DOVECOTE FARM
TURVEY ROAD
ASTWOOD
MILTON KEYNES

ARCHAEOLOGICAL MITIGATION WORKS

Albion archaeology

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Parish	Astwood
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Compiled by	Approved by
Richard Gregson, Jackie Wells and Gary Edmondson	Drew Shotliff

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Preface

All statements and opinions in this document are offered in good faith. Albion Archaeology cannot accept responsibility for errors of fact or opinion resulting from data supplied by a third party, or for any loss or other consequence arising from decisions or actions made upon the basis of facts or opinions expressed in this document.

This document has been prepared by Richard Gregson (Project Supervisor), Holly Duncan (Project Manager – Artefacts), Jackie Wells (Artefacts Officer) and Gary Edmondson (Project Manager). Analysis and reporting of the plant remains was undertaken by John Giorgi; the human remains were analysed by Corinne Duhig; and David Starley examined the metalworking debris. The document was approved by Drew Shotliff (Operations Manager). Albion would like to acknowledge the assistance of the staff of Offgrid Power Wind Ltd and G2 Energy, as well as Nick Crank, Senior Archaeological Officer, who monitored the project on behalf of Milton Keynes Council.

Albion Archaeology
St Mary's Church
St Mary's Street
Bedford, MK42 0AS
☎: 0300 300 6867
Fax: 0300 300 8209
E-mail: g.edmondson@albion-arch.com
Website: www.albion-arch.com

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Structure of this Report

Section 1 serves as an introduction to the project, describing the site's location, its archaeological background and the aims of the archaeological work. Section 2 describes the investigation methodology and Section 3 summarises the results of the investigation. Section 4 is a bibliography. Supporting information is provided in the appendices. Appendix 1 contains contextual information. The artefact assemblage is summarised in Appendix 2, with information on the pottery in Appendix 3. Information on human remains, plant remains and metalworking debris is contained in Appendices 4–6 respectively.

Client	OffGrid Power Wind Ltd
HER	Historic Environment Record
CI*f*A	Chartered Institute *for* Archaeologists
LPA	Local Planning Authority
MKC	Milton Keynes Council
Procedures Manual	*Procedures Manual Volume 1 Fieldwork*, 2nd edn, 2001 Albion Archaeology
DA	Development area
SAO	Senior Archaeological Officer of MKC
WSI	Written Scheme of Investigation

Non-Technical Summary

Albion Archaeology were commissioned to undertake a programme of archaeological mitigation works associated with a planning application granted on appeal (APP/Y0435/A/13/2200621) for the construction of a wind turbine, sub-station and associated groundworks on farmland to the north of Dovecote Farm, Astwood, Milton Keynes. The development area is situated some 6km north-east of Newport Pagnell and 11km west of the centre of Bedford. Dovecote Farm is located to the north of Astwood village centre, some 500m north of the main A422 trunk road, at grid ref SP94599 47870. The development area was farmland, located c. *300m north of the Dovecote Farm buildings, at* c. *100m OD, near the northern margin of a ridge of higher ground, aligned roughly NE-SW and bounded by the valley of the River Great Ouse.*

An evaluation undertaken in 2013 revealed evidence of Iron Age / Roman activity in the area of the crane pad, with a single undated ditch (in the area of the turbine base to the north) interpreted as a post-medieval boundary. The archaeological remains were sealed beneath overburden comprising ploughsoil and subsoil with a combined thickness of at least 0.63m.

The mitigation works took place between 9th June and 21st July 2015 in a period of generally dry but variable weather conditions. The investigation strategy was based on the results of the evaluation and comprised a mixture of archaeological observation and open-area excavation.

On the access road, crane pad and cable trench (where it was anticipated that subsoil would be retained to protect underlying archaeological deposits) topsoil stripping was to be subject to continuous archaeological monitoring. During initial stripping of the northern section of the access road and crane pad, it became apparent that archaeological deposits were present immediately below the ploughsoil. Following discussions with the client, the groundworks contractor and the Milton Keynes Senior Archaeological Officer, a revised strategy was developed for recording of the exposed features, prior to their preservation in situ *beneath two layers of ground matting. This approach was utilised for the remainder of the access road and crane pad.*

Open-area excavation was undertaken on the footprint of the turbine base, the originally planned location of the sub-station and the latter's revised location.

The investigation revealed two foci of activity — mid-late Iron Age enclosures on the lower ground adjacent to Turvey Road in the south-west and a complex sequence of later Iron Age and Romano-British enclosures and boundaries on the higher ground in the vicinity of the turbine base. The enclosures were associated with pits and extensive spreads of material. Pottery was recovered from the surface of the exposed features, as well as a collection of metalworking debris indicative of both iron smelting and smithing. The paucity of features in the cable trench indicated that the enclosure system did not extend far to the east of the turbine base.

A series of medieval cultivation furrows were identified on the high ground to the east of the turbine base. These contained a significant concentration of metalworking debris, suggesting that the material had been dumped in the area to the east of the enclosures, before being subsequently incorporated into the furrows.

This investigation adds to the growing body of evidence for settlement and associated activity in this area during the Iron Age and Roman periods. It complements the evidence recovered to the east at Stagsden and during construction of the Bedfordshire Golf Club on the opposite side of the A422.

No further analysis or dissemination work is required on the data recovered during the mitigation works. This report will be uploaded onto the OASIS website under reference albionar1-200895 and the archive will be deposited with Buckinghamshire County Museum Service under accession number AYBCM 2015.62.

1. INTRODUCTION

1.1 Planning Background

Planning permission was granted on appeal (APP/Y0435/A/13/2200621) for the construction of a wind turbine, sub-station and associated groundworks on farmland to the north of Dovecote Farm, Astwood, Milton Keynes (Figure 1). Albion Archaeology was commissioned by OffGrid Power Wind Ltd to carry out the various components of the archaeological mitigation work associated with the development.

As previous archaeological evaluation of the development area (DA) had identified features dated to the Romano-British period (Archaeology Warwickshire 2013), a condition (no. 8) was attached to the planning permission. This stated that a programme of archaeological work, approved by the LPA, had to be implemented before the commencement of any development.

The Senior Archaeological Officer (SAO) of Milton Keynes Council (MKC) indicated that a programme of archaeological mitigation works comprising a combination of open-area excavation and observation and recording investigation was required, concentrating on the areas of new construction. No brief for the mitigation was issued but, following discussions with SAO, the methodology outlined in the Written Scheme of Investigation (Albion 2015) was formulated on the basis of the evaluation results.

The turbine base and sub-station footprint were subject to open-area excavation (Figure 2). It was anticipated that by removing only ploughsoil from the access route and crane pad (under archaeological supervision), it would be possible to leave archaeological remains *in situ* beneath the subsoil. It was, however, necessary to revise this strategy (with the agreement of the SAO) when stripping revealed archaeological deposits immediately below the ploughsoil.

1.2 Site Location and Description

Astwood is a small parish close to the north-east boundary of the Borough of Milton Keynes. The development area (DA) is situated some 6km north-east of Newport Pagnell and 11km west of the centre of Bedford.

Dovecote Farm (grid ref SP94599 47870) is located to the north of Astwood village centre, some 500m north of the main A422 trunk road. It is accessed via a private track running westwards from Turvey Road (Figure 1). The DA was situated to the north of the farm and was under arable cultivation immediately prior to development.

The site lies at *c.* 100m OD, towards the northern margin of a ridge of higher ground, aligned roughly NE-SW and bounded by the valley of the River Great Ouse to the north and the Marston Vale to the south-east. The ground falls sharply to the north with a gentler slope southwards. The superficial deposit

comprises till of the Oadby Member of the Wolston Formation, which is recorded as overlying mudstone of the Stewartby Member of the Oxford Clay Formation (BGS 2010).

1.3 Archaeological Background

Historical and archaeological evidence pertaining to Dovecote Farm and the DA was provided by a building recording and impact assessment report, prepared in advance of the conversion of a disused farm building (Albion Archaeology 2014), and by trial trench evaluation (Archaeology Warwickshire 2013).

The first recorded archaeological evidence for the area north of Dovecote Farm can be found in the "Archaeological Notes" section of the *Records of Buckinghamshire* for 1977 (Farley 1977). This identified an irregularly shaped ditched enclosure, visible as both a crop- and soil-mark. The interior of the enclosure contained a large quantity of iron slag, as well as Roman pottery and a quern stone.

In 2013, trial trenching was carried out within the proposed location of the wind turbine, crane pad and access road. A large pit (containing Romano-British pottery, ironworking slag and charcoal) and a ditch were encountered within the crane pad area. Due to the high water-table, the depth of the pit could not be determined. An undated ditch located within the area of the wind turbine, was thought to relate to a field boundary depicted on the First Edition OS map of 1886. No archaeological features were identified within the line of the access road.

Dovecote Farm sits in a landscape containing a number of heritage assets, including several moated sites, most of which have been abandoned. The closest is associated with the manor of Hardmead, situated *c*. 300m from the DA. It is a Scheduled Monument (number 32114), indicating national significance.

Dovecote Farm was built at the very beginning of the agricultural revolution. The farm was formerly part of the Astwood Bury Estate. Before it was broken up in 1948, the estate consisted of Bury Farm, Dovecote Farm and a number of cottages (D/201, Centre for Buckinghamshire Studies).

Astwood Bury (SMR reference MMK108) is located just over 1km to the north-east of Dovecote Farm. The estate was bought by William Lowndes in 1715 and remained in the family until the early 20th century. The house itself was demolished in 1799. While Ratcliffe was writing his history of Newport Pagnell in 1900, the remains of the old building and its moats could still be seen. Ratcliffe also notes that some of the former outbuildings (MK109) and the dovecote (MK32525) still stood, having been converted into four cottages.

1.4 Historical Maps

OS maps show that the DA has been located within a large field immediately to the north of Dovecote Farm since at least 1881. The layout of the field has remained largely unchanged to the present day.

Buildings in the location of the present-day Dovecote Farm are marked on Thomas Jefferys' map of the 1770s and Bryant's map of 1824. On both maps, the farm is named as Burystead Farm. Buildings are shown: a single mark on Jefferys' map and a cluster of dots on the later Bryant map. The small scale and lack of detail make it difficult to say with certainty whether these notations represent any of the existing buildings. The list description of the farmhouse dates the building to the 18th century; it would certainly have been in existence at the time of the Bryant map and had probably been built by the time Jefferys surveyed the area.

By the time of the OS survey of 1822 Burystead Farm had been re-named Astwood Farm and, with the exception of the obviously recent buildings, the plan form of the farmstead clearly matches that seen today. The same layout is represented on the 1901 OS map, although by 1977 additional buildings were present. These represent most of the modern buildings, including those recently demolished as a result of conversion to domestic use. The farm underwent another name change sometime after 1901 and appears as Dovecote Farm on the more recent, 20th-century OS maps.

1.5 Project Research Aims and Objectives

English Heritage / Historic England have produced an extensive library of national guides covering a wide range of topics, and most of these are available for free download from the HELM website. The research context for Milton Keynes is provided by Hey and Hind (2014): *Solent-Thames Research Framework for the Historic Environment*.

These are a vital tool for the assessment of any heritage asset within its local, regional and national historic environment setting. The following project research objectives were based on objectives identified within the research agendas.

Given the results of the trial trenching, evidence of Romano-British occupation was likely to be revealed. It was less likely that medieval occupation would be present, despite the number of moated sites in the vicinity, but evidence for agriculture, in the form of sub-surface furrows, could be anticipated.

The research agenda for the Solent-Thames (Fulford 2014, 179–184) states that more work is needed to understand social and settlement hierarchies, distribution, origins and land-use during the Romano-British period in this region, in particular on clay soils. Furthermore, the recovery of iron slag from a pit within the crane pad area indicated the potential to contribute to understanding of small-scale ironworking away from known major centres/regions, such as Northamptonshire. In light of the archaeometallurgical potential of the DA, David Starley (formerly of the Ancient Monuments Laboratory) was consulted with regards to identification of material from the site.

There was potential for the Romano-British settlement to contribute to understanding of medieval activity in the vicinity of the DA through the examination of issues of continuity at the end of the Romano-British period (Dodd 2014, 185). Likewise, the link between medieval settlement and modern-day villages and towns also needs to be better understood (Dodd 2014, 240).

The aims of the investigation were:

- To establish the nature, character and possibly the extent of previously identified Romano-British activity within the DA;
- To identify any evidence of medieval occupation or associated agriculture away from the moated sites;
- To recover artefactual and environmental materials to assist in understanding the cultural and economic basis of former settlements, and indications of change over time;
- To disseminate the results of the investigation — the approach to be determined in consultation with the SAO, dependant on the significance of the results;
- To produce a site archive for future deposition Buckinghamshire County Museum Service, and to provide information for inclusion in the Milton Keynes HER.

