Archaeology South-East

ASE

Excavation Report and Updated Project Design, on Archaeological Investigations on Land at Birchen Lane, Haywards Heath.

NGR: 533280 125810

Planning Ref: DM/15/3415
ASE Project No: 160746
Site Code: BIR15

ASE Report No: 2017039
OASIS ID: archaeol6-276008

By Garrett Sheehan

Archaeological Excavation and Watching Brief & Updated Project Design Report

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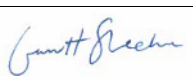
Prepared by:	**Garrett Sheehan**	**Archaeologist**	
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Abstract

This report presents the results of an archaeological excavation and watching brief carried out by Archaeology South-East on Land north of Birchen Lane, Haywards Heath, West Sussex, between the 12th and 30th of September 2016 and the 18th and 21st of September 2017. The fieldwork was commissioned by CgMs Consulting Ltd., in advance of residential development. These investigations followed on from an evaluation carried out in September - October 2015, which identified a furnace of probable Iron Age or Romano-British date, as well as a number of post-medieval agricultural features (Sheehan 2015).

The subsequent archaeological excavation confirmed the presence of a bloomery, and two C14 dates, achieved from a deposit associated with the dismantling of the furnace, indicated that it dated to the early/ middle part of the Middle Iron Age. This metallurgical activity appeared to have been short-lived, perhaps carried out over only two seasons. It comprised the excavation of iron-ore from an exposed seam in the northern bank of a west-east running watercourse, at the bottom of a small valley, and the smelting of this ore in a bowl furnace. Limited on-site primary smithing also occurred, as evidenced by small quantities of smithing slag and hammerscale retrieved from ash deposits from the backfilled quarry and the fill of a small pit. This primary smithing activity appears to have been associated only with the final use of the furnace.

The archaeological features and deposits associated with the bloomery were sealed by a layer of colluvium, which had probably formed by the transitional Middle/Late Iron Age period. This was likely followed by a period of re-forestation.

The pottery assemblage recovered from the subsoil overlying the colluvium indicates that assarting and subsequent agricultural activity had occurred by the 13th century, although the small number of recovered sherds suggests that this activity was likely to have been of low intensity.

A field boundary comprised of a fence line was identified in the northern part of the site, which appears, from cartographic evidence, to have been disestablished in the earlier 19th century. A number of land drains and a sunken trackway, identified during the evaluation, to the south of the stream, likely also date to this period.

A small, and largely undiagnostic, assemblage of residual flint flakes recovered from the colluvium deposits to the north of the valley is indicative of low-level activity in the valley, from the Late Mesolithic/ Early Neolithic to the Middle Bronze Age.

A subsequent watching brief was carried out, between the 18th and 21st of September 2017, during ground reduction for the new construction site compound and access through an adjacent hedgerow. No archaeological deposits, features or finds were encountered. It is understood that a further phase of targeted watching brief is to occur in the future.

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PART 1: EXCAVATION REPORT

1.0 INTRODUCTION

1.1 Site Background

1.1.1 Archaeology South-East (ASE), the contracting division of the Centre for Applied Archaeology (CAA), Institute of Archaeology (IoA), University College London (UCL) was commissioned by CgMs Consulting to undertake archaeological fieldwork at Birchen Lane, Haywards Heath, West Sussex. The site is centred on National Grid Reference (NGR) 533280 125810 and its location is shown in Figure 1.

1.1.2 The areas of fieldwork and evaluation trenching are shown on Figures 2 and 3.

1.2 Geology and Topography

1.2.1 The site comprises two broadly rectangular east-west orientated fields divided by a west-east flowing stream. A north-south flowing stream is present at the north-east boundary of the site.

1.2.2 The site is situated in a miniature east-west aligned valley falling from c.55m AOD on the north to approximately c.49m AOD at the small west-east flowing stream, before rising again to c.61m AOD to the south.

1.2.3 The site is underlain by a complex sequence of geology deposits. To the north of the west-east stream, on higher ground, is an outcrop of Ardlingly sandstone, south of this as ground level falls are successive deposits of lower Tunbridge Wells Sand, Wadhurst Clay formation (Bedrock), and Upper Tunbridge Wells Sand. The latter extends across the southern part of the site (BGS 2017).

1.3 Planning Background

1.3.1 The site has been proposed for residential development. An initial planning application was refused due to impacts on designated and non-designated heritage assets. A revised outline planning application was subsequently submitted to Mid Sussex District Council (MSDC) for the residential development of the site (DM/15/3415). A Desk Based Assessment (DBA) was accordingly completed by CgMs Consulting (Hawkins 2015).

1.3.2 A desk-based assessment produced by CgMs Consulting concluded that the site had low archaeological potential for all past periods of human activity (Hawkins 2015). Subsequent to the submission of the desk-based assessment, further pre-determination works comprising archaeological investigation were recommended by the archaeological advisor to MSDC, (Surrey Heritage Conservation Team), to include a trial trench evaluation

1.3.3 Subsequent pre-determination evaluation of the site was undertaken by Archaeology South-East (Sheehan 2015). A number of archaeological features were identified in the northern part of the site including a possible iron–smelting furnace of Iron Age date and a group of three possible pits, most probably resulting from tree clearance, were identified in the southern part of the site.

1.4 Circumstances and Dates of Work

1.4.1 A specific history of all archaeological work relating to the site is as follows:

- desk-based archaeological impact assessment compiled (Hawkins 2015)

Stage 1

- ASE archaeological field evaluation September - October 2015 (Sheehan 2015)

Stage 2

- ASE archaeological excavation September 2016
- ASE Lidar Survey September 2016 (James 2016)
- ASE archaeological watching brief during ground works associated with the construction of an access road and site compound September 2017

1.5 Fieldwork Methodology

1.5.1 The initial methodology for the Stage 1 trial trench evaluation, as outlined in the project WSI (ASE 2015), comprised of the excavation of 27, 30m x 1.8m trenches targeted on development impacts. At the request of the archaeological advisor to the Mid Sussex District Council (MSDC) an additional evaluation trench (Trench 28) was excavated in order to further investigate a ditch identified in Trench 1. Trench 9 was shortened slightly due to the eastern end of the trench extending into an area of wetland and heavy foliage (Figure 2).

1.5.2 Three stages of Stage 2 mitigation works were proposed:

- Production of a Lidar plot for the site using data held by the Environment Agency, with a particular focus on the early post-medieval landscape features associated with Sunte House
- A 0.26ha excavation (strip, map, sample) targeting the Iron Age furnace and other remains recorded in Trenches 6, 7 and 8 of the trial trench evaluation (Figure 2)
- A watching brief maintained during intrusive ground works associated with the development (Figure 2)

1.5.3 Detailed descriptions of the adopted archaeological methodology for the archaeological evaluation, excavation, Lidar survey and watching brief are documented in the Written Scheme of Investigation (WSI) reports (ASE 2015; 2016).

