown 2008) were to:

- Determine the location, extent, date, character, condition, significance and quality of surviving archaeological remains.
- Consider the nature of deposits and identify those with the potential to provide useful and informative research data.
- Examine the artefactual and ecofactual content of the site by sampling features and deposits using both hand collection and sieved samples to detect fine residues, small faunal remains (fish, amphibian bones etc) and charred micro plant remains.
- Produce illustrated records with attention to level heights related to Ordnance Datum, to be used to compose a deposit model for the site and identify zones of importance.
- Seek to provide sufficient information to inform future planning decisions regarding the proposals for further development.

#### 3.2 Methodology

Twenty-one evaluation trenches, 20m long x 1.8m wide, a total length of 420m, were positioned to target suspected features recorded on the site: two cropmarks, the area of Walton (potentially part of a medieval settlement indicated on 19th-century Ordnance Survey maps) and linear features identified by the geophysical survey (Clements and Fisher 2008). A number of trenches were positioned to test blank areas of the site. The position of the trenches was agreed with SKDC's Planning Archaeologist.

The trenches were located using an SMG grade GPS Leica System 1200. The topsoil and subsoil were removed by a 360° tracked excavator, fitted with a toothless ditching bucket, operating under constant archaeological supervision. Mechanical excavation proceeded as far as the natural substrate or the first significant archaeological horizons, whereupon excavation continued by hand. All potential archaeological features were investigated and a site record was maintained using standard Northamptonshire Archaeology recording procedures (NA 2003). All works were conducted in accordance with the *IfA Standard and Guidance for Archaeological Field Evaluation*, (1994, revised 2008) and the *Management of Archaeological Projects* (EH 1991). All work was undertaken in accordance with the Health and Safety at Work etc Act 1974 and the welfare policies of Northamptonshire County Council. A full search of buried services was conducted for the areas of intervention prior to commencement of the works and a CAT scan used before machine excavation.

The trenches were cleaned, planned and features sampled sufficiently to determine their character and date. All archaeological features and deposits were given separate context numbers. Deposits were described on *pro-forma* trench and context sheets to include details of the deposit or feature, its relationships, an interpretation and a checklist of associated finds. This field data was compiled into a site archive with appropriate cross-referencing. In addition, a photographic record was maintained, comprising 35mm black and white negatives, related contact prints and colour slides. Section photographs, trench and overall site photographs, were also taken. A digital record was maintained as a supplement to the main archive for reporting purposes.

Trenches with archaeological features were planned at 1:50 scale. The section profiles of features were drawn at scales of 1:10. The excavated area was surveyed and related to the Ordnance Survey Grid with spot heights for plans and sections recorded in



relation to the height above Ordnance Datum.

Finds were collected from the individual deposits and stored by context. All identifiable artefacts recovered from secure contexts were retained. Artefacts were recovered and processed in accordance with the standards and guidance of the Institute for Archaeologists and the United Kingdom Institute for Conservation (IfA 2001; Walker 1990).

The Project Manager, Site Supervisor, CgMs representative and SKDC Planning Archaeologist reviewed the palaeo-environmental potential on site. Samples were retrieved in 40 litre quantities, or 100% of the deposit where this was less than 40 litres. Samples were chosen from significant excavated deposits at depth and processed for environmental and industrial residues. In addition, the SKDC Planning Archaeologist requested that all environmental samples were scanned for metals, and this was completed as part of the post-excavation analysis.

At all stages of the programme the monitoring authority from SKDC was kept apprised of developments in the field allowing for strategic discussion as work proceeded. NA maintained full compliance with the government regulations under the 1997 Treasure Act and the 1981 Disused Burial Ground (Amendment) Act.

## **4 THE EXCAVATED EVIDENCE**

### **4.1 General stratigraphic sequence**

The natural clay loam and brashy limestone geology of the site was sealed below a layer of dark brown loam clay topsoil with a significant degree of organic material, and a dense, compact, lighter brown subsoil with a high content of brashy limestone pieces. The topsoil and subsoil together constituted an average thickness of approximately 0.45m distributed unevenly across the site and subject to movement by modern ploughing.

### **4.2 Archaeological features**

Twenty-one trenches were excavated, and four contained archaeological features (Fig 2). Trenches 2, 4 and 9 contained Iron Age features, and in Trench 19 there was a possible modern access road for the disused quarry to the east of the site. For a full context list and soil description, see Appendix 1.

#### ***Trenches 1, 3, 5 and 6***

Trench 1 was positioned to investigate the site of a possible circular cropmark identified from aerial photographs. Trench 3 was chosen to test an area of the site not covered by the geophysical survey. Trenches 5 and 6 were positioned to test blank areas on the geophysical survey. These trenches were all located in the northern third of the site.

The natural substrate, yellow-orange clay loam with an extremely high concentration of brashy limestone fragments, was present at an average depth of 0.47m. Trench 3 also contained a band of orange brown clay sand. It was sealed by the subsoil with an average depth of 0.15m. The topsoil was 0.20-0.30m thick. No archaeology was uncovered in these four trenches.

Table 1: Ordnance Datum Heights for Trenches 1, 3, 5 and 6

Trench	1	3	5	6
OD Height- Top of Soil Horizon	162.02m	161.59m	160.25m	161.00m

### Trench 2

Trench 2 was positioned to investigate a possible enclosure ditch identified in the geophysical survey. The natural substrate, comprising yellow-orange clay loam with an extremely high concentration of brashy limestone fragments, was at an average depth of 0.40m. A single ditch, which was cut into the natural (Figs 2 and 3).

At the centre of the trench there was a medium-sized linear ditch [206], with a U-shaped profile with equally graduated sides, 2.0m wide and 0.75m deep (Fig 8, Section 6). The lower fill was light orange-brown clay loam (205) with less than 20% of its make-up constituting brashy limestone pieces. The upper fill was orange-brown clay loam (204) with approximately 30-40% of its make-up brashy limestone pieces. This ditch also appeared in Trench 4 [410]. The ditch was sealed by subsoil, 0.12m-0.15m thick, and topsoil, 0.20-0.26m thick. The ground surface lay at 161.40m above Ordnance Datum.

### Trench 4

Trench 4 was positioned to investigate two enclosure ditches and an oval feature identified in the geophysical survey. Four features: two ditches, a furnace and a possible oven were cut into the natural (Figs 3 and 4), which was yellow-orange clay loam with an extremely high concentration of brashy limestone fragments, at an average depth of 0.45m (Fig 5).

At the western end of Trench 4 there was a ditch [410], aligned north-west to south-east (also seen in Trench 2, [206]). This feature had a V-shaped profile with equally graduated sides, 1.6m wide by 0.65m deep (Fig 6 and Fig 8, Section 3). The fill was orange-brown clay loam (409), with approximately 30% of its make-up brashy limestone pieces, containing some Iron Age pottery.

At the eastern end of the trench ditch [412], aligned north-east to south-west, had a wide U-shaped profile with equally graduated sides, 0.60m wide by 0.20m deep. The fill was orange-brown clay loam (411) with approximately 30% of its make-up brashy limestone pieces, and containing Iron Age pottery (Fig 8, Section 4).