The research aims were reviewed throughout the project to ensure that:

- They were still relevant to the data being uncovered.
- Investigation methodologies were still appropriate.

2. METHOD STATEMENT

The methodological approach to the project is summarised below and detailed in Appendix 1 of the Written Scheme of Investigation (Albion Archaeology 2015).

2.1 Methodological Standards

The standards and requirements set out in the following documents were adhered to throughout the project:

Albion Archaeology	*Procedures Manual: Volume 1 Fieldwork* (2nd edn, 2001)
Archaeological Archive Forum	*Archaeological Archives: A Guide to best practice in creation, compilation, transfer and curation* (2007)
Buckinghamshire County Museum	*Procedures for Notifying and Transferring Archaeological Archives* (2013)
CI*f*A	*Charter and by-law; Code of Conduct* (2014)
	Standard and guidance for archaeological excavation (2014)
	Standard and guidance for the collection, documentation, conservation and research of archaeological materials (2014)
English Heritage	*Environmental Archaeology: A guide to the theory and practice of methods, from sampling and recovery to post-excavation* (2nd edn) (2011)
Historic England	*Management of Research Projects in the Historic Environment* (2015)

2.2 Archaeological Mitigation Components

2.2.1 Open area-excavation

Open-area excavation targeted the foundations for the wind turbine (which had an octagonal footprint *c*. 12m across) and the sub-station (which had a rectangular footprint *c*. 6m by 3m (Figure 1 – black areas) and its subsequent relocation further to the north-east. These areas were accurately located and pegged out by the client's surveyor prior to commencement of the works. In these areas, the overburden was removed to the top of the geological strata where archaeological features were visible, using a mechanical excavator fitted with a flat-edged bucket and operated by an experienced driver under close archaeological supervision.

All excavation and recording was carried out by experienced Albion staff, with external specialists consulted as necessary. An appropriate level of environmental and other sampling was undertaken in accordance with standard guidelines (Appendix 1, Section 5.1).

The SAO was regularly updated with regards to the results of the investigation.

2.2.2 Archaeological observation and recording

All groundworks associated with the construction of the access road, crane pad and cable trench were monitored by an experienced archaeologist (Figure 1 – red areas). These areas were accurately located and pegged out by the client's surveyor prior to commencement of the works. Construction of these elements of the development involved removal of some 0.3m of the upper soil profile.

On these elements of the development it was anticipated that subsoil would be retained to protect underlying archaeological deposits. During initial stripping of the northern section of the access road and crane pad, it became apparent that archaeological deposits were present immediately below the ploughsoil. Following discussions with the client, the groundworks contractor and the Milton Keynes Senior Archaeological Officer, a revised strategy was developed for recording of the exposed features, prior to their preservation *in situ* beneath two layers of ground matting. This approach was utilised for the remainder of the access road and crane pad.

All excavation and recording was carried by experienced Albion staff, with external specialists consulted as necessary. An appropriate level of environmental and other sampling was undertaken in accordance with standard guidelines (Appendix 1, Section 5.1).

A separate block of numbers was used to for this component of the work, to keep it separate from the open-area excavation. The results from both components of the mitigation works were integrated during post-excavation analysis.

3. RESULTS

3.1 Introduction

Archaeological investigation was undertaken between 9th June and 21st July 2015, in a period of generally dry fine weather. The SAO visited the site on 25th June 2015.

Context numbers in brackets refer to deposits recorded on site. Context details for the five components of the site are provided in Appendix 1. Area 1 comprised the crane base and northern part of the access road. Area 2 comprised the turbine base. Area 3 relates to the sub-station and its subsequent relocation to the north-east. Area 4 corresponds to the cable trench and Area 5 to the southern part of the access road. Cut features are in square brackets; for example, [11] defines a ditch in the northern part of the access road / crane pad. Deposits or layers are in curved brackets; for example, (35) is the fill of the ditch [34] within the turbine base. As most of the features were exposed in the access road and crane pad, they were not investigated, with their identification and relationships based on observation of the exposed surface. Finds were recovered from the surface of the disuse fills of the features in these areas.

3.2 Overburden and Geological Deposits

The dark grey-brown clay silt ploughsoil was 0.3m thick and, in general, directly overlay the undisturbed geological strata. In the northern half of the turbine base and the western half of the southern part of the access road, mid orange-brown silty clay subsoil was present; it was up to 0.1m thick.

The geological strata comprised mid yellow-grey or brown-orange silty clay that in places contained frequent flecks and small fragments of chalk.

3.3 Archaeological Features

Figure 2 shows an all-features plan of the mitigation areas. Figures 3 and 4 contain detailed plans of the archaeological features in the northern and southern parts of the DA respectively. Figures 5–8 contain selected images of the main areas of investigation.

3.3.1 Northern part of access road and crane pad (Area 1)

This area was reduced by *c*. 0.34m removing topsoil and small amounts of the deposits beneath. Since there was very little or no subsoil, this revealed a dense area of archaeological remains dating to the late Iron Age / early Roman period (Figure 3, Figure 5: images 1 and 2 and Figure 6: image 3). These remains comprised a complex sequence of intercutting ditches and gullies, mainly aligned N-S or E-W, two pits, erosional hollows and several extensive layers interleaved with the ditches and gullies; detailed contextual information can be found in Appendix 1.

Following consultation with the client, groundworks contractor and SAO, it was determined that the remains would not be impacted further by the development. A revised strategy was formulated, comprising recording of the features and collection of finds from the exposed deposits. Thereafter, the formation of the

road utilised two layers of matting, providing sufficient protection to enable preservation of the remains *in-situ*. Accordingly, the relationships between the inter-cutting ditches and the layers, where discernible, were based on observation of the deposits, with no further excavation being undertaken. The artefacts collected from the surface of these deposits provide an insight into the date range and nature of activities at the site, as well its connections to the wider area.

The ditches and gullies varied from 0.3m to 4.6m wide and contained upper deposits that varied from light grey-brown to very dark grey in colour and from silty clay to clay silt in composition. Artefacts recovered from them were dated to the Iron Age / early Roman period. In addition to pottery, other artefacts recovered from the ditches included several iron objects, a lead object and pieces of metalworking debris that provide evidence of both smelting and smithing activities (see Appendix 6). A furnace bottom (the residual waste contents of the furnace after tapping) weighing over 1kg was recovered from ditch [111]. This indicated the type of furnace being used, whilst the presence of charcoal within the slag confirmed the nature of the fuel.

The boundary ditches defined elements of an enclosure system redefined on a number of occasions and shifting from a NE-SW to a N-S alignment over time. The ditch identified in evaluation trench 2 [202] appears to correlate to ditch [109] on Figure 3, whilst the continuation of large pit [204] in the evaluation was masked by an extensive layer. The feature density declined to the east, suggesting that the site was near the margin of the enclosure system.

A total of 216 sherds of Iron Age to early Roman pottery, weighing 2.9kg, was recovered from this area, including local wares as well as regional and continental imports. A variety of forms were represented, including jars, bowls, dishes and beakers. Some of the vessels were hand-made whilst most were wheel-thrown. Small amounts of ceramic building material were recorded including *tegula* roof tile and brick.

3.3.2 Turbine base (Area 2)

Area 2 was subject to open-area investigation. The top of the geological strata was generally *c*. 0.3m below ground level. A thin subsoil deposit was identified towards the northern margin of the area. Four ditches and a tree-throw were revealed.

The most substantial ditch [60/38] extended across the area from WNW-ESE, curving to the south into the crane base where it defined a possible terminal. This ditch had been recorded in evaluation trench 1. The ditch was substantial, *c*. 4.5m wide and *c.* 1.65m deep with a roughly V-shaped profile. It was hand-excavated to a depth of *c* 1.3m (Figure 3: section 2 and Figure 6: image 4). Subsequently the area of the turbine base was reduced to permit hand-excavation of the lower part of the feature, which contained a waterlogged deposit.

The ditch contained a sequence of deposits, varying from light brown-grey to mid orange-grey silty clay; they had generally formed in dry conditions. A total of 88 pottery sherds weighing 1.6kg were recovered. The assemblage comprises a small quantity of late pre-Roman Iron Age material, as well as early Roman wares.

Vessel forms include a jar and probable storage vessels, possibly the product of the East Stagsden kilns in Bedfordshire. Other finds comprised a worn and illegible copper alloy coin fragment (RA9) of Roman or post-medieval date, together with a small quantity of metalworking debris comprising tap slag and flake hammerscale as well as undiagnostic metalworking debris (Table 5).

A sample was taken from the base of the ditch (Appendix 5). The identifiable plant remains from the sample, albeit limited, provide information on the character of the habitat within and in the vicinity of the ditch. The botanical evidence suggests that the ditch contained water, possibly on a seasonal basis, while elder and brambles may have formed part of a hedgerow growing alongside the ditch or close-by. The high incidence of plants indicative of nutrient-, specifically nitrogen-rich, soils (in particular *Urtica dioica* and *Sambucus nigr*a, both of which are often found on manured soils) may indicate grazing livestock close-by, possibly watering at the ditch, and/or the presence of dumps/refuse tips close-by. There was, however, little other potential botanical evidence for human activities except for a little very fragmented charcoal.

This ditch is thought to be a substantial boundary at the margin of the contemporary settlement, away from a focus of human activity — hence the low density of finds.

In addition to the boundary ditch, a number of other archaeological features including two smaller ditches, a ditch terminus or large pit, a tree-throw and shallow features or erosional surfaces were revealed. Artefacts recovered from these deposits included sherds of late Iron Age and Roman pottery and almost 0.8kg of tap slag and undiagnostic ironworking slag from ditch [56] (Table 5).

3.3.3 Sub-station (Area 3)

The initial location of the sub-station was immediately to the north-east of the crane pad (Figure 3), covering a rectangular area *c*. 12.5m NNW-SSE by 5.5m wide. Subsequently it was located further to the north-east, covering an area of 9.5m by 9.5m. These areas revealed a marked decline in the density of features compared to the area immediately to the west (Figure 3). The margins of a ditch and layers were revealed in the west of the area, with two small pits, a narrow gulley and an inhumation burial further east. A curving furrow [80] near the eastern margin of the area (Figure 3 – green feature) contained metalworking debris, including tap slag fayalitic run slag, hammerscale and undiagnostic ironworking slag (Table 5).

The undated inhumation burial [82] was located within the original proposed site of the sub-station, in an area where the density of archaeological features was significantly less than in the crane pad (Figure 3). This is considered to be contemporary with the enclosures, with the inhumation being placed just outside the main area of activity. Following a site visit by the SAO, it was determined that the best option was to excavate the grave.

The top of the grave was revealed at 0.35m below ground level, at which depth fragments of bone were visible. It was roughly rectangular and measured 2m NNW-SSE by 0.7m wide (Figure 3: inset). The grave was very shallow, a

maximum 0.1m deep (Figure 3: section 1). Although degraded, the bones were mostly undisturbed (Figure 7: image 5). A portion of the upper right leg seemed to have been broken and dislodged, possibly the result of having been struck by the plough. The skeleton was supine, with the arms close to the body and the hands in the pelvic area, suggesting that the body may have been wrapped in a shroud. The distance from the top of the skull to the tip of the toes was 1.73m, which suggests a relatively tall individual.

Analysis of the bones (Appendix 4) indicated that all were heavily fragmented, with some body areas not preserved. The skeleton is that of a man, as indicated by the four areas of the skull that could be assessed, and by the great robusticity of the limb bones. Attrition of the teeth places this individual in the 25–35 age category (using the Brothwell method). Stature could not be determined, but the body was based on a very robust skeleton and the few entheses (points of muscle attachment) that could be observed were moderately marked, suggesting a reasonably well-muscled individual.

Pathologies comprised evidence of erosion and new-bone formation on the right fibula, near the ankle joint, indicating that there was an area of infection or inflammation at that point. Two areas of dental caries on a first molar and a third molar were present. Both locations are interdental, i.e. they are in the gaps between the teeth, where natural or deliberate cleaning is often ineffective.

The presence of a small, residual sherd of middle-late Iron Age pottery in the backfill of the grave may suggest contemporary activity in the vicinity, possibly associated with the activity focus in Area 5 to the south.

3.3.4 Cable trench (Area 4)

Initially the ploughsoil was stripped from the north-west end of the cable trench to check for other possible inhumations (Figure 3 – wide area of trench). No additional inhumations were revealed. The strip did, however, reveal five N-S aligned features (Figure 3 – green features). They were 1–2.7m wide, with shallow profiles up to 0.16m deep (Figure 3: section 7). They appear to be cultivation furrows of medieval or later date, which cut though and incorporated metalworking debris from Roman dumps — suggesting that the area immediately to the east of the enclosures was used to dump the waste material. The cable trench was subsequently dug to the full depth (Figure 7: image 6).