1.5.4 All excavation work was carried out in line with the relevant CIfA guidance documents (CIfA 2014a; 2014b; CIfAc) and the West Sussex archaeological standards (ESCC/WSCC 2015).

1.6 Organisation of the Report

1.6.1 This report details the findings of the archaeological excavation undertaken between the 12th and 30th of September 2016 and the watching brief undertaken between the 18th and 21st of September 2017. It is also incorporates the results of the earlier archaeological evaluation, where those results relate directly to the mitigation area. A short summary of the evaluation results for the remainder of the site, as well as the results of the Lidar Survey, is included below (see 2.8); for a full description of these results please refer to the previously issued reports on these stages of fieldwork (Sheehan 2015 and James 2016).

1.6.2 The current report seeks to place the results from the excavation undertaken at the site within their local archaeological and historical setting; to quantify and summarise the results; specify their significance and potential, including their capacity to address the original research aims, and identify further avenues of research arising from these results.

2.0 ARCHAEOLOGICAL BACKGROUND

2.1 Introduction

2.1.1 The following archaeological background incorporates information derived from a Desk Based Assessment prepared for the site (Hawkins 2015) and also incorporates information gleaned from a Desk Based Assessment on adjacent land, at Haywards Heath Golf Club (Grant 2017).

2.2 Early Prehistoric

2.2.1 Prehistoric activity in the High Weald does not, on the basis of available evidence, appear to have been extensive, although the exploitation of the Wealden resources by prehistoric communities has been an accepted fact for many years (Tebbutt 1974) and the perceived lack of evidence likely reflects the scarcity of modern archaeological fieldwork in the area, rather than an absence of such activity. Evidence for prehistoric activity in the Weald in general has increased significantly in recent years due to recent development-led investigations.

2.2.2 Many Mesolithic sites in Sussex are represented by concentrations of flintwork rather than by settlement sites. These flint scatters are found in all parts of the county, forming clusters which may represent activity zones. The clusters predominate in the river valleys, with other sizeable concentrations on the High Weald and along the Coastal Plain. An assemblage of worked flints, including a Tranchet axe (HER Ref: MWS 3826) was found in a garden at TQ 3370 2570 *c.*270m east of the site, indicating the presence of Mesolithic activity in the vicinity of the site.

2.2.3 The area north of the Downs appears to have been thinly settled throughout the Bronze Age based on current evidence, with the majority of evidence represented by sporadic flint scatters. However, isolated find spots of bronze axes indicate some utilisation of woodland resources, probably associated with woodland camps (Drewett, *et al* 1988, 112). The presence of several barrows and barrow cemeteries in the Weald, including Ashdown Forest, plus environmental evidence for agricultural activity, indicates that some level of woodland clearance and exploitation of the region was taking place during the Bronze Age (Gardiner 1990). The discovery of a Late Bronze Age burial at Wakehurst Place (Stevens 1998), a Middle Bronze Age roundhouse at Hurstpierpoint (Stevens, in prep.) and a Late Bronze Age enclosed settlement with at least one roundhouse at Gatwick (Yates 2007, 46) reinforce this. It has been suggested that the Weald may have been more extensively settled than generally thought at this period, with short-lived farmsteads established in clearings and then moving on once the soil fertility was quickly exhausted (Gardiner 1990, 43).

2.2.4 A number of flints, including a scraper, and a piece of bronze-working slag are recorded as finds from a garden at Sydney Road, c.900m south of the site (HER Ref: MWS783).

2.2.5 Excavations at Penlands Farm, *c.*600m west of the site recorded an assemblage of struck flint finds of Middle Neolithic to Late Bronze Age date, recovered as residual material from a number of deposits of Iron Age to post-medieval date (Douglas 2017).

2.3 Iron Age

2.3.1 Rapid socio-economic growth occurred during the Iron Age, alongside a rise in population and the increasing exploitation of what had previously been more marginal environments. Consequently, this period is characterised by marked changes throughout the archaeological record of Sussex, from ceramic styles to settlement and funerary practices. A greater emphasis on trade and exchange can also be seen during the Late Iron Age, demonstrated by the appearance of local coin production and the growing presence of imported Roman goods, culminating in the rapid Romanisation of southern England at this time (Hamilton and Manley 1999).

2.3.2 Some evidence of later prehistoric activity has been identified in the wider environment; a program of geophysical and archaeological evaluation trench investigations at Graveleye Lane, approximately 2km to the southeast of the site, identified a number of shallow, presumably truncated, features, including a probable double-ditched trackway and a number of burnt pits. These features were devoid of artefactual material and largely remain undated; however, two C14 dates recovered from one of these pits produced calibrated C14 date ranges of 195-105 BC and 375-210BC. In addition, a single piece of slag, indicating possible metal-working in the vicinity of the site, was recovered from another burnt pit.

2.3.3 Excavations at Penland Farm, *c.*600m west of the site, have identified an, as yet, undated probable stock- enclosure, with a subsequent double-ditched expansion, which has been dated on the basis of recovered pottery to the Late Iron Age/Early Roman period (Douglas 2017).

2.4 Romano-British

2.4.1 No finds of explicitly Roman material have been recorded within a 1km radius of the site; however, the route of the Roman Road (DWS8680) from London to Brighton/Portslade (Margary No. 6), passes within 400m of the site. This road was surveyed by Margary in the 1950's, and actually survives as a linear earthwork, where it runs through Bolnore Wood. It does not survive as a visible surface feature in the pasture to the north, but Margary traced its course, presumably through probing (Margary 1965). The existence and orientation of this road was confirmed by an archaeological evaluation, in advance of the construction of the Haywards Heath Relief Road, *c.*2.5km to the southwest of the site (James 1998).

2.5 Saxon – Early medieval

2.5.1 Prior to the 'official' end of the Roman rule of Britain in *c.*410AD there seems to have been a gradual decline in both the economy and administration of the colony. The subsequent Early Anglo-Saxon period is poorly represented in the archaeological record, with few identified settlement sites and much of the archaeological evidence for this period is therefore derived from cemeteries, and the grave goods they contain (White 1999). Even during the 7th century, there were still no recognisable towns, and it was not until the mid-11th century that a hierarchy of settlements had emerged, reflecting the economic and administrative complexity of the ascendant English society (Gardiner 1999).

2.5.2 The forested High Weald saw increasing usage by communities based on the better soils of the coast and the Greensand who were keen to exploit the woodland resources of the interior. This initial settlement was mainly pig-herding, probably fairly nomadic in nature, but incorporating some small-scale clearance. The clearances gradually coalesced into a series of enclosed estates from which the later parochial and manorial systems evolved. The predominant agricultural regimes at this time comprised pastoralism, supplemented by extensive woodland management. The predominantly north-south alignment of many of the roads within the Weald fossilise the line of many of the early droveways (Brandon 2003, 47), which in turn have acted as templates for distinctive linear co-axial field systems, forming ladder-like patterns in several areas of the Weald. No finds of Anglo Saxon or early medieval material have been recorded within a 1km radius of the study site.