A small circular or oval furnace [405], had near vertical sides and was 0.76m wide by 0.29m deep (Fig 7 and Fig 8, Section 2). It had a lining of bright red burnt clay (406) that sat on natural and the natural itself was scorched suggesting *in situ* heating. The primary fill was a layer of charcoal-rich clay (407) which produced pieces of burnt clay and ferrous slag. The uppermost fill (408), was grey-brown loam clay that produced burnt clay and further ferrous slag. The geophysical response to this feature was repeated on a further feature lying 3.0m to the south, suggesting the presence of either a second furnace or a pit containing ferrous slags.

To the east of ditch [412], there was a circular pit [414], 0.5m in diameter, with a fill (413) of mottled red-brown burnt loam clay containing pieces of burnt limestone (Fig 8, Section 5). The burnt debris may have been associated with the use of the nearby furnaces, but there was no slag and no pottery from this feature.

The cut features were sealed by the subsoil, which was consistently 0.21m-0.24m thick. The topsoil was 0.20-0.26m thick throughout the trench. The ground surface lay at 161.01m above Ordnance Datum.

**Trenches 7, 8, 10, 11, 12 and 15**

Trenches 7, 8 and 12 were positioned to investigate possible ditches. Trenches 10 and 11 were positioned to investigate geological changes identified by the geophysical survey. The position of Trench 15 was chosen to test an area of the site not covered by the geophysical survey. These trenches were all located in the centre of the site (Fig 3).

The natural, yellow-orange clay loam with an extremely high concentration of brashy limestone fragments was present in the trenches at an average depth of 0.59m. These trenches recorded the geological change that was shown on the geophysical survey (Clements & Fisher 2008), and was represented on the ground by orange-brown clay sand with significant amounts of worm activity. Trenches 10 and 12 contained an alluvial layer that was at an average depth of 0.30m deep, and overlay the natural. The subsoil had an average depth of 0.28m and was sealed by a 0.26-0.31m thickness of topsoil. No archaeological features were uncovered in these trenches.

*Table 2: Ordnance Datum Heights for Trenches 7, 8, 10, 11, 12 and 15*

Trench	7	8	10	11	12	15
OD Height-Top of Soil Horizon	159.48m	160.30m	160.05m	161.73m	159.84m	159.81m

**Trench 9**

Trench 9 was positioned to investigate a possible ditch highlighted in the geophysical survey. Natural yellow-orange clay loam with an extremely high concentration of brashy limestone fragments was present at an average depth of 0.40m. It was cut by a single ditch [907], which had been recut on its north-west side (Figs 3 & 4; Fig 8, Section 7 and Fig 9).

The original ditch [907], was shallow, 0.2m deep, with a fill of light orange-brown clay loam (906) containing a high concentration of brashy limestone. The recut [905] had a U-shaped profile, 1.3m wide by 0.48m deep, with steep asymmetrically-sloping sides and a flat base. The fill was mid orange-grey brown clay loam (904), with a high concentration of brashy limestone fragments. It produced some small fragments of Iron Age pottery.

The subsoil was consistently 0.20-0.26m in depth and sealed by a 0.23-0.30m thickness of topsoil. The ground surface lay at 163.06m above Ordnance Datum.

**Trenches 13, 14, 16, 17 and 18**

Trenches 13 and 14 were positioned to investigate the site of a possible Bronze Age barrow identified from aerial photographs (Fig 2). Trenches 16 and 17 were positioned to investigate blank areas. Trench 18 was positioned to investigate a potential archaeological feature identified in the geophysical survey. These trenches were all located in the southern end of the site.

Natural yellow-orange clay loam with an extremely high concentration of brashy limestone fragments, was present at an average depth of 0.50m. Trench 18 also contained a band of orange brown clay sand. The natural was sealed by the subsoil with an average depth of 0.27m. The topsoil was 0.20-0.30m thick. No archaeological features were uncovered in these trenches.

Table 3: Ordnance Datum Heights for Trenches 13, 14, 16, 17 and 18

Trench	13	14	16	17	18
<b>OD Height-Top of Soil Horizon</b>	161.38m	161.25m	162.13m	162.16m	162.12m

### **Trench 19**

Trench 19 was positioned to investigate a potential archaeological feature identified in the geophysical survey (Fig 2). Natural yellow-orange clay loam with an extremely high concentration of brashy limestone fragments was present in the trench at an average depth of 0.40m.

In the centre of the trench there was an extremely compact modern track/roadway [1904], 6.0m wide by 0.14m deep, made up of crushed brick, tile and gravel (Fig 10). Found within the mix were black tyre-rubber fragments.

The subsoil was consistently 0.25-0.30m thick, and the topsoil was 0.25-0.30m thick. The ground surface lay at 162.11m above Ordnance Datum.

### **Trenches 20 and 21**

Trenches 20 and 21 were positioned to investigate the area labelled Walton on 19th-century Ordnance Survey maps. The trenches were located in the southern quarter of the site. Natural yellow-orange clay loam with an extremely high concentration of brashy limestone fragments was present at an average depth of 0.47m. It was sealed by the topsoil, 0.20-0.30m thick. A probable geological test pit uncovered in the centre of Trench 21 contained 20th-century pottery. No other features were present.

Table 4: OD Heights for Trenches 20 and 21

Trench	20	21
<b>OD Height-Top of Soil Horizon</b>	158.47m	157.84m

## **5 THE FINDS**

### **5.1 The Iron Age pottery** by Andy Chapman

A total of 19 sherds of hand-built Iron Age pottery, weighing 146g, were recovered from three ditches [410], [412] and [905].

Ditch [410] contained the largest group, 16 sherds, weighing 135g, most of which are from a single small bowl. This is in a fabric containing dense small fragments of shell, with a grey core and inner surface and a mottled brown to grey external surface. The vessel has a flat base, a globular body, a concave neck and a simple, rounded rim. A lack of joining sherds makes it difficult to provide dimensions, although the base is 90mm in diameter and the height was probably of the order of 120mm. The body is decorated with deeply incised oblique lines forming an irregular latticework. The form and decoration suggest that the vessel belongs to the scored ware tradition of the Middle Iron Age, although such vessels can also appear in the Late Iron Age, the 1st century BC. Context (411), the fill of ditch [412] contained a single small sherd from a similar vessel.

Ditch [905] produced two small sherds in a dark grey fabric. One contained voids, probably from leached shell inclusions, while the other contained small pellets of black grog. The presence of grog might suggest a Late Iron Age date.

## 5.2 The metalworking debris by Andy Chapman

Four contexts in Trench 4 produced quantities of metalworking debris, with a total weight of 3.05kg. The largest group comprises 2.29kg from the upper fill (408) of a probable iron smelting furnace [405]. This includes a flat plate, 150mm long by 130mm wide, with a slightly fluid surface of slag resting on a layer of light blue-grey hard-fired clay, 20mm thick, backed by red-brown fired clay. A second piece is similar but curved. It is most likely that these two pieces have come from the lining of a bowl furnace, with a flat bottom and curved walls. In addition, there are some further small fragments of blue-grey fired clay and two pieces of furnace slag. The underlying fill (407), contained a few further fragment of blue-grey fired clay, and the pit had a surviving lining of bright red burnt clay. It is suggested, therefore, that the materials deposited in the pit are probably fragments of the lining and the furnace slags that had been removed from an iron smelting furnace after use, although not necessarily from the pit in which they were found. Additional fragments of light blue-grey hard-fired clay, as mentioned above, were noted in the subsoil close to the described feature, but this material was disturbed and redeposited into the subsoil during ploughing.