The fills of the furrows contained significant quantities of tap slag, fayalitic run slag and undiagnostic ironworking slag, which was systematically collected. A total of *c.* 2.8kg of material was recovered from the westernmost two furrows [80] and [146/148], compared to less than 100g from the eastern three furrows. The furrows were, on average, spaced at 5m intervals.

Further to the south-east were another three possible furrows, up to 1.1m wide and 0.4m deep (Figure 3: section 9). These features were broadly aligned NE-SW. The fills comprised relatively dark, firm mid grey-brown silty clay. No fragments of metalworking debris were observed within these features.

The cable trench also revealed five ditches in the north-east and central areas (Figure 2 and Figure 3: brown features). Their sizes varied — ditch [177] in the south-east was 2.6m wide and 0.56m deep; while ditch [156] in the north-west was 5.7m wide and 1.1m deep; the majority were *c.* 2.6m wide (Figure 3: sections 8 and 10). Their fills were relatively dark in colour, ranging from mid grey to dark-brown, suggesting material derived from an unstable upper soil profile. The only finds recovered from the features were 382g of animal bone from ditch [156]; it included horse teeth and mandible fragments. The ditches were on several alignments, with the most common being N-S or E-W, suggesting an association. Ditches [166] and [168] had a common E-W alignment, some 10m apart, and may have defined a trackway.

3.3.5 Southern part of access track (Area 5)

Removal of the ploughsoil (0.3–0.35m thick) revealed an area of subsoil to the west (Figure 4 - orange hatched area), as well as archaeological features and the undisturbed geological strata (Figure 4). As with the northern part of the access track, the remains were preserved *in-situ*.

To the west, modern ditch [1021] clearly truncated the subsoil. The archaeological features recorded in the eastern half of the access road comprised 13 ditches and gullies on a variety of alignments; they were 0.35–4.2m wide (Figure 8 images 7 and 8). Other features included two pits or ditch terminals, which were 1.4m and 1.8m across. The deposits within these features varied from mid orange-brown to dark brown-grey in colour and from silty clay to clay silt in composition. Almost 1kg of middle-late Iron Age pottery was recovered from the surface of the features; the bulk of it came from an ovoid jar found in curving ditch [1031] to the south-east. A small fragment of undiagnostic ironworking slag was recovered from ditch [1021] — in contrast to the large amount recovered from the rest of the site. A number of contrasting ditch alignments were present, suggesting more than one phase of activity.

3.4 Discussion

The investigations revealed two foci of activity, comprising enclosures defined by ditches and associated activity represented by pits and layers. The earliest activity appears to be on the lower ground in the south-east, towards Turvey Road; it dates to the middle-late Iron Age. By the late Iron Age / early Roman period, the main focus of activity appears to have shifted to the high ground in the vicinity of the turbine base some 300m to the north-west.

The higher ground around the turbine base and crane pad contained the highest density of archaeological features, many of which were intercutting. As these features would not be disturbed by the development, they were preserved *in situ* without further intrusive investigation. Although it was often difficult to determine the exact stratigraphic sequence, examination of the exposed deposits did indicate successive remodelling and realignment of the enclosures over time. Due to the greater impact of the turbine base and sub-station, features in these areas were fully excavated. The combined finds assemblage indicate activity from the late Iron Age to the early Roman period, with evidence of trading with the wider region and beyond.

The investigation area appears to be situated towards the margin of the settlement, with the density of features declining to the north and east, as well as downslope to the south. This area of the settlement was associated with the smelting and smithing of iron, with an indication of the dumping of slag on the periphery of the enclosures where it was subsequently incorporated into cultivation furrows. This area also contained an inhumation burial. Despite the relative high elevation of the area, the basal deposit of a substantial ditch contained waterlogged deposits providing an insight into the contemporary environment.

The metalworking debris provides evidence for the extraction of iron, presumably from local ore, using the slag-tapping furnace. Small quantities of hammerscale recovered indicate iron smithing, although this may have been associated with consolidating the bloom following smelting. It was not possible to determine the scale of the activity, given on the relatively limited scope of the investigation. However, the assemblage does add to evidence of ironworking in the area, building on previous discoveries in the immediate vicinity (Farley 1977, 483) and further northwards in Odell (Tylecote 1986).

The results of the investigations contribute to the growing understanding of the settlements in the area, their form, economic basis and the landscape. During construction of the Stagsden bypass two settlements were identified approximately 3km and 5km to the east of the turbine location (Dawson 2000). These span the later Iron Age to Roman period with the Stagsden East site originating in the middle Iron Age. This appears to have been a local pottery production site with four kilns being identified within the road corridor. This settlement continued across the line of the modern road (A422), with several other settlements being revealed during evaluation of the new course at the Bedfordshire Golf Club in Stagsden (Luke 1998).

No further analysis or dissemination work is required on the data recovered during the mitigation works. This report will be uploaded onto the OASIS website under reference albionar1-195642 and the archive deposited with Buckinghamshire County Museum Service under accession number AYBCM: 2013.56.

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5. APPENDIX 1: CONTEXT SUMMARY

Area: 1
Extent (ha):
OS Co-ordinates: SP9451348190
Description: Crane base and northern part of Access Road

Context:	Type:	Description:	Excavated:	Finds Present:
1	**Ploughsoil**	**Friable dark grey brown clay silt occasional small-medium stones. 0.3m thick. Contains pottery, slag, clay tobacco pipe and a gun cartridge.**	☑	☑
2	**Subsoil**	**Firm mid orange brown silty clay occasional small stones. 0.1m thick. Contains pottery and cinder.**	☑	☑
3	**Natural**	**Firm mid yellow grey silty clay frequent flecks chalk, occasional small-medium chalk, occasional small-medium stones**	☐	☐
4	**Ditch**	**Linear NE-SW dimensions: max breadth 1.1m, min length 12.m**	☐	☐
5	Fill	Firm mid grey brown silty clay occasional small-medium stones. Contains pottery.	☐	☑
6	**Ditch**	**Linear NE-SW dimensions: max breadth 2.2m, min length 5.m**	☐	☐
7	Fill	Friable dark grey brown clay silt occasional small-medium stones. Contains pottery, animal bone, fired clay, an iron nail and Registered Artefact RA5.	☐	☑
8	Fill	Friable dark grey black clay silt occasional flecks charcoal, occasional small-medium stones. Contains pottery, animal bone, iron nail and Registered Artefact RA1.	☐	☑
9	**Ditch**	**Linear N-S dimensions: max breadth 4.2m, min length 12.m**	☐	☐
20	Fill	Firm dark brown grey clay silt occasional flecks charcoal, occasional small-medium stones. Contains pottery, slag, fired clay and a Registered Artefact RA7.	☐	☑
21	Fill	Firm mid grey brown silty clay occasional small-medium stones. Contains slag and vitrified clay.	☐	☑
25	Fill	Firm mid red brown clay silt occasional small-medium stones. Contains pottery.	☐	☑
26	Fill	Friable dark grey clay silt moderate medium-large stones	☐	☐
10	**Layer**	**Friable mid grey clay silt occasional small-medium stones. Contains pottery.**	☐	☑
11	**Ditch**	**Linear NE-SW dimensions: max breadth 1.85m, min length 8.5m**	☐	☐
12	Fill	Firm dark grey brown silty clay occasional small-medium stones	☐	☐
13	**Ditch**	**Linear NE-SW dimensions: max breadth 1.4m, min length 8.5m**	☐	☐
14	Fill	Firm mid grey brown silty clay occasional small stones	☐	☐
15	**Ditch**	**Linear NW-SE dimensions: max breadth 1.1m, min length 2.2m**	☐	☐
16	Fill	Firm mid grey silty clay occasional flecks charcoal, moderate small-medium stones. Contains Registered Artefact RA3.	☐	☑
17	**Pit**	**Sub-rectangular dimensions: min breadth 3.4m, min length 4.5m**	☐	☐
18	Fill	Friable dark grey brown clay silt occasional flecks charcoal, moderate large stones, occasional small-medium stones. Contains pottery, animal bone, ceramic building material and iron nails.	☐	☑
19	Fill	Firm mid red brown clay silt occasional small-medium stones. Contains pottery and animal bone.	☐	☑
22	**Feature**	**Dimensions: min breadth 10.m, max length 22.5m. Possible erosional hollow.**	☐	☐
23	Fill	Friable dark grey clay silt moderate medium-large stones. Contains pottery, animal bone and Registered Artefact RA2.	☐	☑
24	Fill	Firm mid grey brown clay silt occasional small-large stones. Contains pottery and slag.	☐	☑

Area: **1**
Extent (ha):
OS Co-ordinates: **SP9451348190**
Description: **Crane base and northern part of Access Road**

85	**Ditch**	**Linear NW-SE dimensions: max breadth 1.4m, min length 1.5m**	☐	☐
86	Fill	Friable mid grey brown silty clay moderate small-medium stones. Contains pottery and iron nails.	☐	☑
87	**Ditch**	**Linear NNW-SSE dimensions: max breadth 1.9m, min length 1.7m**	☐	☐
88	Fill	Friable mid grey clay silt occasional flecks charcoal, occasional small stones. Contains pottery.	☐	☑
89	**Ditch**	**Linear E-W dimensions: max breadth 2.1m, min length 17.m**	☐	☐
90	Fill	Friable dark grey clay silt occasional flecks charcoal, occasional small-medium stones. Contains pottery and Registered Artefacts RA6 and RA11.	☐	☑
91	**Ditch**	**Linear NNW-SSE dimensions: max breadth 0.9m, min length 4.1m**	☐	☐
92	Fill	Firm mid grey silty clay occasional flecks charcoal, occasional small stones	☐	☐
93	**Gulley**	**Linear NNW-SSE dimensions: max breadth 0.5m, min length 4.m**	☐	☐
94	Fill	Firm light grey silty clay occasional small-medium stones	☐	☐
95	**Ditch**	**Linear NW-SE dimensions: max breadth 3.7m, min length 25.m**	☐	☐
96	Fill	Friable mid brown grey clay silt occasional small-medium stones. Contains pottery.	☐	☑
97	**Gulley**	**Linear NNW-SSE dimensions: max breadth 0.27m, min length 2.5m**	☐	☐
98	Fill	Firm mid brown grey silty clay occasional small-medium stones	☐	☐
99	**Ditch**	**Linear N-S dimensions: max breadth 0.7m, min length 4.9m**	☐	☐
100	Fill	Firm dark brown grey silty clay occasional small-medium stones. Contains pottery.	☐	☑
101	**Ditch**	**Curving linear N-S dimensions: max breadth 1.8m, min length 19.m**	☐	☐
102	Fill	Firm mid brown grey silty clay moderate small-medium stones, occasional large stones. Contains pottery and animal bone.	☐	☑
103	**Ditch**	**Linear N-S dimensions: max breadth 2.85m, min length 24.m**	☐	☐
104	Fill	Firm light brown grey silty clay occasional small-medium stones. Contains pottery and animal bone.	☐	☑
105	**Ditch**	**Linear ENE-WSW dimensions: max breadth 1.65m, min length 1.6m**	☐	☐
106	Fill	Firm mid brown grey silty clay occasional small-medium stones	☐	☐
107	**Ditch**	**Curving linear N-S dimensions: max breadth 2.6m, min length 19.m**	☐	☐
108	Fill	Firm mid brown grey silty clay occasional small-medium stones. Contains pottery and animal bone.	☐	☑
109	**Ditch**	**Linear ENE-WSW dimensions: max breadth 1.45m, min length 2.4m**	☐	☐
110	Fill	Firm mid brown grey silty clay moderate small-medium stones, occasional large stones. Contains pottery and animal bone.	☐	☑
111	**Ditch**	**Linear E-W dimensions: max breadth 3.4m, min length 25.m**	☐	☐
112	Fill	Friable mid brown grey clay silt moderate small stones, occasional medium stones. Contains pottery, animal bone, vitrified clay and over 1.3kg of slag.	☐	☑
113	**Ditch**	**Curving linear N-S dimensions: max breadth 1.6m, min length 12.m**	☐	☐
114	Fill	Firm dark grey brown clay silt occasional small stones. Contains pottery, animal bone and slag.	☐	☑

Area: **1**
Extent (ha):
OS Co-ordinates: **SP9451348190**
Description: **Crane base and northern part of Access Road**