2.6 Late medieval, post-medieval

2.6.1 Although the West Sussex Historic Environment Record contains a large number of entries for these periods within a 1km radius of the site, none has any direct relevance for its archaeological potential. The West Sussex Historic Landscape Characterisation (HLC) Survey identifies that of the site area of 6.38ha, 4.51ha can be characterised as originating as late medieval assart (fields formed from woodland clearance). Some 58.09ha of medieval assart are identified within a 1km radius of the site.

2.7 Modern

2.7.1 The available cartographic evidence suggests significant change to the character of the landscape of the site during the nineteenth and twentieth century from an open agricultural landscape to a more varied mixed landscape. Field boundaries within the site have altered with the loss and adjustment of boundaries continuing into the twentieth century.

2.8 Recent Archaeological Investigation

2.8.1 Archaeology South-East was commissioned by CgMs Consulting Ltd, on behalf of their client, Crest Strategic Projects, to undertake an archaeological evaluation on land at Birchen Lane, Haywards Heath, West Sussex. The evaluation was undertaken between the 22nd of September and the 1st of October 2015. A total of twenty-eight trenches were excavated (Sheehan 2015).

2.8.2 A number of archaeological features were identified in the northern part of the site: a possible iron–smelting furnace with an associated rake-out pit was identified in Trench 6 and parallel linear features, tentatively identified as a possible post-medieval cart-track was identified in Trench 8. In addition, a shallow linear feature of post-medieval date (Trench 25) and a group of three possible pits (Trench 12) were identified in the southern part of the site.

2.8.3 A report detailing the results of this evaluation was prepared and issued to CgMs and MSDC in October of that year (Sheehan 2015). Subsequent radiocarbon dating of charcoal found in association with the possible furnace indicated a Middle Iron Age date.

2.8.4 A Lidar assessment and visual inspection of the site was carried out in September 2016,

concurrent with the excavation works. No features of archaeological significance were evident on the Lidar within the site limits and visual inspection of both fields also identified no features of archaeological significance. Several linear anomalies were noted in the woodland immediately north of the site. These comprised former woodbanks marked on historic mapping, and surviving as eroded low earthen banks with traces of silted ditches. A further prominent linear anomaly on the Lidar was not visible during the site visit – an evaluation trench (Trench 20, Sheehan 2015) was excavated across it in 2015 but nothing of archaeological significance was observed (James 2016).

3.0 ORIGINAL RESEARCH AIMS AND OBJECTIVES

3.1 General Aims

3.1.1 The general aims of the archaeological investigation were as follows:

- To excavate and record all archaeological remains and deposits exposed in the excavation with a view to understanding their character, extent, preservation, significance and date before their loss through development impacts.
- To understand to what extent the features exposed during the evaluation can be explained through excavation of the wider area.
- To refine the dating, character and function of the features at this site.
- To make the results of the investigation publicly accessible through submission of a report to the West Sussex Historic Environment Record and the project archive to the local museum

3.2 Specific Objectives

3.2.1 Specific research aims, taking into account the forthcoming South East Research Framework, were:

- To study the use and occupation of the Weald in later prehistory
- To study the multi-faceted landscape of the post-medieval period

4.0 RESULTS

4.1 Natural geology and residual early prehistoric material (Period 1; OA 1)

4.1.1 To the immediate north and south of the west–east orientated stream the underlying geology (GP 22) consisted of pale yellow and grey alluvial clay, with varying amounts of ironstone and manganese inclusions; at the extreme north and north-west it trended into light orange brown clay, which became increasingly oxidised towards the slow-moving stream at the site's north-eastern corner (Figure 4, section 1).

4.1.2 The evaluation had identified a broadly northeast-southwest aligned palaeochannel in this part of the site, which had truncated the orange clay and was filled with a stiff grey-blue alluvial clay, devoid of any obvious inclusions (GP 22; Figure 4, section 1). An indurated dark brown - black layer overlay this alluvial clay along the channel's northeast edge, at the same level as the Wadhurst Clay. This channel presumably once flowed into the base of the valley towards the southeast corner of the northern field.

4.1.3 A number of likely naturally-formed hollows were recorded in the northern part of the site along the northern side of the extant west-east running stream. These features were infilled by colluvially-derived deposits, generally composed of fine-grained orange brown sandy clay silts.

4.1.4 The excavation produced evidence of early prehistoric activity in the form of a small assemblage of worked flint, all but one piece recovered from colluvially-derived deposits. This assemblage was dominated by débitage products although it included an end-and-side scraper and a retouched flake. Based on technological and morphological grounds, the bulk of the assemblage is likely to predate the Middle Bronze Age. Although the pieces were recovered from the subsoil and from colluvial deposits, the overall fairly fresh condition of the pieces suggests that the artefacts have undergone negligible post-depositional disturbance, suggesting that flint-working was occurring on the northern upslope of the valley.

4.1.5 A single possible Middle-Late Bronze Age flake was also recovered as a residual find from the fill of Period 2.3 pit GP 8.

4.2 **Middle Iron Age** (Period 2; OA 2)

Introduction

4.2.1 The earliest cut-features identified on-site were associated with the extraction and smelting of iron ore during the earlier Middle Iron Age (Figures 5 - 8). This activity was centred on the northern bank of the west-east running stream. Analysis of associated environmental evidence suggests the extraction and smelting would have been undertaken in a clearing within a wooded valley dominated by oak.

Period 2.1

4.2.2 The earliest feature associated with this activity was a hollow (GP 1), measuring at least 9m east-west by over 3m north-south, which was cut into alluvial deposits on the northern bank of the west-east running stream (Figure 7, sections 4 – 5; Figure 8, section 6). This feature was identified during the evaluation in Trench 6 and was thought to be of natural origin, representing the slope of an of an earlier stream bank, which had been in-filled by later alluvium and colluvium; however, during the excavation charcoal-stained layers were observed below these later alluvial deposits, which appear to have been truncated by the later quarry (GP 3; see section 4.2.7-9 below).

4.2.3 This possibly implies that the earlier deposits within the GP 1 hollow were of anthropogenic origin, and that the hollow itself may have been a man-made feature. It is possible that this was a quarry pit, dug to extract iron ore from the river bank. The thin deposits of charcoal-stained material within the cut may represent the dumping of raked-out furnace waste. Only one furnace was recorded on-site, which was contemporary with the later phase of ore-extraction (Figure 8; sections 7 - 8). It is possible that that earlier ironworking activity associated with this potential phase of ore extraction could have been truncated by the Period 2.3 quarry.

4.2.4 A small pit (GP 6), which was truncated by the second GP 3 quarry cut (Figure 7; section 2), may have been associated with this potential initial phase of metalworking activity.

Period 2.2

4.2.6 The GP 1 ore- quarry was subsequently in-filled through colluvial and alluvial processes (GP 2). This possibly occurred quite rapidly (Figure 7; sections 4 – 5, Figure 8; section 6) prior to later truncation by the second phase of quarrying activity (see GP 3 below).