Ditch [410] contained a fragment of tap slag and part of a cylindrical length of blue-grey fired clay with a central tubular perforation, 75mm long by 12mm diameter, which has probably come from a slag-tapping aperture at the base of the furnace. A few small fragments of fired clay and slag came from ditch [412].

Soil samples from fills (407) and (408) of pit [405] produced small amounts of flat and spherical hammerscale.

The evidence of the material and the associated features is that iron smelting was being carried out in slag-tapping bowl furnaces, perhaps with some secondary smithing also taking place nearby. The associated pottery suggests a date in the Middle Iron Age, and certainly no later than the 1st century BC.

## 5.3 Environmental evidence by Karen Deighton

Five soil samples were collected by hand during the course of the trial excavation. Assessment was undertaken to determine the presence and preservation of ecofacts, their potential to contribute to the understanding of the site and to inform on further sampling strategies.

### **Method**

Samples were processed using a siraf tank fitted with a 500 micron mesh and 250 micron flot sieve in accordance with English Heritage *Environmental Archaeology: A Guide to Theory and Practice for Methods, from sampling to post-excavation* (EH 2002). The resulting flots were dried and examined under a microscope (10x magnification). Identifications for seeds were made with the aid of seed atlases (Cappers *et al* 2006 and Schoch *et al* 1988) and the author's small reference collection. For molluscs identifications were made with the aid of Kerney and Cameron (1994).

## Results

Preservation for plant remains was exclusively by charring. Fragmentation of charcoal varied with context. For seeds and snails fragmentation and surface abrasion were at a low frequency.

Table 5: Ecofacts by sample and by context

Sample	1	2	3	4	5
Cut/Fill	405/408	405/407	410/409	412/411	414/413
Feature	Furnace	Furnace	Ditch	Ditch	Oven
Volume (litres)	5	10	40	40	10
Charcoal*	9	10	2	2	
Seeds			13	16	2
Cereal	1		1		
Molluscs	1		500	90	2
Hammerscale*	+	+			

\* Key to charcoal and hammerscale +=present, 1= 2-10 fragments, 2= 10-20, 3= 20-30, 4= 30-50, 5= 50-100, 6= 100-200, 7= 200-300, 8= 300-500, 9= 500-1,000, 10= 1,000+

The wild/weed taxa included fat hen (*Chenopodium album*) dock (*Rumex* sp) and cleavers (*Galium aparine*). Cereal is represented by two glume base fragments only. The snail taxa present include *Cepaea nemoralis*, *Cochlicopa lubrica/lubricella*, *Discus rotundatus*, *Clausilia bidentata*, *Pupilla muscorum*, *Vitrina pellucida* and possible *Oxychilus alliarus*.

## Discussion

The large quantities of charcoal and the presence of hammerscale in Samples 1 and 2 indicate a metalworking process taking place on or near the site. The presence of chaff possibly indicates the burning of straw as fuel. The low numbers of charred seeds observed in Samples 3, 4 and 5 indicate that this material was washed or blown into the features from activities taking place elsewhere. The seed taxa present are all crop weeds or occupiers of waste ground that may also have been deposited after abandonment.

The high numbers of molluscs in Sample 3 and significantly lower numbers in Sample 4 and 5 is not uncommon in sites with a limestone or clay geology. It may indicate that the original population level of molluscs was high and a slow rate of silting in the ditches. This analysis has shown that future sampling at the site could aid in the understanding of industry and the local environment of the site.

## 6 DISCUSSION

The trial trench evaluation identified some variable geology in the centre of the study area that corresponded with the geological changes that were evident from the geophysical survey (Clements and Fisher 2008). The potential archaeology, which included two arms of a sub-rectangular enclosure and two pits were also identified. Those features found in Trenches 4, 9 and 19 correlated directly with the geophysical anomalies (Figs 2-4).

The trial trench evaluation did not produce any evidence for the possible Bronze Age barrow (HER 36405) or the circular cropmarks (HER 33848) suggested from aerial photographs. The evaluation did not find any evidence to confirm the suggestion from the 19th-century Ordnance Survey map that the settlement of Walton lies in the southern part of the site.

The south-east corner of a sub-rectangular enclosure was identified in the northern area, Trench 4. Ditches [410] and [412] corresponded with the location of the enclosure, shown on the geophysical survey. However, this enclosure does not correlate with either of the cropmarks noted on the site in the HER (33848, 36405). Trench 2, located outside the geophysical survey area, contained ditch [206] which also formed part of the same enclosure. The north-west to south-east arm of the enclosure ditch was present in Trenches 2 and 4, which indicates that this side of the enclosure was at least 50m long (Fig 3).

An iron smelting furnace [405] was found inside the enclosure, which correlated with one of the oval anomalies in the geophysical survey (Fig 3). This feature contained quantities of ferrous slag and a little hammerscale. The presence of furnace lining and tap slag indicates that the debris was the result of iron smelting, while the presence of a little hammerscale indicates that some secondary smithing of iron was carried out in the vicinity of the feature, perhaps to test the quality of the bloom. This suggests that the south-east corner of this enclosure was an industrial zone utilised for the production and the working of iron. The geophysical survey indicates a high probability that another furnace lies 3.0m to the south of furnace [405], and also within the same enclosure (Fig 4). A small pit [414] at the eastern end of the trench, and outside the enclosure, did not produce any finds and while the fills were burnt they did not contain any ferrous debris, perhaps suggesting an alternative use, maybe domestic rather than industrial.

The pottery dating from the features in Trench 4 provides a Middle Iron Age date, 3rd to 1st centuries BC, for the enclosure and the iron smelting. Although the features were truncated by ploughing, there is still a high potential to uncover further features in the vicinity of Trench 4 within the enclosure. It is likely it formed part of an Iron Age landscape along with the Late Iron Age settlement site 300m to the north and the Iron Age pottery found 400m east of the site (CgMs 2008).

Ditch [905] and its recut lay in Trench 9, 4-5m to the north of where the geophysics identified an anomaly. The pottery recovered from this feature was possibly Late Iron Age. The geophysical anomaly was upwards of 120m in length, suggesting that it could be part of a boundary system (Fig 3).

A modern track/roadway [1904] uncovered in Trench 19 correlated with a large geophysical anomaly. Modern crushed brick, tile, glass and black tyre-rubber were found in a very compacted matrix. The alignment of the feature, combined with the modern material, suggests that it could have been a short-lived access road between the limestone quarry to the north-east and the old Great North Road, now the A1, to the south-west.

Further excavations may reveal additional industrial and possible domestic areas of the enclosure. In this case an environmental sampling strategy that would target both domestic and industrial activity on the site should be developed in consultation with the SKDC Planning Archaeologist.