115	**Ditch**	**Linear N-S dimensions: max breadth 2.m, min length 12.m**	☐	☐
116	Fill	Friable mid brown grey silty clay occasional small-medium stones. Contains pottery and animal bone.	☐	☑
117	**Ditch**	**Linear E-W dimensions: max breadth 1.7m, min length 3.7m**	☐	☐
118	Fill	Firm mid grey brown silty clay moderate small-medium stones. Contains pottery and slag.	☐	☑
119	**Pit**	**Sub-oval E-W dimensions: max breadth 2.2m, min length 3.m**	☐	☐
120	Fill	Friable dark grey clay silt occasional flecks charcoal, occasional small-medium stones	☐	☐
121	**Ditch**	**Linear E-W dimensions: max breadth 2.1m, min length 5.5m**	☐	☐
122	Fill	Firm mid grey brown silty clay moderate small-medium stones. Contains pottery.	☐	☑
123	**Ditch**	**Linear N-S dimensions: max breadth 1.8m, min length 2.6m**	☐	☐
124	Fill	Friable mid brown grey silty clay moderate small-medium stones. Contains pottery and animal bone.	☐	☑
125	**Ditch**	**Linear E-W dimensions: max breadth 1.9m, min length 9.m**	☐	☐
126	Fill	Firm mid brown grey silty clay occasional small-medium stones	☐	☐
127	**Pit**	**Sub-rectangular ENE-WSW dimensions: max breadth 1.15m, max length 3.15m**	☐	☐
128	Fill	Firm dark grey brown silty clay occasional small-medium stones	☐	☐
129	**Ditch**	**Linear E-W dimensions: max breadth 1.7m, min length 5.2m**	☐	☐
130	Fill	Firm mid brown grey silty clay occasional small-medium stones	☐	☐
131	**Ditch**	**Linear E-W dimensions: max breadth 4.3m, min length 18.5m**	☐	☐
132	Fill	Friable mid brown grey clay silt occasional flecks charcoal, occasional small-medium stones. Contains pottery, animal bone, ceramic building material and slag.	☐	☑
137	**Layer**	**Friable mid grey brown clay silt occasional small-medium stones. Contains pottery, animal bone, fired clay, vitrified clay, an iron nail, Registered Artefact RA4 and over 1.5kg of slag.**	☐	☑
138	**Layer**	**Friable dark brown grey clay silt occasional small stones. Contains pottery.**	☐	☑
139	**Layer**	**Firm mid orange brown silty clay occasional small-medium stones. Contains pottery and animal bone.**	☐	☑
140	**Layer**	**Firm mid grey brown silty clay moderate small-medium stones. Contains pottery, Ceramic Building Material and vitrified clay.**	☐	☑
144	**Layer**	**Firm mid brown orange silty clay . Contains Registered Artefact RA8.**	☐	☑
145	**Layer**	**Firm mid brown orange silty clay occasional small-medium stones**	☐	☐

Area: **2**
Extent (ha):
OS Co-ordinates: **SP9450948216**
Description: **Turbine base.**

Context:	Type:	Description:	Excavated:	Finds Present:
27	**Ploughsoil**	**Friable dark grey brown clay silt occasional small-medium stones. 0.3m thick.**	☑	☐
28	**Subsoil**	**Firm mid orange brown silty clay occasional small stones. 0.1m thick.**	☑	☐
29	**Natural**	**Firm mid yellow grey silty clay frequent flecks chalk, occasional small-medium chalk, occasional small-medium stones**	☐	☐
30	**Ditch**	**Linear ESE-WNW sides: concave dimensions: min breadth 0.85m, min depth 0.44m. Only north side visible. Feature not fully exposed and only partially excavated.**	☑	☐
31	Fill	Firm mid orange grey silty clay occasional flecks chalk, occasional small-medium stones. 0.25m thick, containing pottery and animal bone.	☑	☑
32	Fill	Firm dark orange grey silty clay moderate small chalk, occasional small-medium stones. 0.08m thick, containing pottery.	☑	☑
33	Fill	Firm dark orange grey silty clay moderate small chalk, occasional small-medium stones. 0.12m thick, conataining pottery.	☑	☑
34	**Ditch**	**Linear N-S sides: concave base: flat dimensions: max breadth 2.1m, max depth 0.11m, max length 4.4m**	☑	☐
35	Fill	Firm light orange grey silty clay occasional small chalk, occasional small-medium stones. Contains pottery.	☑	☑
36	**Treethrow**	**Sides: irregular base: v-shaped dimensions: max breadth 0.85m, max depth 0.27m**	☑	☐
37	Fill	Firm mid yellow grey silty clay occasional small chalk, occasional small stones	☑	☐
38	**Ditch**	**Linear ESE-WNW dimensions: max breadth 4.5m, min depth 1.28m, min length 12.75m. Sides: N- steep concave; S- slightly stepped. Base not reached (below 1.2m depth).**	☑	☐
39	Lower fill	Firm dark grey clay . 0.06m thick. Contains pottery and slag.	☑	☑
40	Lower fill	Firm mid orange grey silty clay . 0.07m thick.	☑	☐
41	Lower fill	Firm dark grey clay . 0.11m thick. Contains organic deposit.	☑	☐
42	Lower fill	Friable dark grey clay peat . 0.2m thick. Contains rich organic material; sample <2 > taken from this deposit.	☑	☐
43	Fill	Friable mid orange grey silty clay occasional small stones. 0.22m thick, containing pottery and animal bone.	☑	☑
44	Lower fill	Friable mid orange grey silty clay occasional small-medium stones. 0.11m thick.	☑	☐
45	Fill	Friable mid orange grey silty clay occasional small-medium stones. 0.2m thick.	☑	☐
46	Fill	Firm mid orange grey silty clay moderate flecks chalk. 0.21m thick, containing pottery.	☑	☑
47	Main fill	Firm mid brown grey silty clay occasional small stones. 0.53m thick, containing over 500g of pottery, animal bone and Registered Artefact RA9.	☑	☑
48	Upper fill	Firm mid brown grey silty clay occasional large stones. 0.42m thick, containing pottery and animal bone.	☑	☑
49	Upper fill	Firm light brown grey silty clay occasional small-medium stones. 0.12m thick.	☑	☐
50	Upper fill	Firm mid orange grey silty clay occasional large stones, occasional small-medium stones. 0.22m thick, containing pottery.	☑	☑
51	Upper fill	Firm mid brown grey silty clay occasional small-medium stones. 0.38m thick.	☑	☐

Area: **2**
Extent (ha):
OS Co-ordinates: **SP9450948216**
Description: **Turbine base.**

52	**Ditch**	**Linear NE-SW sides: concave dimensions: max breadth 3.m, max depth 0.66m, min length 0.5m**	☑	☐
53	Primary fill	Firm mid orange grey silty clay moderate flecks chalk, occasional small-medium stones. 0.16m thick.	☑	☐
54	Fill	Firm mid grey orange silty clay occasional flecks chalk, occasional small-medium stones. 0.31m thick.	☑	☐
55	Fill	Firm dark orange grey silty clay occasional flecks chalk, occasional small-medium stones. 0.25m thick, containing pottery.	☑	☑
56	**Ditch**	**Linear NNW-SSE base: flat dimensions: min breadth 1.m, max depth 1.1m, min length 0.3m. Possible erosional hollow**	☑	☐
57	Fill	Firm mid orange brown silty clay occasional flecks chalk, occasional small-large stones. Contains animal bone and c. 900g of slag.	☑	☑
58	**Ditch**	**Sub-oval NNW-SSE sides: concave base: flat dimensions: min breadth 1.7m, max depth 0.1m, min length 0.6m. Possible erosional hollow**	☑	☐
59	Fill	Firm dark brown grey silty clay occasional flecks chalk, occasional small-medium stones	☑	☐
60	**Ditch**	**Curving linear E-W sides: convex base: concave dimensions: max breadth 5.m, max depth 1.65m, min length 22.m**	☑	☐
61	Lower fill	Friable dark grey clay peat . Contains pottery, animal bone, wood and charcoal. Sample <1> taken from this deposit.	☑	☑
62	Upper fill	Firm mid brown grey silty clay occasional small-medium stones. Contains pottery, animal bone, slag and Registered Artefact RA10.	☑	☑
63	**Ditch**	**Linear N-S dimensions: max breadth 2.2m, min length 4.2m**	☐	☐
64	Fill	Firm light orange grey silty clay occasional flecks chalk, occasional small-medium stones	☐	☐
65	**Ditch**	**Sub-oval NW-SE dimensions: min breadth 1.7m, min length 4.m. Possible erosional hollow.**	☐	☐
66	Fill	Firm dark brown grey silty clay occasional flecks chalk, occasional small-medium stones	☐	☐
67	**Ditch**	**Curving linear NNW-SSE dimensions: max breadth 2.7m, min length 10.m**	☐	☐
68	Fill	Firm dark orange grey silty clay moderate flecks chalk, moderate small chalk, occasional small-medium stones. Contains pottery.	☐	☑
69	**Ditch**	**Linear NNW-SSE dimensions: max breadth 1.2m, min length 4.m. Possible erosional hollow.**	☐	☐
70	Fill	Firm mid orange brown silty clay occasional flecks chalk, occasional small chalk, moderate small-medium stones. Contains pottery.	☐	☑
71	**Ditch**	**Linear NE-SW dimensions: min breadth 4.5m, min length 3.m**	☐	☐
72	Fill	Firm dark orange grey silty clay occasional flecks chalk, occasional small chalk, occasional small-medium stones	☐	☐

Area: **3**
Extent (ha):
OS Co-ordinates: **SP9452448213**
Description: **Sub-station.**

Context:	Type:	Description:	Excavated:	Finds Present:
80	**Furrow**	**Linear N-S sides: irregular base: uneven dimensions: max breadth 2.2m, max depth 0.23m, min length 9.5m**	☑	☐
81	Fill	Firm mid brown grey silty clay occasional small-medium stones. Contains slag.	☑	☑
82	**Grave**	**Rectangular NNW-SSE sides: concave base: flat dimensions: max breadth 0.7m, max depth 0.1m, max length 2.m**	☑	☐
83	Human skeleton	Supine position. Animal bone as well as human bone present. The fill was collected as Sample <3>.	☑	☑
84	Backfill	Firm mid green grey silty clay occasional small-medium stones. Contains pottery, slag and human bone. The fill was collected as Sample <4>.	☑	☑
133	**Gulley**	**Linear NNE-SSW dimensions: max breadth 0.5m, min length 2.6m**	☐	☐
134	Fill	Firm mid grey brown silty clay occasional small-medium stones	☐	☐
135	**Pit**	**Sub-rectangular ENE-WSW dimensions: max breadth 0.6m, max length 0.9m**	☐	☐
136	Fill	Friable mid grey brown clay silt occasional small-medium stones	☐	☐
141	**Layer**	**Firm mid brown grey clay silt occasional small-medium stones**	☐	☐
142	**Pit**	**Sub-oval E-W dimensions: max breadth 0.8m, max length 1.05m**	☐	☐
143	Fill	Firm light grey brown silty clay moderate flecks fired clay, occasional small-medium stones	☐	☐
173	**Ploughsoil**	**Friable dark grey brown clay silt occasional small-medium stones**	☑	☐
174	**Subsoil**	**Firm mid orange brown silty clay occasional small stones**	☑	☐
175	**Natural**	**Firm mid yellow grey silty clay occasional flecks chalk, occasional small-medium chalk, occasional small-medium stones**	☐	☐

Area: **4**
Extent (ha):
OS Co-ordinates: **SP9463048149**
Description: **Cable trench.**

Context:	Type:	Description:	Excavated:	Finds Present:
146	**Furrow**	**Linear N-S sides: concave base: flat dimensions: max breadth 1.35m, max depth 0.16m, min length 0.1m**	☑	☐
147	Fill	Firm mid grey brown silty clay occasional small-large stones. Contains over 1.3kg of slag.	☑	☑
148	**Furrow**	**Linear N-S sides: concave base: concave dimensions: max breadth 1.35m, max depth 0.16m, min length 2.5m**	☑	☐
149	Fill	Firm mid grey brown silty clay occasional small-large stones. Contains a fragment of land drain and over 600g of slag.	☑	☑
150	**Furrow**	**Linear N-S sides: concave dimensions: max breadth 1.55m, max depth 0.3m, min length 2.4m**	☑	☐
151	Fill	Firm mid grey brown silty clay moderate small-medium stones	☐	☐
152	**Furrow**	**Linear N-S dimensions: max breadth 1.1m, max depth 0.2m, min length 2.5m. Poorly defined edges.**	☑	☐
153	Fill	Firm mid red brown silty clay occasional small-medium stones. Contains slag.	☑	☑
154	**Furrow**	**Linear N-S sides: concave dimensions: max breadth 2.6m, max depth 0.2m, min length 2.5m**	☑	☐
155	Fill	Firm mid grey brown silty clay occasional small-medium stones. Contains slag.	☑	☑
156	**Ditch**	**Linear N-S sides: steep base: flat dimensions: max breadth 5.7m, max depth 0.81m, min length 1.1m**	☑	☐
157	Fill	Firm mid grey brown silty clay occasional small-medium stones. Contains animal bone.	☑	☑
158	**Furrow**	**Linear NE-SW sides: concave dimensions: max breadth 1.7m, max depth 0.4m, min length 1.1m**	☑	☐
159	Fill	Firm mid grey brown silty clay occasional small-medium stones	☑	☐
160	**Furrow**	**Linear NE-SW sides: concave dimensions: max breadth 1.3m, max depth 0.25m, min length 1.1m**	☑	☐
161	Fill	Firm mid grey brown silty clay occasional small-medium stones	☑	☐
162	**Furrow**	**Linear NE-SW sides: steep base: concave dimensions: max breadth 1.1m, max depth 0.53m, min length 1.1m**	☑	☐
163	Fill	Firm mid grey brown silty clay occasional small-medium stones	☑	☐
164	**Furrow**	**Linear ENE-WSW sides: steep base: concave dimensions: max breadth 1.4m, max depth 0.6m, min length 1.5m**	☑	☐
165	Fill	Firm mid grey brown silty clay occasional small-medium stones	☑	☐
166	**Ditch**	**Linear E-W sides: concave base: concave dimensions: max breadth 2.7m, max depth 0.44m, min length 2.m**	☑	☐
167	Fill	Firm dark brown grey silty clay occasional small-medium stones	☑	☐
168	**Ditch**	**Linear E-W sides: concave base: concave dimensions: max breadth 2.7m, max depth 0.4m, min length 2.m**	☑	☐
169	Fill	Firm dark brown grey silty clay occasional small-medium stones	☑	☐
170	**Topsoil**	**Friable dark grey brown clay silt occasional small-medium stones. 0.3m thick.**	☑	☐
171	**Subsoil**	**Firm mid orange brown silty clay occasional small stones. 0.1m thick, containing pottery.**	☑	☑