Period 2.3 (Figures 5, 7– 9)

4.2.7 The second phase of Iron working activity was represented by the remains of a furnace (GP 4; ST1), sited immediately adjacent to a second quarry cut (GP 3) and three small, probably associated, pits (GP's 7-9; Figure 5).

4.2.8 The GP 3 quarry comprised a broadly east-west oriented irregular hollow, which measured over 24m in overall length by 6.4m in width and between 0.46m and 1m in

depth (Figure 7, sections 2 – 5; Figure 8, sections 6, 8 – 9; Figure 9, sections 10 – 13). The quarry was deepest at the point adjacent to the GP 4 furnace, where it appeared to have been modified in order to accommodate rake-out deposits. This second quarry was cut further upslope into the stream bank than GP 1, the northern edge of which it truncated. The later quarry was presumably positioned in order to continue to follow the same seam of ore utilised by the earlier cut.

4.2.9 The GP 3 quarry was actually comprised of a series of separate quarrying events; it was filled by a sequence of alternating furnace-rake-out deposits and 'cleaner' clay layers. This indicates that a quantity of ore would be extracted and processed, with the up-cast clay and the waste from the ore-smelting furnace thrown back into the extraction cut, followed by further extension of the cut as the extraction process was repeated.

4.2.10 Possible evidence of structural features associated with the metal-working is represented by a posthole (GP 33) and an adjacent stakehole (GP 12), cut into the slope of the eastern end of the GP 3 quarry (Figure 9, section 10). Both features were filled with grey brown clay silt and sealed by the Period 3 colluvium.

4.2.11 The remains of the GP 4 furnace itself were located at the western edge of the ore-quarry and comprised a sub-circular pit measuring over 0.80m in diameter by 0.21m in depth, with steep sides which broke abruptly to a broad, somewhat concave base (Figure 5; Figure 8, sections 7 – 8). A shallow north-south oriented depression on the southern side of this pit likely marked the position of the stoke-hole or rake-out opening in the furnace superstructure. The geological substrate at the sides and base of the furnace was fire-reddened to thickness of 0.06m, with scorching also evident on the side of the nearest part of the quarry/ rake-out pit.

4.2.12 A group of four charcoal-filled stakeholes ([150], [152], [154], [156]; SG's 89-92), positioned on the outer southern edge of the furnace pit, were likely elements of the furnace superstructure, anchoring a wattle frame over which daub would have been applied (Figure 5; Figure 8, section 7; Figure 9, section 10). Wattle impressions were visible on a number of fired clay fragments, which were clearly part of this superstructure, and one large broken fragment had vitrified close-set parallel 0.05m diameter wattle imprints. Analysis of these fired-clay fragments suggests that the wall of this superstructure measured between 0.05m-0.10m in thickness, presumably being thickest towards the base; the lower wall fragments were also subject to greater heat, as evidenced by higher levels of vitrification.

4.2.13 The lower fill within this furnace was a charcoal-stained ashy deposit containing small fragments of ore, slag and burnt clay. This deposit related to the primary function of the furnace and represented the remains of the final firing.

4.2.14 That there were multiple firings of this furnace, albeit probably all within a single smelting season, was evidenced by the numerous deposits of rake-out material, interspersed with quarrying up-cast, recorded in the adjacent quarry cut. This is also confirmed by the large amount of furnace super-structure fragments recovered from throughout these rake-out deposits and reworked pieces in the overlying colluvium. It appears that the furnace superstructure was also periodically repaired between uses, as opposed to being demolished entirely, as analysis of the fired clay fragments revealed that one fragment had had a new layer of clay applied to one of its vitrified faces.

4.2.15 While the majority of the rake-out deposits from the back-filled quarry pit and the fills from the furnace produced either undiagnostic or smelting slag, the final rake-out deposit also produced pieces of probable smithing slag and hammerscale indicating that at least some primary smithing was occurring on site. The fact that hammerscale was only recovered from this latest rake-out layer suggest that this smithing may have only occurred during the final use of the furnace.

4.2.16 The presence of smithing slag within a small pit (GP 8), situated to the east of the furnace, suggests that this feature may have been associated with this short-lived phase of primary smithing. This pit was broadly circular in shape and very shallow, measuring 0.09m in depth (Figure 5; Figure 9, section 16). The geological substrate at its base differed from the surrounding clay, being lighter in colour and harder and more brittle in compaction. This alteration was presumably the result of some process occurring within the pit; perhaps low-level heat-exposure or compression from an anvil. This pit was filled with clay silt, containing moderate amounts of charcoal, which, in addition to the smithing slag, produced fragments of ore and smelting slag as well as a residual flint flake (see section 4.1.5, above).

4.2.17 Two other sub-circular pits (GP 7 and GP 9) were located to the north of the quarry (Figure 5; Figure 9, sections 14 – 15). Neither pit contained any artefactual material, although their proximity to the furnace and quarry, and the lack of evidence for any other activity prior to the post-medieval period in this part of the site, suggests that they were probably also associated with the Middle Iron Age metal-working activity.

4.2.18 The primary fill of the furnace itself was overlain by a layer of fired clay, containing both small amorphous pieces and larger fragments with flattened faces and varying levels of vitrification ([141]; Figure 8; sections 7 - 8). A compositionally similar, and likely contemporary layer, overlay the final rake-out deposit in the back-filled quarry pit (Figure 7; section 5, Figure 8, sections 6 and 8). These deposits clearly consisted of the remnants of furnace super-structure fragments and represent the demolition of the furnace after its final use (GP 5).

4.3 **Post-bloomery colluvium** (Period 3; OA 3)

4.3.1 A thick (up to 0.65m) layer of colluvium (GP 10 and GP 13; Figure 6) directly sealed the furnace demolition deposits within the furnace and GP 3 quarry pit. This colluvium contained residual fragments of furnace lining and superstructure, slag, roasted ore and other metal-working waste (Figure 7, sections 2 – 5, Figure 8, sections 6, 8 – 9; Figure 9, sections 11 – 13). Two conjoining sherds of a vessel of transitional Middle/Late Iron Age date were also recovered from this colluvial layer.

4.4 **Medieval to post-medieval agricultural activity** (Period 4; OA 4, FS 1, OA 5 - OA 6)

4.4.1 A layer of subsoil (GP 23), which extended across the site and measured up to 0.30m in thickness, overlay the final colluvial layer (Figure 8, section 6; Figure 9, sections 11 and 13). This deposit produced a mixed pottery assemblage of 13th to 19th century date, with the medieval material being more abraded. All of these sherds suggest low-level manuring from the High Medieval period on.