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## APPENDIX 1: CONTEXT DESCRIPTIONS

Trench/ Context	Type	Description	Section No	Sample No	Finds	Width (m)	Depth (m)
1/101	Topsoil	Dark brown loam clay, large amount of worm and root activity, large amount of brashy limestone pieces in the matrix	-	-	-	-	0.20-0.30m
102	Subsoil	Orange-brown loam clay mixed with high brashy limestone content, small amount of root penetration and worm activity	-	-	-	-	0.17-0.12m
103	Natural	Yellow-orange loam clay mixed with extremely high brashy limestone content, minimal amount of root penetration and worm activity	-	-	-	-	-
2/201	Topsoil	Dark brown loam clay, large amount of worm and root activity, large amount of brashy limestone pieces in the matrix	-	-	-	-	0.26-0.20m
202	Subsoil	Orange-brown loam clay mixed with a high brashy limestone content, small amount of root penetration and worm activity	-	-	-	-	0.15-0.12m
203	Natural	Yellow-orange loam clay mixed with an extremely high brashy limestone content, minimal amount of root penetration and worm activity	-	-	-	-	-
204	Fill	Fill of [206], orange-brown friable loam clay mixed with an extremely high brashy limestone content up to 40% of the fill	6	-	-	2.0m	0.55m
205	Fill	Fill of [206], orange-brown friable loam clay mixed with a high brashy limestone content up to 20% of the fill	6	-	-	1.1m	0.20m

Trench/ Context	Type	Description	Section No	Sample No	Finds	Width (m)	Depth (m)
206	Cut	Cut of linear 'U'-shaped gully, even sloping side with a curved base	6	-	-	2.0m	0.75m
3/301	Topsoil	Dark brown loam clay, large amount of worm and root activity, large amount of brashy limestone pieces in the matrix	1 (not illus'd)	-	-	-	0.30m
302	Subsoil	Orange-brown loam clay mixed with high brashy limestone content, small amount of root penetration and worm activity	1	-	-	-	0.20-0.25m
303	Natural	Yellow-orange loam clay mixed with extremely high brashy limestone content, minimal amount of root penetration and worm activity	1	-	-	-	-
304	Deposit	Geological change, orange-brown sandy clay with very little brashy limestone and high amount of worm activity	1	-	-	1.0m	0.29m
4/401	Topsoil	Dark brown loam clay, large amount of worm and root activity, large amount of brashy limestone pieces in the matrix	2 & 5	-	-	-	0.20 - 0.26m
402	Subsoil	Orange-brown loam clay mixed with high brashy limestone content, small amount of root penetration and worm activity	2 & 5	-	-	-	0.24 - 0.21m
403	Natural	Yellow-orange loam clay mixed with extremely high brashy limestone content, minimal amount of root penetration and worm activity	2	-	-	-	-
404	Number Void	-	-	-	-	-	-

Trench/ Context	Type	Description	Section No	Sample No	Finds	Width (m)	Depth (m)
405	Cut	Cut of sub-circular furnace, steep almost 90° sides, irregular base due to the extremely high content of brashy limestone in the natural substrate.	2	-	-	0.76m	0.29m
406	Fill	Fill of [405], bright orange-red burnt loam clay	2	-	-	0.1m	0.18m
407	Fill	Fill of [405], Black-grey loam clay, very high concentration of charcoal	2	2	-	0.56m	0.14m
408	Fill	Fill of [405,] mid grey-brown loam clay, large pieces of burnt clay and slag	2	1	Slag, Fired Clay	0.63m	0.10m
409	Fill	Fill of [410], orange-brown friable loam clay mixed with a high brashy limestone content up to 30% of the fill	3	-	Iron Age Pottery	1.6m	0.65m
410	Cut	Cut of linear 'U'-shaped gully, even sloping side with a curved base	3	-	-	1.6m	0.65m
411	Fill	Fill of [412], orange-brown friable loam clay mixed with a high brashy limestone content up to 20% of the fill	4	-	Iron Age Pottery, Fired Clay, Slag	0.60m	0.20m
412	Cut	Cut of linear 'U'-shaped gully, even sloping side with a curved base	4	-	-	0.60m	0.20m
413	Fill	Fill of [414], mottled red-brown burnt loam clay mixed with a medium brashy limestone content up to 10% of the fill	5	-	-	0.60	0.20m
414	Cut	Cut of possible sub-circular furnace, steep almost 90° sides, irregular base due to the extremely high content of brashy limestone in the natural substrate.	5	-	-	0.60m	0.20m

Trench/ Context	Type	Description	Section No	Sample No	Finds	Width (m)	Depth (m)
5/501	Topsoil	Dark brown loam clay, large amount of worm and root activity, small amount of brashy limestone pieces in the matrix	-	-	-	-	0.30 - 0.22m
502	Subsoil	Orange-brown loam clay mixed with high brashy limestone content, small amount of root penetration and worm activity	-	-	-	-	0.09 - 0.12m
503	Natural	Yellow-orange loam clay mixed with extremely high brashy limestone content, minimal amount of root penetration and worm activity	-	-	-	-	-
6/601	Topsoil	Dark brown loam clay, large amount of worm and root activity, small amount of brashy limestone pieces in the matrix	-	-	-	-	0.30 - 0.20m
602	Subsoil	Orange-brown loam clay mixed with high brashy limestone content, small amount of root penetration and worm activity	-	-	-	-	0.30 - 0.15m
603	Natural	Yellow-orange loam clay mixed with extremely high brashy limestone content, minimal amount of worm activity	-	-	-	-	-
7/701	Topsoil	Dark brown loam clay, large amount of worm and root activity, small amount of brashy limestone pieces in the matrix	-	-	-	-	0.31 - 0.25m
702	Subsoil	Orange-brown loam clay mixed with high brashy limestone content, small amount of root penetration and worm activity	-	-	-	-	0.35 - 0.26m

Trench/ Context	Type	Description	Section No	Sample No	Finds	Width (m)	Depth (m)
703	Natural	Yellow-orange loam clay mixed with extremely high brashy limestone content, also patches of changed geology orange brown silty sand	-	-	-	-	-
8/801	Topsoil	Dark brown loam clay, large amount of worm and root activity, small amount of brashy limestone pieces in the matrix	12 (not illus'd)	-	-	-	0.31 - 0.25m
802	Subsoil	Orange-brown loam clay mixed with high brashy limestone content, small amount of root penetration and worm activity	12	-	-	-	0.35 - 0.26m
803	Alluvium	Orange-red silty sand, no inclusions moderate worm activity	12				0.25 - 0.30m
804	Natural	Yellow-orange loam clay mixed with extremely high brashy limestone content, also patches of orange brown silty sand	12	-	-	-	-
9/901	Topsoil	Dark brown loam clay, large amount of worm and root activity, small amount of brashy limestone pieces in the matrix	8 (not illus'd)	-	-	-	0.23 - 0.30m
902	Subsoil	Orange-brown loam clay mixed with high brashy limestone content, small amount of root penetration and worm activity	8 (not illus'd)	-	-	-	0.20 - 0.16m
903	Natural	Yellow-orange loam clay mixed with extremely high brashy limestone content	8	-	-	-	-
904	Fill	Fill of [905], orange-brown friable loam clay mixed with a high brashy limestone content up to 20% of the fill	7 & 8	-	Iron Age Pottery	1.35m	0.50m

Trench/ Context	Type	Description	Section No	Sample No	Finds	Width (m)	Depth (m)
905	Cut	Cut of linear 'U'-shaped gully, even sloping side with a flat base	7 & 8	-	-	1.35m	0.50m
906	Fill	Fill of [907], orange-brown friable loam clay mixed with a high brashy limestone content up to 20% of the fill	7 & 8	-	-	1.15m	0.20m
907	Cut	Cut of ditch, only SE side survives cut [905] removes over 70% of [907]	7 & 8	-	-	1.15m	0.20m
10/1001	Topsoil	Dark brown loam clay, large amount of worm and root activity, small amount of brashy limestone pieces in the matrix	10 (not illus'd)	-	-	-	0.32 - 0.20m
1002	Subsoil	Orange-brown loam clay mixed with high brashy limestone content, small amount of root penetration and worm activity	10	-	-	-	0.30 - 0.16m
1003	Alluvium	Orange-red silty sand, no inclusions moderate worm activity	10	-	-	-	0.43 - 0.30m
1004	Natural	Yellow-orange loam clay mixed with extremely high brashy limestone content	10	-	-	-	-
11/1101	Topsoil	Dark brown loam clay, large amount of worm and root activity, small amount of brashy limestone pieces in the matrix	-	-	-	-	0.26 - 0.26m
1102	Subsoil	Orange-brown loam clay mixed with high brashy limestone content, small amount of root penetration and worm activity	-	-	-	-	0.20 - 0.30m
1103	Natural	Yellow-orange loam clay mixed with extremely high brashy limestone content, patches of orange silty sand	-	-	-	-	-