Area: **4**
Extent (ha):
OS Co-ordinates: **SP9463048149**
Description: **Cable trench.**

172	**Natural**	**Firm mid yellow grey silty clay frequent flecks chalk, occasional small-medium chalk, occasional small-medium stones**	☐	☐
177	**Ditch**	**Linear NNW-SSE sides: V-shaped dimensions: max breadth 0.87m, max depth 0.52m, min length 2.m**	☑	☐
178	Fill	Mid grey brown silty clay	☑	☐
179	**Ditch**	**Linear N-S sides: steep base: flat dimensions: max breadth 2.6m, max depth 0.56m, min length 1.m**	☑	☐
180	Fill	Mid grey brown silty clay	☑	☐

Area: 5
Extent (ha):
OS Co-ordinates: SP9474847964
Description: Southern part of Access Road.

Context:	Type:	Description:	Excavated:	Finds Present:
1000	**Topsoil**	**Friable dark brown grey clay silt occasional small-medium stones. 0.3m thick, containing pottery.**	☑	☑
1001	**Subsoil**	**Firm mid orange brown silty clay occasional small stones. 0.15m thick.**	☑	☐
1002	**Natural**	**Firm light yellow grey silty clay occasional small-medium stones**	☐	☐
1003	**Ditch**	**Linear NE-SW dimensions: max breadth 3.6m, min length 5.m**	☐	☐
1004	Fill	Friable dark brown grey clay silt occasional small-medium stones. Contains pottery.	☐	☑
1005	**Ditch**	**Linear NW-SE dimensions: max breadth 4.2m, min length 5.2m**	☐	☐
1006	Fill	Friable dark brown grey clay silt occasional small-medium stones. Contains pottery.	☐	☑
1007	**Ditch**	**Linear NW-SE dimensions: max breadth 1.8m, min length 24.6m**	☐	☐
1008	Fill	Firm mid orange brown silty clay occasional small-medium stones. Contains pottery.	☐	☑
1009	**Ditch**	**Linear NW-SE dimensions: max breadth 0.6m, min length 2.8m**	☐	☐
1010	Fill	Firm mid grey brown silty clay occasional small-medium stones. Contains pottery.	☐	☑
1011	**Ditch**	**Linear N-S dimensions: max breadth 1.1m, min length 2.7m**	☐	☐
1012	Fill	Firm mid grey brown silty clay occasional flecks charcoal, moderate small-medium stones	☐	☐
1013	**Ditch**	**Linear NE-SW dimensions: max breadth 2.8m, min length 4.4m**	☐	☐
1014	Fill	Firm mid grey brown silty clay occasional small-medium stones. Contains pottery.	☐	☑
1015	**Ditch**	**Linear NE-SW dimensions: max breadth 2.4m, min length 4.4m**	☐	☐
1016	Fill	Firm mid orange brown silty clay occasional small-medium stones	☐	☐
1017	**Ditch**	**Linear NW-SE dimensions: max breadth 0.8m, max length 20.m**	☐	☐
1018	Fill	Firm mid orange brown silty clay occasional flecks charcoal, occasional small-medium stones. Contains pottery and animal bone.	☐	☑
1019	**Ditch**	**Linear NW-SE dimensions: max breadth 0.7m, min length 4.6m**	☐	☐
1020	Fill	Firm mid grey brown silty clay occasional flecks fired clay, occasional small-medium stones	☐	☐
1021	**Ditch**	**Linear NE-SW dimensions: max breadth 3.2m, min length 8.2m. Truncates subsoil (1001)**	☐	☐
1022	Fill	Friable dark brown grey clay silt occasional small-medium stones. Contains a fragment of land drain and slag.	☐	☑
1035	Fill	Firm mid orange brown silty clay occasional small-medium stones. Possible levelling fill.	☐	☐
1023	**Ditch**	**Linear ENE-WSW dimensions: max breadth 0.8m, min length 5.2m**	☐	☐
1024	Fill	Firm mid grey brown silty clay occasional small-medium stones	☐	☐
1025	**Ditch**	**Linear NE-SW dimensions: max breadth 0.4m, max length 1.1m**	☐	☐
1026	Fill	Firm dark brown grey clay silt occasional flecks charcoal, occasional small-medium stones	☐	☐

Area: **5**
Extent (ha):
OS Co-ordinates: **SP9474847964**
Description: **Southern part of Access Road.**

1027	**Ditch**	**Linear NE-SW dimensions: max breadth 0.5m, min length 4.2m**	☐	☐
1028	Fill	Firm mid grey brown clay silt occasional small-medium stones	☐	☐
1029	**Pit**	**Dimensions: max diameter 1.4m, min diameter 0.7m. Feature not fully exposed (shape unknown). It lies by NE baulk by a gully [1031].**	☐	☐
1030	Fill	Firm mid brown grey silty clay occasional small-medium stones	☐	☐
1031	**Ditch**	**Linear N-S dimensions: max breadth 0.35m, max length 3.8m**	☐	☐
1032	Fill	Firm mid brown grey silty clay occasional flecks charcoal, occasional small-medium stones. Contains over 800g of pottery.	☐	☑
1033	**Pit**	**Dimensions: max diameter 1.8m, min diameter 0.4m. Feature not fully exposed (shape unknown), situated by S baulk.**	☐	☐
1034	Fill	Friable mid brown grey clay silt occasional small-medium stones	☐	☐

6. APPENDIX 2: ARTEFACT ASSEMBLAGE

The assemblage comprises mainly pottery (5.6kg) and ferrous slag (8.1kg), the majority deriving from features in Areas 1 and 2. Small quantities of animal bone, fragmentary and undatable metal objects, and an inhumation burial were also recovered. Table 1 summarises the entire assemblage. The more significant data-sets (ceramics, human remains, ironworking slag) are detailed in following appendices.

Area	Feature		Fill	Date Range	Finds Summary
1	01	Ploughsoil	01	Modern	Pottery (21g); clay tobacco pipe (1g); ferrous slag (108g); gun cartridge (4g)
	02	Subsoil	02	Roman	Pottery (29g); cinder (3g)
	04	Ditch	05	Early Roman	Pottery (27g)
	06	Ditch	07	Early Roman	Pottery (365g); fired clay (65g); iron strap fragment (RA5); iron nail x1, animal bone (97g)
	06	Ditch	08	Early Roman	Pottery (191g); iron hinge fragment (RA1); iron nail x1; animal bone (82g)
	09	Ditch	20	Early Roman	Pottery (30g); fired clay (16g); iron strap fragment (RA7); ferrous slag (67g)
	09	Ditch	21	Undated	Ferrous slag (151g); vitrified clay (21g)
	09	Ditch	25	Early Roman	Pottery (8g)
	10	Layer	10	Early Roman	Pottery (92g)
	15	Ditch	16	Undated	Iron strip fragment (RA3)
	17	Pit	18	Early Roman	Pottery (437g); ceramic roof tile (95g); iron nail x4; animal bone (25g)
	17	Pit	19	Early Roman	Pottery (58g); animal bone (18g)
	22	Hollow	23	Early Roman	Pottery (89g); iron nail x2 (RA2); animal bone (24g)
	22	Hollow	24	Early Roman	Pottery (12g); ferrous slag (35g)
	85	Ditch	86	Early Roman	Pottery (53g); iron nail x1
	87	Ditch	88	Iron Age	Pottery (4g)
	89	Ditch	90	Early Roman	Pottery (90g); lead alloy repair or waste (RA6); iron rod fragment (RA11)
	95	Ditch	96	Iron Age	Pottery (83g)
	99	Ditch	100	Iron Age	Pottery (65g)
	101	Ditch	102	Early Roman	Pottery (139g); animal bone (45g)
	103	Ditch	104	Early Roman	Pottery (142g); animal bone (5g)
	107	Ditch	108	Early Roman	Pottery (89g); animal bone (28g)
	109	Ditch	110	Iron Age	Pottery (175g); animal bone (70g)
	111	Ditch	112	Early Roman	Pottery (37g); ferrous slag (1.3kg); vitrified clay (7g); animal bone (12g)
	113	Ditch	114	Early Roman	Pottery (36g); ferrous slag (14g); animal bone (14g)
	115	Ditch	116	Iron Age	Pottery (47g); animal bone (6g)
	117	Ditch	118	Early Roman	Pottery (87g); ferrous slag (54g)
	121	Ditch	122	Iron Age	Pottery (4g)
	123	Ditch	124	Iron Age	Pottery (4g); animal bone (21g)
	131	Ditch	132	Early Roman	Pottery (130g); ceramic roof tile (81g); ferrous slag (25g); animal bone (2g)
	137	Layer	137	Early Roman	Pottery (123g); fired/vitrified clay (160g); ferrous slag (1.5kg); iron nail x1; iron hobnail (RA4); animal bone (21g)
	138	Layer	138	Early Roman	Pottery (28g)
	139	Layer	139	Early Roman	Pottery (121g); animal bone (1g)
	140	Layer	140	Early Roman	Pottery (47g); ceramic roof tile (80g); vitrified clay (12g)
	144	Layer	144	Undated	Iron strap fragment (RA8)
2	30	Ditch	31	Early Roman	Pottery (62g); animal bone (22g)

Area	Feature		Fill	Date Range	Finds Summary
	30	Ditch	32	Early Roman	Pottery (178g)
	30	Ditch	33	Late Iron Age	Pottery (3g)
	34	Ditch	35	Late Iron Age	Pottery (4g)
	38	Ditch	39	Iron Age	Pottery (15g); ferrous slag (179g)
	38	Ditch	43	Early Roman	Pottery (145g); animal bone (9g)
	38	Ditch	46	Early Roman	Pottery (19g)
	38	Ditch	47	Early Roman	Pottery (563g); copper alloy coin (RA9); animal bone (558g)
	38	Ditch	48	Iron Age	Pottery (259g); animal bone (3g)
	38	Ditch	50	Iron Age	Pottery (225g)
	52	Pit	55	Iron Age	Pottery (12g)
	56	Ditch	57	Undated	Ferrous slag (899g); animal bone (9g)
	60	Ditch	61	Early Roman	Pottery (17g); animal bone (485g)
	60	Ditch	62	Early Roman	Pottery (130g); ferrous slag (447g); modern worked flint (RA10); animal bone (215g)
	67	Ditch	68	Iron Age	Pottery (35g)
	69	Ditch	70	Early Roman	Pottery (14g)
3	80	Furrow	81	Undated	Ferrous slag (789g)
	82	Grave	83	Undated	Human bone (1.5kg); animal bone (2g)
	82	Grave	84	Iron Age	Human bone (1g); pottery (4g); ferrous slag (200g)
4	146	Furrow	147	Undated	Ferrous slag (1.3kg)
	148	Furrow	149	Modern	Land drain (7g); ferrous slag (672g)
	152	Furrow	153	Undated	Ferrous slag (20g)
	154	Furrow	155	Undated	Ferrous slag (78g)
	156	Ditch	157	Undated	Animal bone (382g)
	171	Subsoil	171	Iron Age	Pottery (25g)
5	1000	Ploughsoil	1000	Post-medieval	Pottery (55g)
	1003	Ditch	1004	Iron Age	Pottery (52g)
	1005	Ditch	1006	Iron Age	Pottery (9g)
	1007	Ditch	1008	Iron Age	Pottery (2g)
	1009	Ditch	1010	Iron Age	Pottery (1g)
	1013	Ditch	1014	Iron Age	Pottery (2g)
	1017	Ditch	1018	Iron Age	Pottery (31g); animal bone (3g)
	1021	Ditch	1022	Modern	Land drain (14g); ferrous slag (81g)
	1031	Ditch	1032	Iron Age	Pottery (857g)

Table 1: Artefact summary by Area

7. APPENDIX 3: CERAMICS

7.1 Introduction

A total of 352 Iron Age and Roman pottery sherds (5.6kg), representing approximately 221 vessels was collected (Table 2). The majority derived from the northern part of the access road and crane pad (Area 1) and the turbine base (Area 2).