4.4.2 A number of land drains (GP 20 and GP 24 – 29) cut through this subsoil layer and impacted upon the geological substrate throughout the site (Figures 10 and 11). Located towards the southeast corner of the mitigation area were two parallel east-west aligned linear features, which were identified during the evaluation excavation and posited to be cart ruts. However, further investigation revealed that the southernmost of the two (GP 20) was a substantial land drain, measuring 0.43m in depth from the geological substrate surface, while the northern feature (GP 24) likely represented the remains of an earlier and shallower drain (Figure 11, section 19).

4.4.3 Four postholes were identified, during the evaluation and mitigation works, extending in a broadly north-south alignment, parallel to one of the land drains (Figure 11, sections 17 and 18). It is likely that other postholes existed along this alignment, but that only the deepest impacted upon the geological substrate. These postholes indicate the former presence of a fence line (FS 1), sub-dividing the northern part of the site into two fields (OA 5 and OA 6).

4.4.4 The evaluation identified a broad but shallow, northwest-southeast aligned, linear depression (GP 19) in Trench 25, to the south of the stream. Its sole fill was composed of mid grey brown clay silt, from which a number of iron fragments, pottery sherds, including residual medieval material, and ceramic building material (CBM) fragments were retrieved. The iron fragments comprise an oval-headed nail and fragments of a structural fitting such as a wall tie or staple. The pottery and CBM assemblages indicated a 19th century or later date for this feature.

4.5 Watching Brief Results

(Figure 2 and plates)

4.5.1 A watching brief was carried out between the 18th and 21st of September 2017 on ground reduction for the new construction site compound and for an access road which passed through the adjacent hedgerow.

4.5.2 The compound and access road together measured a total area of 215 sq m.

4.5.3 The ground reduction in the area of the compound was extremely shallow and was conducted using a tracked excavator fitted with a flat-bladed bucket under the supervision of an archaeologist.

4.5.4 The ground reduction entailed the removal of 0.10-0.15m thickness of topsoil [100] down to the top of the subsoil [101] level. The level of the geological substrate [103] was not achieved.

4.5.6 Where a narrow breach (c 5m wide) was made through the hedgerow, several small trees and shrubs were first removed and then a small ridge (c 0.60m thick) of naturally built-up material at the base of the hedge was removed to allow level access between the fields. The work was undertaken by the same machine and under archaeological supervision.

4.5.7 Here, topsoil [100] was removed and part of the subsoil [101] that formed the ridge and had built up around the roots was partially removed. Also within the hedgerow area various modern bricks and debris were noted.

4.5.8 Further site observations were made in January-February 2019 (Figure 2).

4.5.9 No archaeological deposits, features or finds were encountered in any of these areas.

4.6 The Site Archive

4.6.1 The site archive is currently held at the offices of ASE and should be deposited at Lewes Castle and Barbican House Museum. However, they are currently unable to accept new archives due to lack of storage space. The archive will therefore be held by ASE and deposited with Lewes Castle and Barbican House Museum in due course. The contents of the archive are tabulated below (Tables 1 & 2).

Context sheets	201
Section sheets	10
Plans sheets	1
Colour photographs	0
BandW photos	0
Digital photos	488
Context register	7
Drawing register	2
Watching brief forms	4
Trench Record forms	28

Table 1: Quantification of site paper archive

Bulk finds (quantity e.g. 1 bag, 1 box, 0.5 box 0.5 of a box)	2 boxes
Registered finds (number of)	0
Flots and environmental remains from bulk samples	15
Palaeoenvironmental specialists sample samples (e.g. columns, prepared slides)	0
Waterlogged wood	0
Wet sieved environmental remains from bulk samples	15

Table 2: Quantification of artefact and environmental samples

4.6.2 The finds and environmental samples ultimately deposited as part of the archive are dependent on specialist recommendations and regional archive requirements.

5.0 QUANTIFICATION AND ANALYSIS: FINDS AND ENVIRONMENTAL

5.1 Summary

5.1.1 A small assemblage of finds was recovered during the evaluation/excavation at Birchen Lane, Haywards Heath. All finds were washed and dried or air dried as appropriate. They were subsequently quantified by count and weight and were bagged by material and context (Table 3). All finds have been packed and stored following CIfA guidelines (2014d).

Context	Lithics	Weight (g)	Pottery	Weight (g)	CBM	Weight (g)	Stone	Weight (g)	Slag	Weight (g)	Fire Cracked Flint	Weight (g)	Fired Clay	Weight (g)	Fe	Weight (g)
101	10	105														
104	1	8														
109	1	5														
111	1	4														
119									11	680						
120									22	874			6	135		
121							1	74	49	3969						
141									19	368			10	211		
159			2	11			1	183	8	313	1	2				
173									23	646						
194	2	15														
1/002			1	11												
1/004									1	16						
14/002			1	5												
25/006			2	21	4	36									3	13
3/002			1	20												
6/009									1	1802			1	255		
Total	15	137	7	68	4	36	2	257	134	8668	1	2	17	601	3	13

Table 3: Finds quantification

5.2 **Worked Flint** by Karine Le Hégarat

5.2.1 The excavation produced a fragment of burnt unworked flint weighing 2g and 16 pieces of struck flint weighing 146g. The later came from six numbered contexts; ten pieces came subsoil deposit [101] (GP23) and the remaining pieces came from colluvium deposits ([109], [111], (GP13), [159], [194] (GP 10) and pit fill [104] (GP8). The assemblage is dominated by pieces of débitage products although two modified pieces were also recovered. It consists of four flakes, seven blade-like flakes and three blades. Three blades (one from context [101] and two from context [194] display technological traits that suggest a careful reduction strategy. These characteristics indicate a blade-orientated industry and suggest a Mesolithic or Early Neolithic date. The other pieces are more difficult to date, but several could date to the Mesolithic or Neolithic period. A few pieces might be slightly later. The retouched pieces comprise an end-and-side scraper and a retouched flake, none of which are chronologically distinctive, although the scraper is likely to pre-date the Bronze Age.

5.2.2 The small assemblage of worked flint from Birchen Lane has revealed limited evidence for human activity during the prehistoric period. No chronologically diagnostic pieces were recovered, but based on technological and morphological grounds, the bulk of the assemblage is likely to predate the Middle Bronze Age. Although the pieces were recovered from the subsoil and from colluvial deposits, the overall fairly fresh condition of the pieces with only a few pieces displaying moderate edge damage suggests that the artefacts have undergone negligible post-depositional disturbance.

5.3 **Prehistoric and/or Roman Pottery** by Anna Doherty

5.3.1 Two conjoining sherds of prehistoric pottery were recovered in colluvial layer [159] which directly overlay the fills of quarry/rake-out pit [158] (GP3). The sherds are in a well-burnished glauconitic fabric containing rare/sparse quartz of c.1mm. They appear to be part of a rounded shoulder profile and feature part of an arc of burnished dots below a horizontal burnished line. This decorative style is very typical of the later part of the Middle Iron Age Saucepan tradition. The occurrence of Middle Iron Age decorative motifs on vessels with well-defined shoulders/necks is however, probably more characteristic of transitional Middle/Late Iron Age assemblages probably dating to around the later 2nd or 1st centuries BC, for example those from Horsted Keynes or St Anne's Road, Eastbourne or (Green 1980; Barber 2016). This date range would be consistent with other stratigraphic and scientific dating evidence from the site since this layer was deposited after a phase of smelting activity which has been radiocarbon dated to the early/ middle part of the Middle Iron Age.