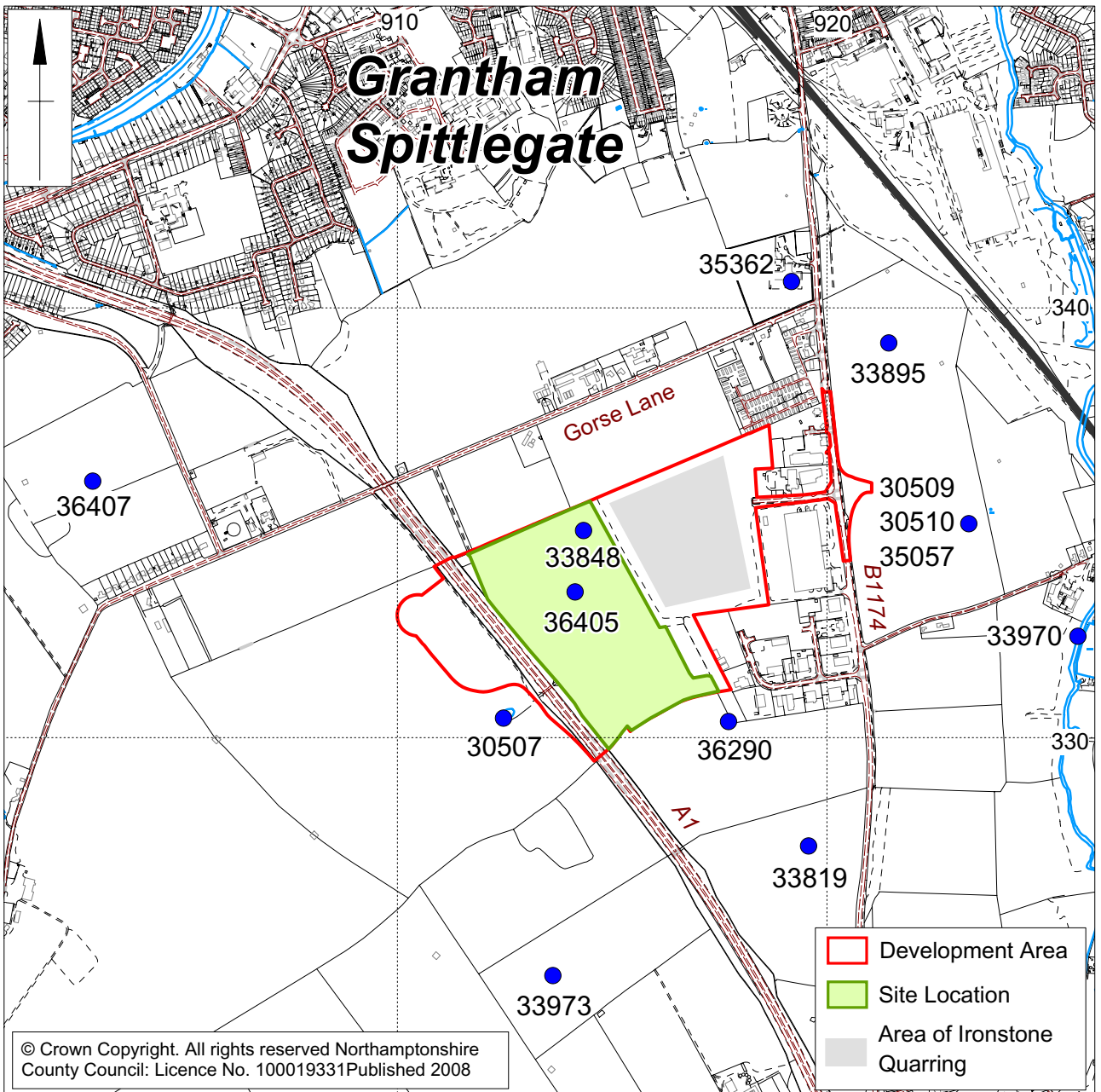
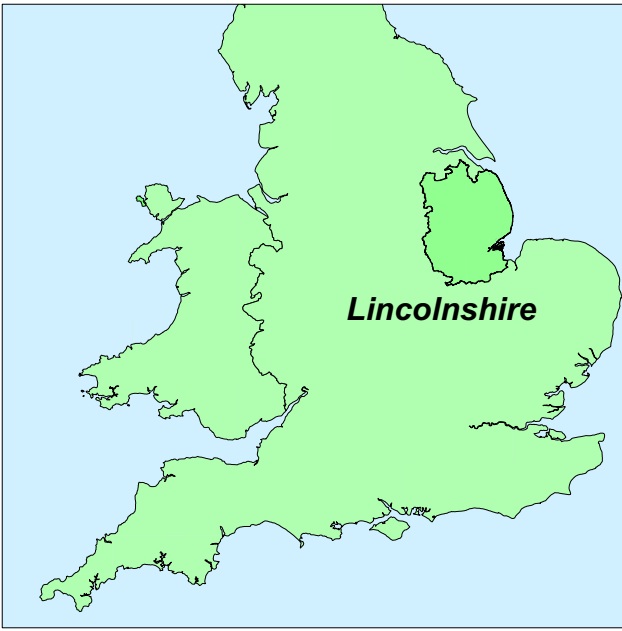
Trench/ Context	Type	Description	Section No	Sample No	Finds	Width (m)	Depth (m)
12/1201	Topsoil	Dark brown loam clay, large amount of worm and root activity, small amount of brashy limestone pieces in the matrix	11 (not illus'd)	-	-	-	0.25 - 0.20m
1202	Subsoil	Orange-brown loam clay mixed with high brashy limestone content, small amount of root penetration and worm activity	11	-	-	-	0.27 - 0.10m
1203	Alluvium	Orange-red silty sand, no inclusions moderate worm activity	11	-	-	-	0.26 - 0.20m
1204	Natural	Yellow-orange loam clay mixed with extremely high brashy limestone content	11	-	-	-	-
13/1301	Topsoil	Dark brown loam clay, large amount of worm and root activity, small amount of brashy limestone pieces in the matrix	-	-	-	-	0.25 - 0.26m
1302	Subsoil	Orange-brown loam clay mixed with high brashy limestone content, small amount of root penetration and worm activity	-	-	-	-	0.10m
1303	Natural	Yellow-orange loam clay mixed with extremely high brashy limestone content, patches of orange silty sand	-	-	-	-	-
14/1401	Topsoil	Dark brown loam clay, large amount of worm and root activity, small amount of brashy limestone pieces in the matrix	-	-	-	-	0.30 - 0.15m
1402	Subsoil	Orange-brown loam clay mixed with high brashy limestone content, small amount of root penetration and worm activity	-	-	-	-	0.20 - 0.10m