Area	Iron Age (sh/wt)		Roman (sh/wt)		Total sherd	Total Wt. (g)
1	82	967	134	1,976	216	2,943
2	27	619	61	1,062	88	1,681
3	1	4	-	-	1	4
4	-	-	1	25	1	25
5	46	963	-	-	46	963
Total	156	2,553	196	3,063	**352**	**5,616**

Table 2**:** Pottery quantification by Area

The assemblage displays variable fragmentation, with the smallest sherd weighing 1g, and the largest 225g. Iron Age and Roman wares share a mean sherd weight of 16g, and are similarly abraded. Fabrics are recorded, as far as possible, in accordance with those defined during excavations at Milton Keynes (Marney 1989).

A small quantity of ceramic building material was also recovered.

7.2 Distribution

7.2.1 Northern part of access road and crane pad (Area 1)

A number of Area 1 features, principally intercutting ditches and gullies, yielded 216 sherds (2.9kg), the majority deriving from ditch [6] (556g) and pit [17] (495g). All other deposits contained less than 150g.

The Iron Age assemblage comprises hand-made and wheel-thrown vessels, the former including two ovoid jars with fingernail/fingertip impressed rims. Later Iron Age forms are jars (some cordoned) with beaded, lid-seated and simple everted rims, and a fine-walled vessel with combed decoration. Wares are predominantly grog-tempered (Fabrics 45, 46a and variations).

The early Roman assemblage is dominated by locally provenanced shelly coarse wares (77 sherds) and grey wares (33 sherds), (Fabric 1a and Fabric 3a respectively). Some of the former are likely to be products of the nearby Harrold kilns (Brown 1994). Other local products comprise a small number of sand-tempered reduced wares (Fabric 9a).

Nine sherds represent traded wares from more distant regional production centres. These include white wares from Oxfordshire (Fabric 4a) and possibly Northamptonshire (Fabric 18c); Nene Valley grey wares (Fabric 12) and colour-coated wares (Fabric 6); and fine wares from Hadham, Hertfordshire (Fabric 37). Eight highly abraded Gaulish samian sherds (Fabric 20: 167g), including a possible Form 33 conical cup, represent continental imports.

The vessel repertoire comprises mainly jars (13 examples), with rim diameters ranging from 120–240mm. The most common forms have simple everted rims or lid-seated rims. Seven bowls are represented, including flanged types, straight-walled forms with an expanded rounded rim, and one large rilled example with a square rim. They range in

diameter from 120–340mm. Four dishes, two beakers (including a folded example), and a flanged mortarium also occur.

Three abraded, shell-gritted tegula fragments (176g), and a piece of grog-tempered brick (80g) derived from pit [17], ditch [131] and layer (140). The former occur in a similar ware to pottery Fabric 1a, and are likely to be products of the Harrold tile kiln, known to have manufactured building material from the late 2nd century to the mid-4th century (Brown 1994, 19). The tegulae range in thickness from 17–19mm and one retains a partial flange.

7.2.2 Turbine base (Area 2)

Collected mainly from the fills of ditch [60/38], the assemblage totals 88 late Iron Age and early Roman sherds (1.6kg). Vessels are generally fragmented, with the largest single example — six sherds from a 1st-century shelly storage jar (Fabric 1a) — weighing 430g. Late Iron Age and early Roman shelly wares predominate. Many body sherds are robust and chunky, suggesting they mainly derive from storage vessels. Some may be products of nearby kilns excavated at East Stagsden, Bedfordshire (Dawson 2000), although the assemblage is too small to be certain. Single examples of a bead rim jar and lid-seated vessel also occur.

7.2.3 Sub-station (Area 3)

An abraded grog- and sand-tempered body sherd (4g) of middle-late Iron Age date occurred in the backfill of inhumation [82], and is unlikely to be associated with the burial.

7.2.4 Cable trench (Area 4)

An unstratified base sherd (25g), probably representing highly abraded Hadham oxidised ware (Fabric 37) was collected from Area 4 ploughsoil.

7.2.5 Southern part of access road (Area 5)

Forty-six predominantly grog/sand-tempered sherds (963g) of middle-late Iron Age date derived from Area 5. Although most of the pottery is undiagnostic, the assemblage includes 29 sherds (804g) from an ovoid jar with a flattened rim, collected from the surface of curving ditch [1031].

8. APPENDIX 4: HUMAN REMAINS

8.1 Condition of the Bones

All bones from the skeleton are heavily fragmented and some body areas are not preserved. On examination, it was found that the fragments are also eroded, with the edges of breaks rounded, so that reconstruction was impossible except for a few portions of the leg bones.

Much of the skull vault is present, and three portions of the lower jaw, but almost nothing of the skull base or face; a full adult set of teeth, however, is present, albeit loose. The rest of the axial skeleton is represented only by a few tiny fragments of the vertebrae and five pieces of the pelvis. Of the upper limbs, two fragments of the shoulder girdle, the humeri, ulnae, right radius and six hand bones are present. The lower limbs are better represented due to their robusticity; they comprise parts of the femora, tibiae and fibulae together with a few bones of the feet.

There was a considerable amount of material in very poor condition which was scanned for diagnostic fragments — a few were found — but the material was not sorted further.

8.2 Sex, Age and Stature/Body Build

That this is the skeleton of a man is shown by the four areas of the skull that could be assessed, and by the great robusticity of the limb bones. The attrition of the teeth places this individual in the 25–35 age category (using the Brothwell method).

Stature could not be determined, but the body was based on a very robust skeleton and the few entheses (points of muscle attachment) that could be observed were moderately marked, suggesting a reasonably well-muscled individual.

8.3 Pathological Conditions

There are two areas of dental caries in the teeth — on a first molar and a third molar. Both locations are interdental; i.e. they are in the gaps between the teeth, where natural or deliberate cleaning is often ineffective.

A small piece of the right fibula, near the ankle joint, has some pathological erosion and new-bone formation, showing that there was an area of infection or inflammation at that point.

9. APPENDIX 5: PLANT REMAINS

9.1 Methodology

A 5 litre soil sample <2> was taken from the basal fill (42) of a substantial ditch [88], for the potential recovery of 'waterlogged' plant remains and information on the character of the environment within, and in the immediate vicinity of, the ditch.

The sample was entirely processed by flotation and wet-sieving through a 0.25mm mesh and the organic contents stored wet to limit deterioration of the 'waterlogged' plant remains. The botanical remains from a sub-sample were identified using a binocular microscope (with a magnification of up to x40) together with modern reference material and reference manuals (Cappers et al 2006). The presence and frequency of plant items was recorded without the material being extracted (with the exception of remains that were not readily identifiable). Estimates of the frequency of the botanical remains were made on the basis of the following code: + = 1-10; ++ = 11-50; +++ = 51-150; ++++ = 151-250; +++++= > 250 items.

	Feature type	Ditch
	Feature	88
	Context type	Fill
	Context	42
	Sample	2
	Vol. flot (ml)	50
Latin name	**English name**	
Ranunculus subgen. *Batrachium* (DC) A Gray	crowfoots	+++
Urtica dioica L.	stinging nettle	+++
Rubus fruticosus	blackberry	+++
R. fruticosus/idaeus	blackberry/raspberry	++
Conium maculatum L.	hemlock	++
Solanum nigrum L.	black nightshade	+
Lamaiceae indet	dead-nettle	+
Sambucus nigra L.	elder	+++
Carduus/Cirsium spp.	thistles	++
Carex spp.	sedge	+
Poaceae indet.	grasses	++
indeterminate	thorn fragments	+
indeterminate	-	+
indeterminate	wood	+++++
indeterminate	charcoal	+

key: item frequency: + = 1-10 items; ++ = 11-50 items; +++ = 51- 150 items; ++++ = 151-250; +++++ >250 items

Table 3: The 'waterlogged' plant remains

9.2 Results

The results are shown in Table 3. Taxonomic order follows Stace (2005) which was also used for ecological information. The 'waterlogged' plant assemblage consisted of a large amount of very fragmented wood and seeds and fruits (terms used in the broadest sense) from a modest range of wild plants indicative of a number of different habitats.

A wetland habitat was indicated by a good representation of *Ranunculus Batrachium* (crowfoots), aquatic/semi-terrestrial plants, species of which may be found in still, slow and fast flowing water as well as in wet muddy habitats. Other wetland plants included *Conium maculatum* (hemlock), a plant found in nutrient rich soils in damp ground in ditches and in waste ground, plus occasional records for *Carex* (sedges). Other

biological indicators of aquatic conditions within the ditch were *Cladocera ephippia* ('water flea' eggs) in the sample.

There was particularly good evidence for the shrubs *Rubus Sect Glandolusus* (brambles) and *Sambucus nigra* (elder), both of which would have been potential sources of wild food (fruits). *Urtica dioica* (common nettle) was also very well represented; this plant is found in a large number of habitats especially woodlands, fens, grassy places and where animals defecate. There were also occasional records for *Solanum nigrum* (black nightshade) a plant indicative of nitrogen rich soils which grows in both disturbed (including cultivated) ground and waste places.

10. APPENDIX 6: METALWORKING DEBRIS

10.1 Methodology

All the debris, totalling 8kg, was visually examined with the aid of a magnet and streak plate.

Activity	Slag types present	Weight (g)
Iron smelting	Tap slag	2975
	Fayalitic run slag	573
	Furnace bottom	1090
	Dense slag	46
Iron smithing	Flake hammerscale	<1
Undiagnostic ironworking	Undiagnostic ironworking slag	3276
	Iron-rich cinder	38
Metalworking or other high temperature process	Fired clay	13
	Cinder	15
	Vitrified furnace/hearth lining	165
	Glassy slag	14
Total		**8205**

Table 4: Slag classification

10.2 Results of Debris Analysis

The site produced a relatively small assemblage of industrial debris, totalling 8.2kg (Tables 4 and 5). More than half of this material was diagnostic of the smelting of iron. Most characteristically, **tap slap** was a dense fayalitic (iron silicate) waste material, which forms as a result of the reaction between the gangue minerals of the ore and some of the iron. Tap slag has a distinctive flowed morphology on its upper surface where the slag is run as a liquid from the furnace before solidifying as its temperature drops through the freezing range. **Fayalitic run slag** included many smaller flows and dribbles. Although small amounts of similar material is occasionally found in smithing waste assemblages, the high proportion here and its association with tap slag is indicative of smelting. A single block of slag, weighing over one kilogram and measuring 13x11x7.5cm, was identified as a **furnace bottom,** the residual waste contents of the furnace after tapping. The furnace bottom was notable for showing the impressions of charcoal, of perhaps chopped wood in its surface. Finally a small quantity of **dense slag** may have been pieces of a furnace bottom or thicker pieces of tap slag that had fragmented on cooling, thereby not allowing it to be visually identified as one type or the other.

No examples of the most recognisable bulk smithing debris, **smithing hearth bottoms**, were identified in the assemblage, although very occasional **flake hammerscale** (Starley 1995) was noted in the soil carried over into the finds bags. This oxide scale forms on the outside of iron during hot working and becomes dislodged due to physical and thermal shock. Without soil samples to allow quantification, and in the absence of other diagnostic smithing waste, it is not possible to identify smithing as a major activity on site, although it would seem likely that immediately following smelting, the blooms produced would have been consolidated by hammering, physically expelling most of the entrapped slag to form more regular blooms or perhaps more heavily processed billets or bars suitable for trade or local use.

As with many ironworking site assemblages, both smelting and smithing, a high proportion of the debris was classified as **undiagnostic ironworking slag.** These irregularly shaped fayalitic slags cannot be assigned to either process with certainty on the basis of morphology, although the homogeneity and density (low porosity) of much of the assemblage, suggests smelting rather than smithing. A very small quantity of **iron-rich cinder** was distinguished by its significant content of rust-orange coloured hydrated iron oxides and iron hydroxides. It would also normally be considered undiagnostic, except where other evidence points only to a single activity.