5.4 **The Post-Roman Pottery** by Luke Barber

5.4.1 Just five sherds of post-Roman pottery were recovered from the site, the majority from unstratified subsoil deposits (GP23). Context [1/002] produced a 11g worn bodysherd from a local sandy glazed red earthenware vessel of mid-16th- to early 18th- century date. Context [3/002] contained a fresher (20g) club rim from a jar in late glazed red earthenware, probably of mid-18th- to 19th- century date. Context [14/002] produced a worn (5g) rim from a cooking pot/bowl with tapering club rim in a fine/medium sand tempered fabric, from either the Ringmer or Streat workshops. A date between c. 1250 and 1350 is probable. All of these sherds suggest low-level manuring from the High

Medieval period on.

5.4.2 Context [25/006] (GP19) produced two contradictory sherds. By far the earliest consists of a heavily worn oxidised bodysherd tempered with fine quartz and common iron oxides to 0.5mm. A date between c. 1275 and 1400 is probable, but an earlier date cannot be ruled out. Either way, this piece is clearly residual as the other sherd from this context consists of a fresher 2g sherd from a mid/later 19th- century blue transfer-printed plate with willow-pattern decoration.

5.4.3 The pottery assemblage does not hold any potential for further study beyond that undertaken for this report. It is therefore recommended for discard.

5.5 Ceramic Building Material (CBM) by Trista Clifford

5.5.1 A small assemblage of four fragments weighing a total of 36g was recovered from context [25/006] (GP19). Vitrified tile, brick crumb and undiagnostic fragments are included. The assemblage is of 19th century or later date.

5.6 The Fired Clay by Isa Benedetti-Whitton

5.6.1 Seventeen pieces of fired clay weighing 341g were hand-collected from two contexts: [120] and [141] (GP5). All the fired clay has been recorded on standard recording forms and quantified by fabric, form, and weight. Examination of fabrics was primarily conducted macroscopically although a x20 binocular microscope was utilised when necessary. The information on the recording sheets has been entered into an Excel database and all fired clay has been retained as per standard procedure.

5.6.2 None of the clay was hard fired although it was generally oxidised to an orange colour with areas of mild surface reduction, demonstrating proximity to heat. The amorphous quality of the fired clay combined with its crumbly texture is suggestive of incidental rather than intentional firing, similar to the single chunk of fired clay collected during the evaluation, although at least one fragment from [141] (GP5) had a surface that appeared intentionally flattened. Whilst the fired clay as an isolated group is not immediately diagnostic there was further material recovered from site that had be exposed to heat and become slag-like (see section 5.8 below), and it is highly likely that the non-vitrified fired clay resulted from activities relating to this furnace

5.6.3 The generally amorphous quality of the fired clay renders it of no significance on a local, national or international level.

5.7 The Geological Material by Luke Barber

5.7.1 The excavations recovered four hand-collected pieces of stone (296g) from three individually numbered contexts. A further 58g of stone was recovered from one of two environmental residues. The material has been fully listed for archive. Virtually all of the stone consists of unworked but weathered pieces and granules of Upper Tunbridge Wells sandstone. This material is natural to the site. The only other stone consists of four small unworked pieces (34g) of light grey coarse quartzrose sandstone of uncertain origin (context [121] GP3). The assemblage sheds no light on activity on the site.

5.8 **The Metallurgical Remains** by Luke Barber

5.8.1 The excavations recovered 33,784g of material initially classified as slag/industrial waste from one of 18 individually numbered contexts. This includes 7417g from the evaluation work, with 26,367g coming from the Stage 2 excavation. These totals consist of 27,144g (357 individual pieces) of hand-collected material with the remainder being derived from one of 14 environmental residues. It should be noted that quantification by count was only undertaken for hand-collected material – that from the residues was too small and numerous to make this a realistic or worthwhile exercise. As such, in the current report the medium of weight is the standard quantification cited.

5.8.2 The current report represents an overview of the slag based on visual inspection of general surface and internal morphology of the pieces. The material was sorted into a number of morphologically different slag types for recording, with samples of each being retained for long-term curation for potential future scientific analysis. In addition, the largest or most diagnostic pieces were retained after recording to also be kept with the archive. The retained material is indicated in the archive recording – the remainder of the assemblage was discarded. No scientific analysis or detailed research on comparable waste products was undertaken for the current report but the material was discussed with Sarah Paynter, metallurgist with Historic England. The assemblage has been fully listed by context and type on metallurgical pro forma sheets, which are housed with the archive. The information from these has been used to create an Excel spreadsheet for the digital archive.

5.8.3 Although the assemblage contains a number of different morphological types it all appears to relate to one fairly short-lived period of Middle Iron Age iron working. This theory is confirmed by comparison of the different types of material in the different context/groupings: essentially similar types, whether ore, furnace structure or slag, appear in different functional groupings, including the sealing colluvium. As such the material from different associated deposits, whether directly within the furnace or in the associated rake-outs, has been grouped together and tabulated in Table 4.

Type	Description	Process	Weight (g)	Comments
1a	Orange to-grey silt clay with surface vitrification	Undiagnostic	14,816	Parts of furnace superstructure
1b	Orange to grey silt clay with adhering matt grey undiagnostic iron slag	Undiagnostic	1620	Parts of furnace
1c	as 1b but no/very little slag -	Undiagnostic	3990	Burnt clay from furnace
2a	Grey, dense slag with some aeration. Some flow/solidified droplet on surface	Smelting	3224	Often very irregular with small runnels
2b	As 2a but more aerated (lightweight) and with some vitrification	Undiagnostic/ Smelting?	1000	Often very irregular with small runnels.
2c	Grey, aerated (lightweight) in irregular runnel/droplet/spherical form. Some pieces a little glassy	Undiagnostic/ Smelting?	523	
2d	Matt grey slag seams/patches (amorphous) within burnt clay. Close to 1b	Undiagnostic	1494	Close to 1b. Seepage of slag into ground/furnace
2e	Dark grey/black, well aerated but quite dense	Undiagnostic	3914	Merges with 2f
2f	Grey, aerated but with orange/brown outer margin/surface and occasional charcoal inclusions	Undiagnostic/ Smithing?	1690	Possibly smithing waste
3a	Fuel ash slag. Lightweight/aerated and vitrified	Undiagnostic	2	
4a	Magnetic fines	Undiagnostic/ Ore?	292	Granules of 4b and 4c iron concretions/siltstone too small to classify
4b	Brown/black irregular silty ferruginous concretions	Undiagnostic/ Ore?	496	Occur naturally in clay but some burnt
4c	Dull red irregular silty ferruginous concretions	Undiagnostic/ Ore?	256	Occur naturally in clay but some burnt
5a	Dense Wealden clay ironstone	Ore?	175	None burnt
5b	Ferruginous nodules (burnt) with orange-brown outer skin	Ore?	288	Roasted ore?
6a	Flake hammerscale	Smithing	2	
7a	Clinker (lightweight, matt black and aerated)	Coal-burning waste	2	Late post-medieval intrusive material