Trench/ Context	Type	Description	Section No	Sample No	Finds	Width (m)	Depth (m)
1403	Natural	Yellow-orange loam clay mixed with extremely high brashy limestone content	-	-	-	-	-
15/1501	Topsoil	Dark brown loam clay, large amount of worm and root activity, small amount of brashy limestone pieces in the matrix	-	-	-	-	0.27 - 0.20m
1502	Subsoil	Orange-brown loam clay mixed with high brashy limestone content, small amount of root penetration and worm activity	-	-	-	-	0.20m
1503	Natural	Yellow-orange loam clay mixed with extremely high brashy limestone content, patches of orange silty sand	-	-	-	-	-
16/1601	Topsoil	Dark brown loam clay, large amount of worm and root activity, small amount of brashy limestone pieces in the matrix	-	-	-	-	0.30 - 0.25m
1602	Subsoil	Orange-brown loam clay mixed with high brashy limestone content, small amount of root penetration and worm activity	-	-	-	-	0.30 - 0.25m
1603	Natural	Yellow-orange loam clay mixed with extremely high brashy limestone content	-	-	-	-	-
17/1701	Topsoil	Dark brown loam clay, large amount of worm and root activity, small amount of brashy limestone pieces in the matrix	-	-	-	-	0.30 - 0.24m
1702	Subsoil	Orange-brown loam clay mixed with high brashy limestone content, small amount of root penetration and worm activity	-	-	-	-	0.25 - 0.12m



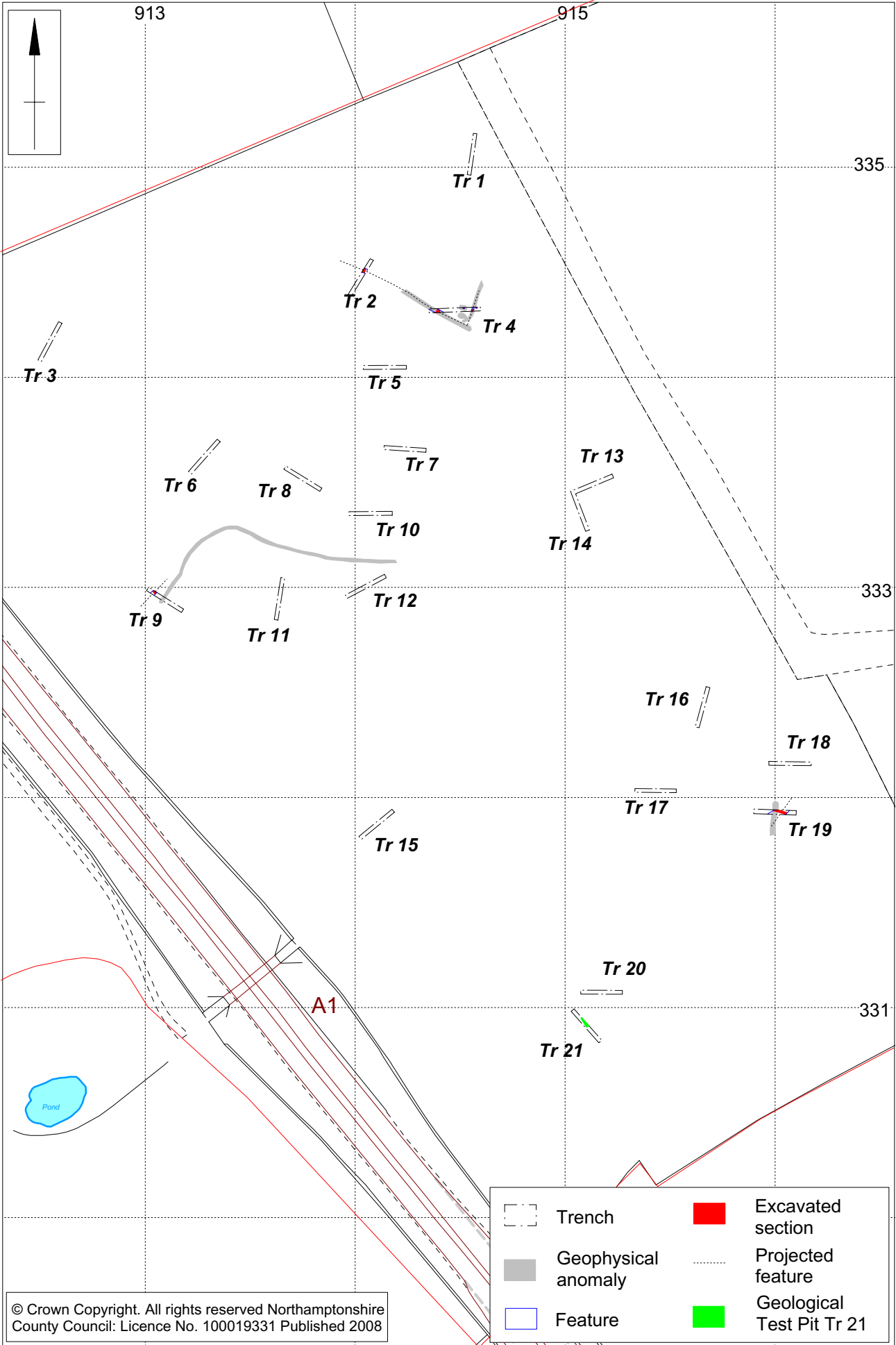
Trench/ Context	Type	Description	Section No	Sample No	Finds	Width (m)	Depth (m)
1703	Natural	Yellow-orange loam clay mixed with extremely high brashy limestone content	-	-	-	-	-
18/1801	Topsoil	Dark brown loam clay, large amount of worm and root activity, small amount of brashy limestone pieces in the matrix	-	-	-	-	0.23 - 0.20m
1802	Subsoil	Orange-brown loam clay mixed with high brashy limestone content, small amount of root penetration and worm activity	-	-	-	-	0.28 - 0.24m
1803	Natural	Yellow-orange loam clay mixed with extremely high brashy limestone content, patches of orange silty sand	-	-	-	-	-
19/1901	Topsoil	Dark brown loam clay, large amount of worm and root activity, small amount of brashy limestone pieces in the matrix	-	-	-	-	0.25 - 0.30m
1902	Subsoil	Orange-brown loam clay mixed with high brashy limestone content, small amount of root penetration and worm activity	-	-	-	-	0.25 - 0.30m
1903	Natural	Yellow-orange loam clay mixed with extremely high brashy limestone content	-	-	-	-	-
1904	Fill	Fill of [1905] colour ranges from grey-brown to orange-red, loam clay	9 (not illus'd)	-	Modern glass, CBM, Black Tyre Rubber	6.0m	0.14m
1905	Cut	Cut of modern track/roadway no distinct shape, variable depth across its width.	9	-	-	6.0m	0.14m

Trench/ Context	Type	Description	Section No	Sample No	Finds	Width (m)	Depth (m)
20/2001	Topsoil	Dark brown loam clay, large amount of worm and root activity, small amount of brashy limestone pieces in the matrix	-	-	-	-	0.50 - 0.40m
2002	Natural	Yellow-orange loam clay mixed with extremely high brashy limestone content	-	-	-	-	-
21/2101	Topsoil	Dark brown loam clay, large amount of worm and root activity, small amount of brashy limestone pieces in the matrix	-	-	-	-	0.50 - 0.39m
2102	Natural	Yellow-orange loam clay mixed with extremely high brashy limestone content	-	-	-	-	-