The next group of debris includes materials which, whilst they may well relate to iron smelting, could result from a fairly wide range of metalworking, or indeed other high temperature pyrotechnic processes. **Vitrified hearth/furnace lining** forms as a result of a high-temperature reaction between the clay lining of the hearth/furnace and either alkali fuel ash or fayalitic slag. Also identified was very small amount of **cinder**, a porous, hard and brittle slag formed by the reaction between fragments of clay that had spalled away from the heath/furnace lining and the fuel ash within the hearth or furnace. The small amount of **fired clay** without any surface vitrification, found within the assemblage could have derived from structures associated with metallurgical purposes, or from those used for other high temperature activities including domestic hearths.

Finally, a single fragment of black **glassy slag** is less easily explained. This appears similar to some historic blast furnace slags. Such an origin is not impossible as slag from blast furnaces was often transported some distances for use as hardcore or, when granulated, for improving clay soils. Alternatively, it may be the result of atypical conditions in part of a conventional bloomery furnace, where the iron in the slag was replaced by lime or alumina.

10.3 Discussion

The small amount of slag recovered, provides clear evidence that iron smelting (extraction of metallic iron from ore) was taking place in the vicinity of the site. The technology for this was the slag tapping furnace, variants of which were in use from the late Iron Age to the late medieval period. Looking for particular concentrations of slag types diagnostic of smelting, it might be suggested that the ditch (38) / (60) and (112) showed higher quantities and proportions of smelting slags. The furrows to the east contained more mixed, and sometimes weathered debris and to the south of the site the ditch fills (20) and (21) and furrow fills (146), (148), (152) and (154) produced either little slag or lesser proportions of smelting debris. The distribution may be biased by different collection strategies, but it would still appear that the ditches at the northern end were closer to the location of the furnaces.

A small amount of glassy slag may derive from the more recent blast furnace process, but such smelting technology as this is unlikely to have been carried out in the immediate area of the site and it seems most likely that this is intrusive, although the same context, layer (137) produced smelting, smithing and undiagnostic ironworking evidence.

A few flakes of hammerscale were recovered from the soil in the finds bags from ditch fill (62), furrow fill (81) and layer (137). This may suggest some iron smithing in the area, but without systematically recovered samples it is not possible to place any certainty on the scale or location of this activity, though it would seem likely to have been carried out as part of the bloom consolidation process which followed smelting.

The question remains as to whether iron smelting was a major activity at this location. The amount of debris examined might have derived from only a single smelting cycle, producing perhaps only a couple of kilograms of iron. However, given the limited sample of features fully excavated, this figure must be considered a minimum estimate of

activity. Were magnetometer plots, particularly unfiltered ones, available for the site and its surroundings, they might allow the findings of the examination of this assemblage to be extrapolated upwards, as well as perhaps to locating the actual furnace remains.

Although no fuel was identified, for iron smelting, charcoal would have been used. It is unfortunate that no ore was recovered from the site to help more fully understand the process and its demands on the local resources. Although on the edge of the historically-exploited Northamptonshire Sand Ironstone ore field, it is likely that smaller ore sources, not recognised in more recent times might have proved viable and more suitable to the technology of this early period — perhaps where water action had acted to concentrate the iron minerals, such as bog iron deposits. Slag has previously been reported from fieldwork in Astwood (Farley 1977, 483). Located at SP 945485, an irregularly shaped enclosure there was found to contain a large quantity of iron slag in addition to sherds of calcite-gritted Romano-British pottery. Unfortunately, the process from which the slag derived was not reported.

There is certainly evidence for further smelting in the vicinity of Astwood — six miles to the north, at Odell, the remains of late Iron Age / Romano-British slag tapping debris was recovered. Tylecote (1986) noted that the slags at that site did not have the ropey flowed structure of the typical Roman furnace. Instead they had a distorted structure that suggested that the slag had been raked from the tap hole. These do sound more primitive than those examined from Dovecote Farm. Fieldwalking by the Buckinghamshire County Museum ahead of the Little Brickhill Bypass was reported to have found ironstone and blocks of slag of up to 40x50cm in at least one field. Slag of this size can only derive from smelting. Further work near the bypass by the DoE Central Excavation Unit reported in the same source identified 'smithying furnaces' in an industrial suburb dating to the Antonine period.

Further finds of slag on sites in the area have not stipulated the activity from which the debris derived. At Caldecotte, Bow Brickhill (SP 890354) seven miles to the south-west 'a quantity' of slag of later 1st- to 2nd-century date was recovered (Goodburn et al 1978). Further slag was found at Stanton Low, eight miles to the west (Tylecote 1962, 218) but again it was not recorded whether this derived from smithing or smelting. In addition to these sites, slag of unknown type was recorded from Bradwell eight miles to the south-west and a probable furnace at Shenley Brook End are both noted in an unpublished database assembled by Chris Salter.

It is notable that these sites do seem to focus on the Milton Keynes and Watling Street environs. Whether this is a real distribution or one resulting from a higher intensity of archaeological activity (resulting from housing developments and upgrading work on the A5) is unclear.

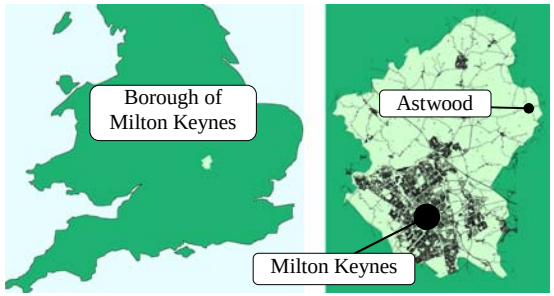
No further work is recommended on the assemblage but it should be retained for archiving.

Context	Feature		Slag type	Mass (g)	Notes
1	1	Ploughsoil	Undiagnostic ironworking	107	
2	2	Subsoil	Cinder	3	
20	9	Ditch fill	Undiagnostic ironworking	67	Smooth surface dense structure
21	9	Ditch fill	Undiagnostic ironworking	150	Smooth surface dense structure
21	9	Ditch fill	Vitrified furnace/hearth	21	
24	22	Fill	Undiagnostic ironworking	35	
39	38	Ditch fill	Tap slag	177	Dense
57	56	Ditch fill	Tap slag	506	Dense
57	56	Ditch fill	Undiagnostic ironworking	397	Dense with large pores, prob.

Context	Feature		Slag type	Mass (g)	Notes
62	60	Ditch fill	Tap slag	330	Flowed surface
62	60	Ditch fill	Flake hammerscale	nq	
62	60	Ditch fill	Undiagnostic ironworking	117	
81	80	Furrow fill	Tap slag	413	Flowed surface
81	80	Furrow fill	Dense slag	46	
81	80	Furrow fill	Fayalitic run slag	85	
81	80	Furrow fill	Flake hammerscale	nq	
81	80	Furrow fill	Undiagnostic ironworking	249	
84	82	Grave fill	Fayalitic run slag	36	
84	82	Grave fill	Undiagnostic ironworking	163	
112	111	Ditch fill	Tap slag	148	Flowed surface
112	111	Ditch fill	Furnace bottom	1090	130x110x75mm with wood/charcoal
112	111	Ditch fill	Undiagnostic ironworking	67	
112	111	Ditch fill	Iron-rich cinder	38	
112	111	Ditch fill	Fired clay	13	
114	113	Ditch fill	Fayalitic run slag	15	
118	117	Ditch fill	Fayalitic run slag	46	
118	117	Ditch fill	Undiagnostic ironworking	8	
132	131	Ditch fill	Fayalitic run slag	23	
137	137	Layer	Tap slag	864	Flowed surface
137	137	Layer	Fayalitic run slag	26	
137	137	Layer	Flake hammerscale	nq	
137	137	Layer	Undiagnostic ironworking	661	Reduced-fired
137	137	Layer	Glassy	14	Possibly modern
137	137	Layer	Vitrified furnace/hearth	144	
140	140	Layer	Cinder	12	
147	146	Furrow fill	Tap slag	233	Flowed surface. Some weathering
147	146	Furrow fill	Fayalitic run slag	203	Some weathered
147	146	Furrow fill	Undiagnostic ironworking	911	Some showing weathering
149	148	Furrow fill	Tap slag	304	Flowed surface
149	148	Furrow fill	Fayalitic run slag	67	
149	148	Furrow fill	Undiagnostic ironworking	297	
153	152	Furrow fill	Fayalitic run slag	19	
155	154	Furrow fill	Undiagnostic ironworking	25	
155	1021	Ditch fill	Fayalitic run slag	53	
1022	1021	Ditch fill	Undiagnostic ironworking	22	Different to bulk of assemblage. More heterogeneous, did not streak
Total				**8205**	

nq = not quantified

Table 5: Metalworking debris by context



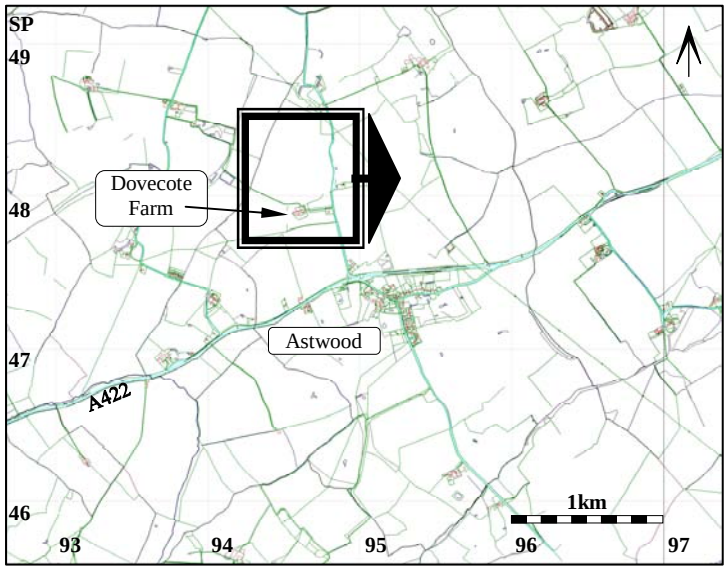
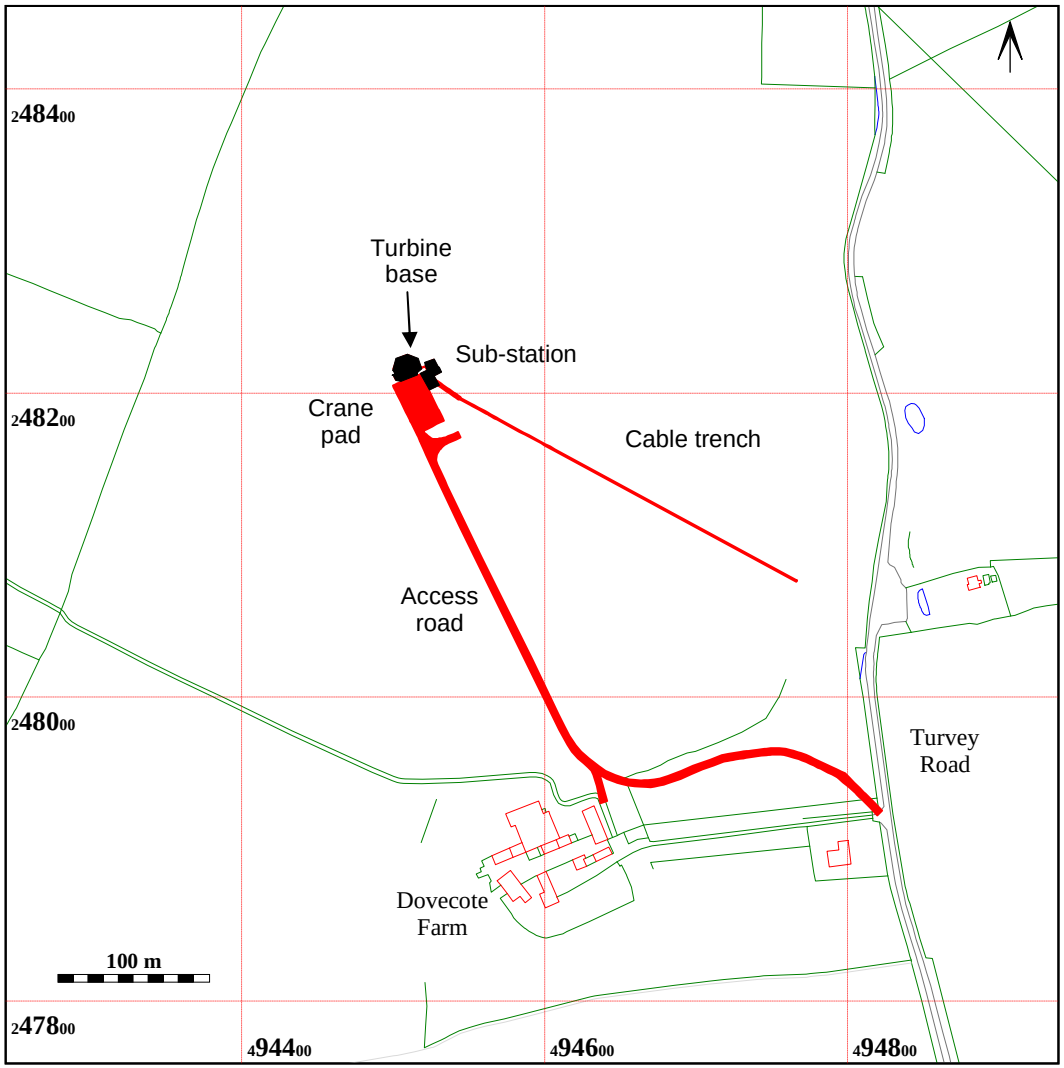