Table 4: Summary of industrial waste

5.8.4 The type 1 material all appears to relate to badly fragmented pieces of furnace superstructure. These include, those that have been protected from the main heat (Type 1c) as well as pieces with notable burning/vitrification (Type 1a). Most consist of small pieces, often with just one flattened face but colluvium [102] (SG 44; GP10) produced a notably quantity (14,816g, 1620g and 3990g respectively for T1a, T1b and T1c), including the single largest fragment (3626g). This has heavy vitrification on both its somewhat irregular faces with further burnt clay overlaying the vitrification in one area suggesting a repair or re-use. Two other large pieces were recovered from furnace demolition [6/009] (SG 40; GP5: 1152g and 1754g). The larger has a vitrified concave

inner face but has broken mid-point thus losing the original exterior surface, but in so doing, exposing close-set parallel 5mm diameter wattle imprints (some of which are also vitrified). The distance from the inner surface to the wattle marks is some 50mm, suggesting a full wall thickness in the region of 100mm. The smaller piece appears to have the full thickness of the wall, albeit it only measures 50mm wide and presumably from higher on the structure. However, this has a gently convex outer face with no vitrification and a notably vitrified inner concave face. These Type 1a fragments of furnace structure are spread throughout nine different contexts suggesting they either relate to more than one furnace superstructure, have been reworked, or both.

5.8.5 There is a notable variety in morphology within the Type 2 iron slags. The most distinctive is the denser Type 2a material, which is almost certainly from smelting. Although no classic tap slag was recovered this may well be due to the early date of the furnace. At this time molten runnels and protrusions have been noted on dense smelting slags, often in the absence of the classic flow structure of true tap slag (S. Paynter *pers comm*.). This may be the result of early furnaces not achieving a high enough temperature to allow the slag to properly flow. Although not present in large quantities this slag type is present in 11 different contexts, including rake out material, furnace demolition and colluvium. It was also found in association with all other slag types. The Type 2b and 2c slags are almost certainly related to the Type 2a material, as their morphology is so similar, even if their density is not. However, in isolation they could only be classified as undiagnostic of process even though a notable quantity of Type 2c was recovered from the furnace primary fills (e.g. contexts [6/010] and [142] GP4).

5.8.6 The Type 2e and 2f material is slightly different in morphology and could as easily derive from smithing or smelting. Of the two the Type 2f is most like smithing slag with its rusty brown colouration, good aeration and charcoal inclusions, but such morphology can occur in the upper levels of a smelting furnace. This material was only recovered from pit [106], fill [104] (GP8), quarry fill [121] (GP3) and colluvium [159] (GP10) but was always in association with the T2a smelting slag within these deposits. The only definite evidence of smithing was recovered from fill [121] (SG 17; GP3) that produced some 50-100 (2g) fresh hammerscale flakes to 4mm across (again in association with a range of slag types, including T2a smelting). The presence of this material demonstrates at least some primary smithing was occurring on site but, considering hammerscale was only recovered from [121], this must have been very short-lived. Certainly had any significant smithing occurred hammerscale would have been expected in a number of the residues.

5.8.7 The Type 5 material appears to be of ore quality and may represent crushed (T5a) and roasted (T5b) ore accordingly. However, if this Wealden ferruginous siltstone had been the only ore one may have expected to see more of it, though this may be in part a bias caused by on-site collecting. The significant quantities of Type 4 may indicate the use of naturally occurring ferruginous concreted deposits (including bog-iron) on or within the natural clay – the fact some are notably magnetic and have clearly been subjected to significant heating would support this suggestion but more detailed scientific work would be needed to establish the use and exact source of this material beyond doubt.

5.8.8 Overall it would appear the remains relate to a badly damaged iron smelting furnace that may have seen a relatively short period of use and utilised more than one source of potential ore. Some primary smithing did occur but this may only been a single episode associated with one particular smelting campaign.

5.9 **The Bulk Metalwork** by Trista Clifford

5.9.1 Three iron fragments weighing 13.5g in total were recovered from context [25/006] (GP19). Two conjoining fragments which form an L shape are part of a larger object, probably a structural fitting such as a wall tie or staple. A single incomplete nail with an oval head was also recovered. A post medieval date is probable.

5.10 **Radiocarbon Dating** by Anna Doherty

Purpose of dating programme

5.10.1 Two samples of charcoal were extracted from environmental sample <5> taken from fill [6/012], associated with the demolition of the smelting furnace, of quarry pit [6/008] (GP3) and submitted for AMS radiocarbon dating at Beta Analytic Inc. The fill was interpreted as representing rake-out material which had been directly redeposited during the use of the adjacent furnace, [6/006]/[117]/[144] (GP4). No datable artefactual material was recovered from the furnace or any of the associated deposits so, as well as dating this specific feature, the broader aim of the programme was to determine the date range of the industrial activity on site.

5.10.2 Two samples of charcoal belonging to different short-lived wood taxa – poplar/willow (*salix/populous sp.)* and plum sub-family (*prunus sp.)* – were selected in order to ensure that the dated charcoal had originated from different trees and to increase confidence that neither of the dated samples were residual or intrusive.

Results

5.10.3 Details of the radiocarbon dates are given in Table 5 quoted in accordance with the international standard, Trondheim convention (Stuiver and Kra 1986), and are given as conventional radiocarbon ages (Stuiver and Polach 1977). 2 Sigma calibrated dates, obtained using IntCal13 (Reimer *et al.* 2013), are also given at the 95% confidence level.

Lab Code	Context	Material	Conventional radiocarbon age (BP)	Delta C13	2 Sigma calibrated date (95% confidence)
Beta-430475	6/012	Charcoal (*Prunus sp*.)	2220±30 BP	-26.3‰	370-180 cal BC
Beta-430476	6/012	Charcoal (*Salix/Populus sp.)*	2230±30 BP	-25.9‰	360-200 cal BC

Table 5: AMS radiocarbon dates for charcoal from fill [6/012] of rake-out pit [6/008] (GP3)

5.10.4 The two results appear to be statistically consistent, both returning calibrated ranges falling the 4th -3rd centuries BC (or up to 180 BC in the case of Beta-430475). Sample Beta-430476 provides a likely *terminus post quem* of 360 cal BC. This suggests that the rake out material at the top of the sequence in pit [6/008] (GP3) was deposited broadly around the early to middle part of the Middle Iron Age. Since the charcoal is interpreted as deriving directly from smelting activity, it is likely that that this also reflects the date of the adjacent furnace.