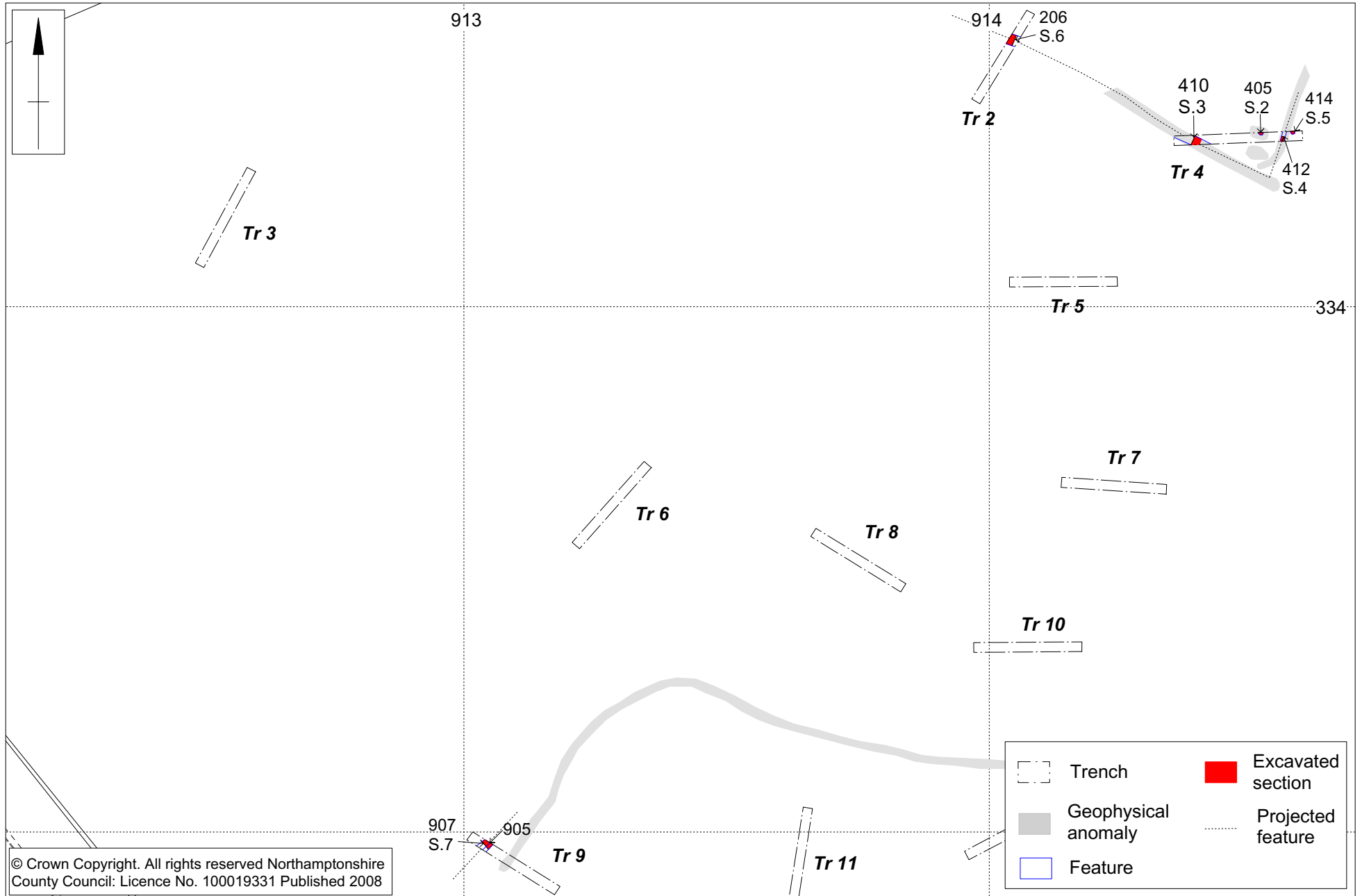
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Site Location Fig 1



Scale 1:2500

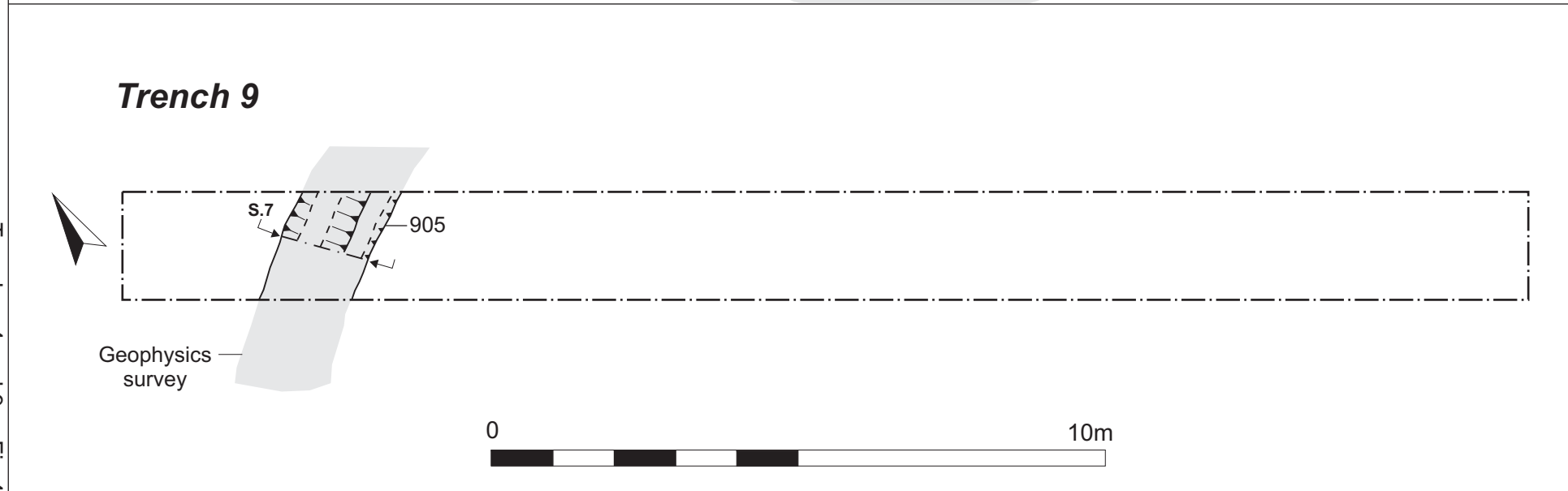
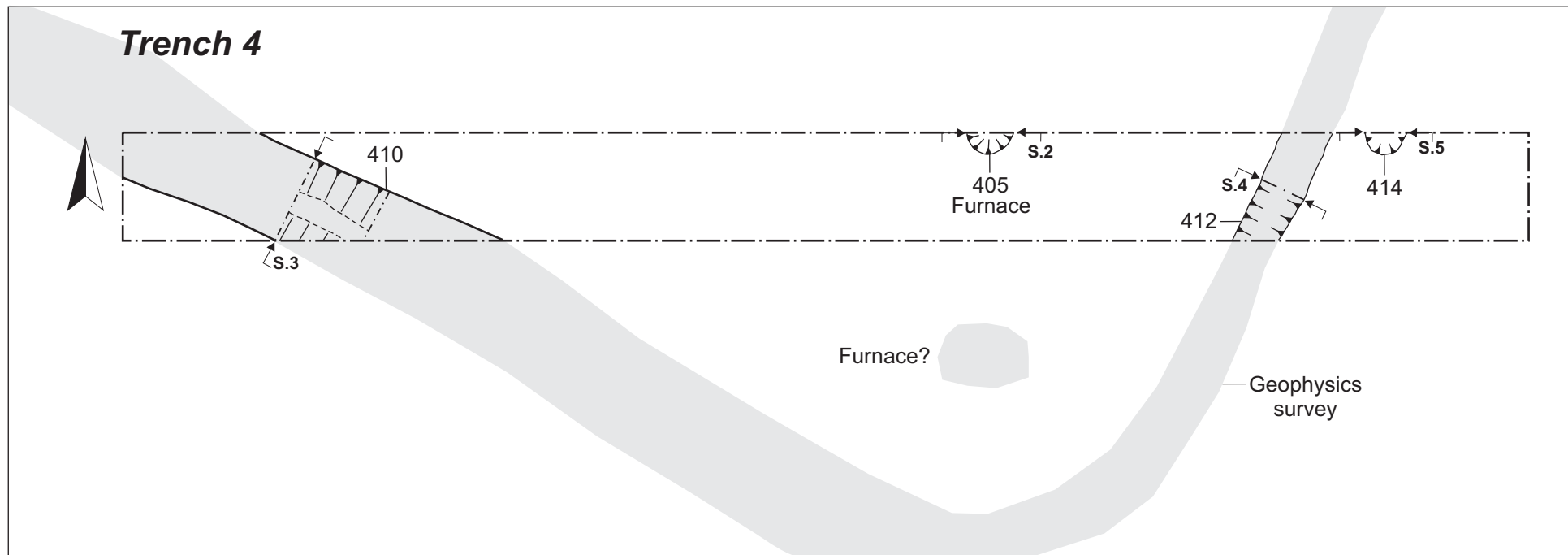
Trench Locations Fig 2