Figure 1: Site location plan



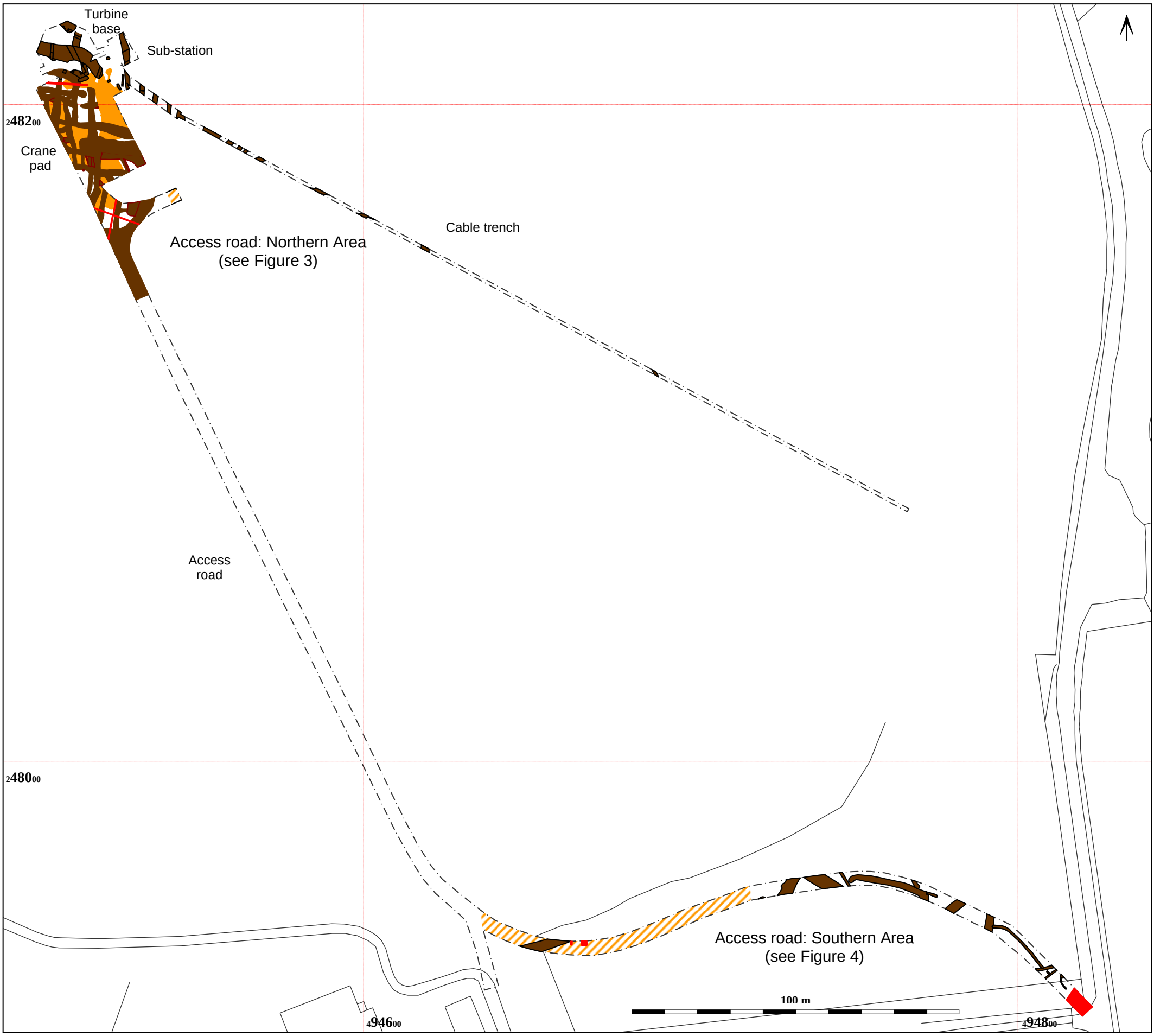


Figure 2: All-features plan

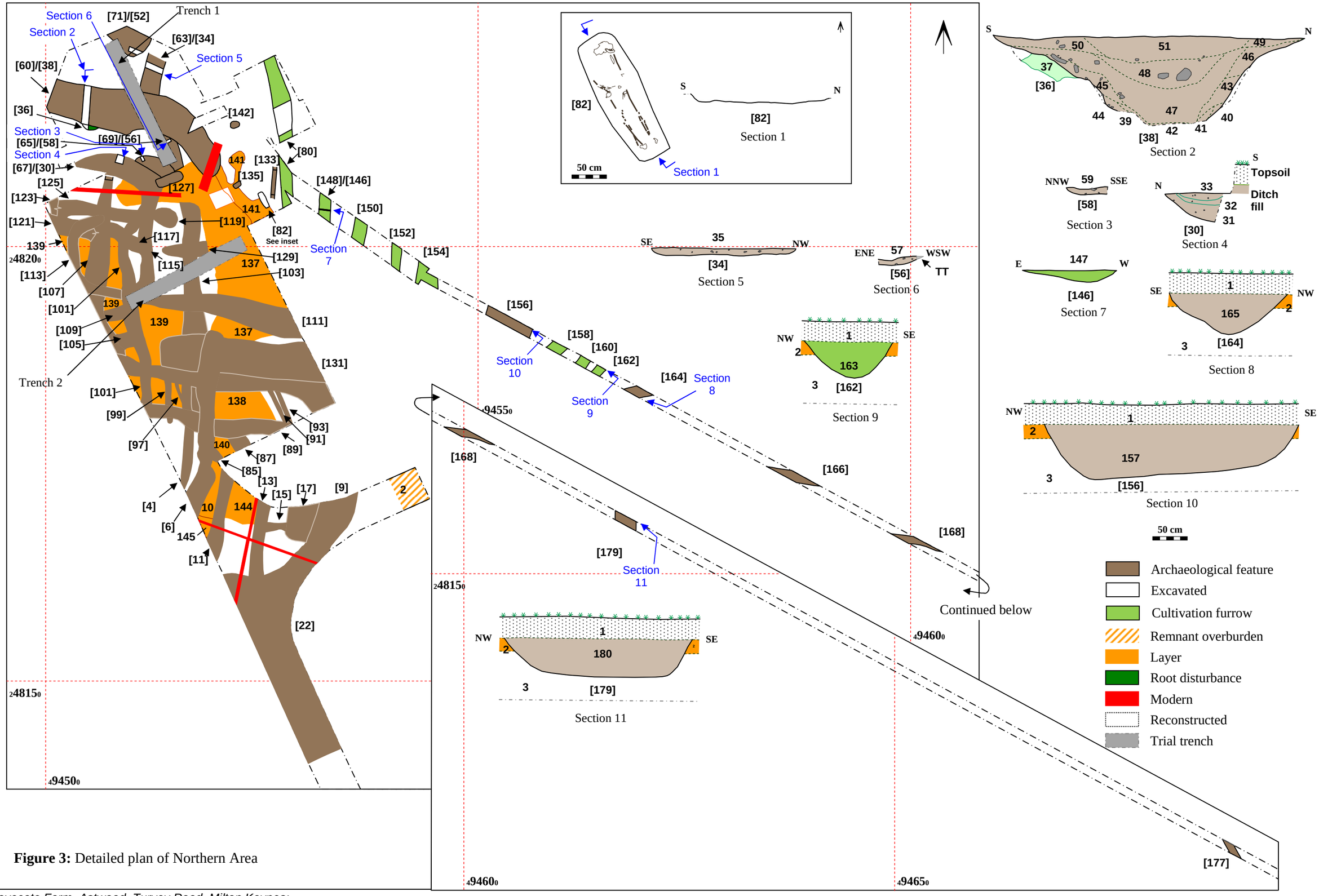


Figure 3: Detailed plan of Northern Area

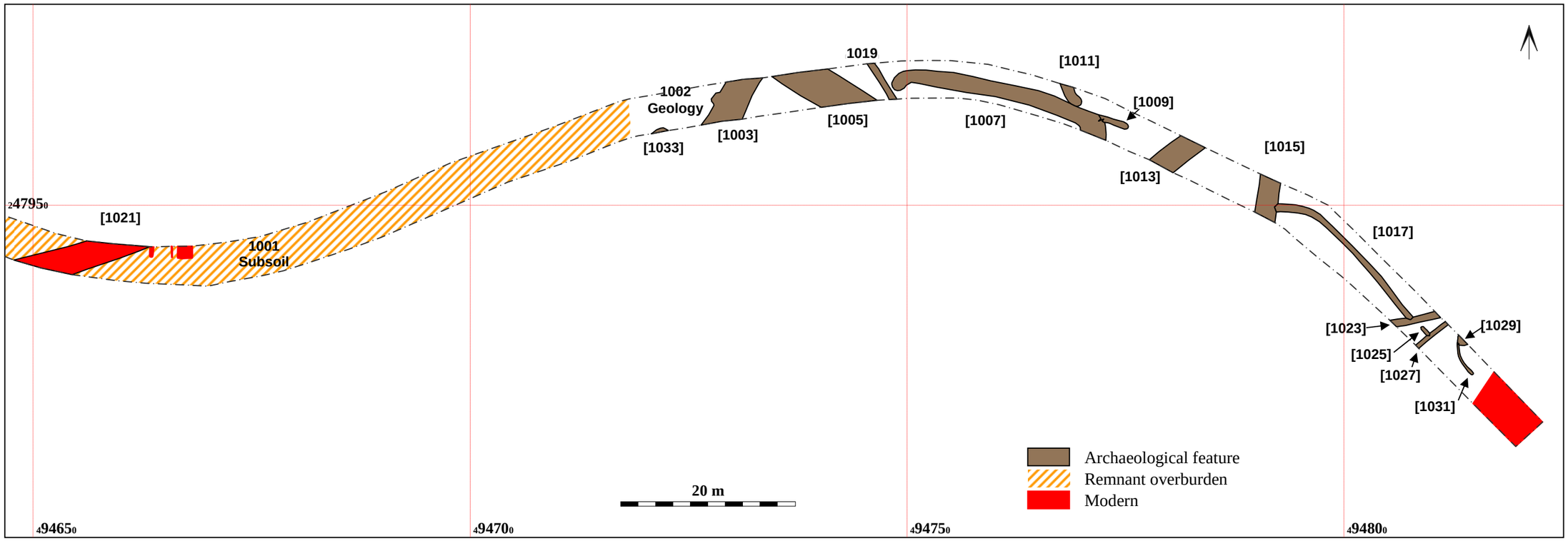


Figure 4: Detailed plan of Southern Area

Image 1: General view of northern part of crane pad, with turbine base to top left of image and rectangular sub-station footing to right of image.

Image 2: General view of southern part of crane pad, with northern extent of access road to lower right of image.

Figure 5: Northern Area – selected images 1 and 2

Image 3: General view of northern extent of the access road, which extends down a gentle slope to Dovecote Farm, situated off-image to the right. The crane pad is to the left of the image.

Image 4: Section through substantial ditch [38/60] located in the turbine base. At this stage the basal fills had not been investigated due to the depth. The footprint of the turbine base had to be reduced before investigation of the basal fills could continue. (Scale 1m in 50cm divisions)

Figure 6: Northern Area – selected images 3 and 4

Image 5: View of inhumation burial within the roughly north-south aligned grave cut [82], which was located within the footprint of the initial sub-station. The white tags are survey aids for locating the feature. The darker band crossing the central area of the skeleton is the shadow of the photographer.

Image 6: General view along the cable trench looking towards the south-east.

Figure 7: Northern Area – selected images 5 and 6

Image 7: General view along eastern part of the access road, looking towards Turvey Road. (Scale 1m in 50cm divisions)

Image 8: Several linear features are visible as darker bands against the lighter coloured geological strata. (Scale 1m in 50cm divisions)

Figure 8: Southern Area – selected images 7 and 8

Central Bedfordshire

Albion archaeology

Albion Archaeology
St Mary's Church
St Mary's Street
Bedford
MK42 0AS

Telephone 01234 294000
Email office@albion-arch.com
www.albion-arch.com

REGISTERED ORGANISATION CIfA