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Scale 1:1000

Trenches containing archaeological features Fig 3



Trenches 4 and 9 Fig 4



Trench 4, general view, looking west, ditch [412] in foreground Fig 5



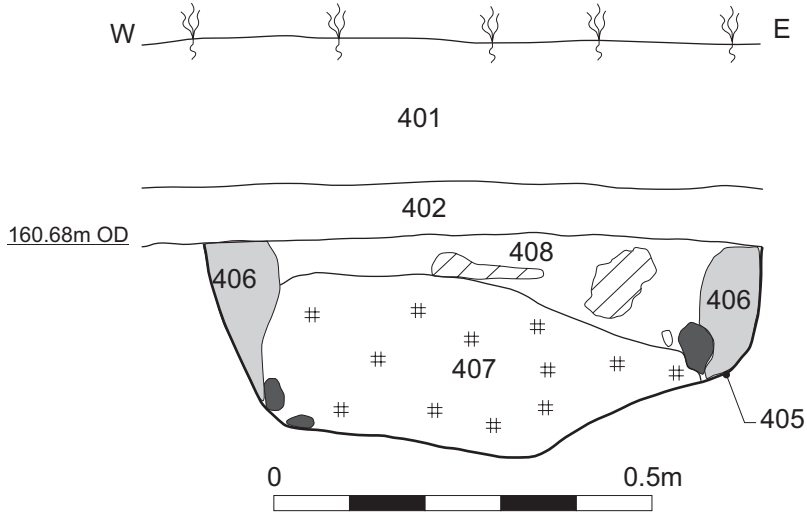
Trench 4, ditch [410], looking north-west Fig 6



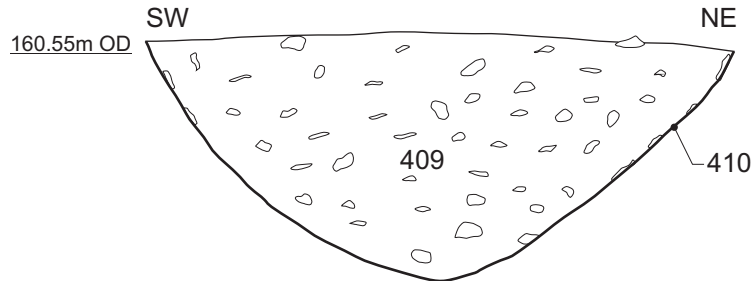
Trench 4, the furnace pit [405], looking north Fig 7



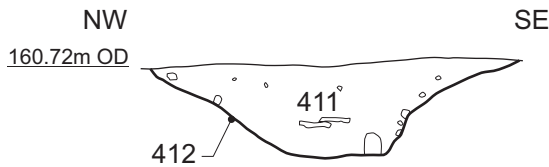
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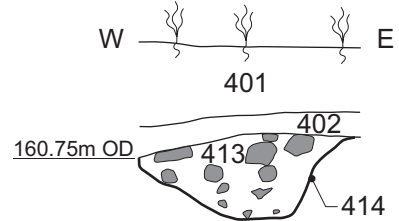
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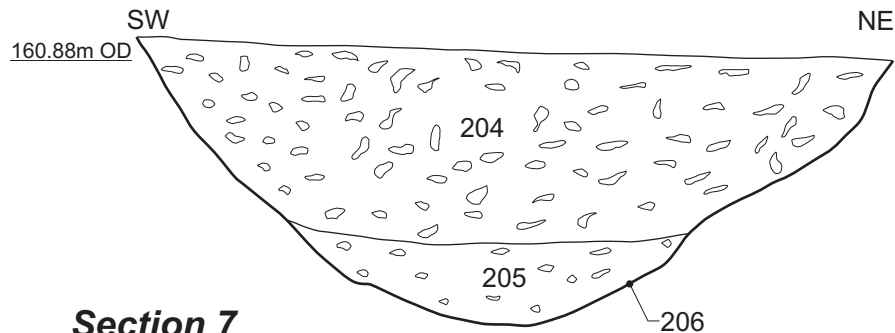
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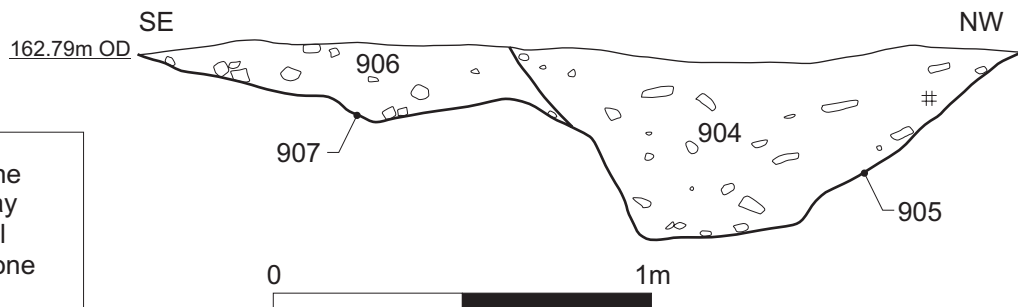
### Section 5








### Section 6



### Section 7



-  Limestone
-  Burnt clay
-  Charcoal
-  Burnt stone
-  Slag

Sections of features in Trenches 2, 4 and 9 Fig 8



Trench 9, ditch [907], looking south-west Fig 9



Trench 19, trackway [1904], looking south-west Fig 10