5.11 The Environmental Samples by Stacey Adams

5.11.1 Ten bulk soil samples were taken during excavations at Haywards Heath for the recovery of environmental remains such as plant macrofossils, wood charcoal, faunal remains and Mollusca, as well as to assist finds recovery. Samples were taken from Early/ Middle Iron Age pits and furnace pits. The following reports on the charred plant macrofossils identified at Haywards Heath and discusses the diet, arable economy and local environment of the site as well as fuel selection and use. The composition of the charcoal assemblages from the furnace pits have been investigated to explore their significance both locally and regionally.

Methodology

5.11.2 The bulk samples, ranging from 10 to 40L in volume, were processed by flotation, in their entirety, using a 500µm mesh for the heavy residue and a 250µm mesh for the retention of the flot before being air dried. The residues were passed through 8, 4 and 2mm sieves and each fraction sorted for environmental and artefactual remains (Table 7). Artefacts recovered from the samples were distributed to specialists, and are incorporated in the relevant sections of this volume where they add further information to the existing finds assemblage. The flots were scanned under a stereozoom microscope at 7-45x magnifications and their contents recorded (Table 8). Where necessary, flots were subsampled and 100ml of the volume scanned. Provisional identification of the charred remains was based on observations of gross morphology and surface structure and quantification was based on approximate number of individuals. Nomenclature follows Stace (1997) for wild plants. No further analysis or identification work was recommended for the charred plant macrofossils beyond assessment due to their paucity.

5.11.3 Charcoal fragments were fractured by hand along three planes (transverse, radial and tangential) according to standardised procedures (Gale and Cutler 2000; Hather 2000). Specimens were viewed under a stereozoom microscope for initial grouping, and an incident light microscope at magnifications up to 500x to facilitate identification of the woody taxa present. Taxonomic identifications were assigned by comparing suites of anatomical characteristics visible with those documented in reference atlases (Schoch *et al* 2004; Hather 2000; Schweingruber 1990). Identifications were given to species where possible, however genera, family or group names have been given where anatomical differences between taxa are not sufficient enough to permit satisfactory identification. Samples containing a sufficient amount of charcoal fragments (>3g from the >4mm heavy residue) were submitted for analysis. One hundred fragments from each of these samples were submitted for identification, this number is based on the minimum number of fragments principle for temperate regions proposed by Asouti and Austin (2005). Quantification and taxonomic identifications of charcoal are recorded in Table 6 and nomenclature follows Stace (1997).

Results

5.11.4 *Samples <100> [104], <101> [121], <102> and <107> [137], <103> [142], <104> [145], <105> [146], <106> [120], <108> [181] and <109> [183].*

The heavy residues were rich in industrial material including burnt clay, slag, hammerscale and ore. Stone, ceramic building material and magnetic material were also present. All samples contained charcoal fragments, of which, six, from furnace pit fills [120], [121], [137 (both sample <102> and <107> GP's 5 and 3], [181] and [183] (GP3), contained sufficient quantities (>3g from the >4mm fraction) to be submitted for assessment. Charcoal fragments from samples <102> and <107> from furnace pit fill [137] (GP3) were combined for analysis as both contained similar taxa and no spatial discrepancies could be detected.

5.11.5 The flots contained between 5 and 70% uncharred material including modern roots, cereal culm nodes and recent seeds of meadow starwort (*Stellaria palustris*), blackberry (*Rubus* sp.) and goosefoots (Chenopodiaceae). Charcoal fragments were present in all flots and insect remains were frequent within pit [106] (GP8). A small amount of industrial material was present in the flot from pit [118] GP3 (sample <107>).

Charred Plant Macrofossils

5.11.6 A small number of hazelnut (*Corylus avellana*) shell fragments were recovered from the heavy residue of pit [172] (GP3). The flots did not contain any charred plant macrofossils.

Charcoal

5.11.7 Preservation of the charcoal from Birchen Lane, Haywards Heath was moderate to good with the majority of the fragments identifiable to genus and occasionally species level. Unidentifiable knot wood fragments were present, caused by the growth of the tree rings over unformed branches. Over one fifth of the fragments displayed evidence of vitrification; a process that distorts the anatomical features of the wood giving it glassy appearance. The cause of vitrification has often been attributed to high burning temperatures and prolonged exposure to heat (Gale and Cutler 2000; Prior and Alvin 1983), although recent experiments claim that vitrification is not induced by such factors and that the cause is still unknown (McParland *et al* 2010). A number of the fragments were generally distorted, in this case it has been attributed to acute thermal degradation of the charcoal during the charring process. Radial cracks were a common feature amongst the fragments and have been associated with the burning of fresh wood (Keepax, 1988, 32). Few fragments were distorted by post-depositional sediment, suggesting that the water table was relatively stable during the burial of the deposits.

5.11.8 Oak (*Quercus*) was the most common taxon within the furnace pits and dominated over 78% of the total assemblage. On average ¾ of the fragments from the samples taken from furnace pit [118] (GP3) were that of oak. Also part of GP3 context [172] consisted of an almost pure oak assemblage, broken only by a single fragment of alder (*Alnus* sp.). A number of the fragments have been described as oak/ hazel (*Quercus*/ *Corylus*) due to the absence of early ring porous wood and multiseriate rays. Where ring porous wood was present but no multiseriate rays could be identified, oak/ sweet chestnut (*Quercus*/ *Castanea*) has been used.

5.11.9 Wood charcoal of the apple-sub-family (Maloideae) was the second most abundant taxon, equating 4% of the assemblage. The apple-sub family is made up of hawthorn (*Crataegus* sp.), whitebeam (*Sorbus* sp.), apple (*Malus* sp.) and pear (*Pyrus* sp.), of which, the charcoal cannot be positively identified between these pomaceous taxa. Hazel (*Corylus avellana*) charcoal was identified within all of the samples from pit [118] (GP3) as was that of ash (*Fraxinus excelsior*). The charcoal of poplar (*Populus*) and willow (Salix) often cannot be distinguished between. The well-preserved nature of the assemblage allowed for the distinction between the homogenous rays of poplar and the heterogeneous rays of willow indicating the presence of willow within the assemblage.

5.11.10 Wood charcoal from the birch family (Betulaceae) was present in all samples, represented by hazel (*Corylus avellana*), alder, birch (*Betula* sp.) and hornbeam (*Carpinus betulus*) fragments. Hornbeam and viburnum (Viburnum sp.) were recorded from pit [118] (GP3), the charcoal of which is rare within assemblages across southeast England. Coniferous trees were represented by a single fragment of yew (*Taxus baccata*) charcoal in pit fill [120] (GP5).

Discussion

Charred Plant Macrofossils

5.11.11 The absence of charred plant macrofossils in the flots from Birchen Lane, Haywards Heath indicate that crop processing activities were not taking place in this area of the site. It is possible that such activities were occurring off-site as a small amount of charred cereals are usually present as 'background noise' at sites where crop processing activities are taking place. The charred hazelnut shell fragments from pit [172] (GP3) were likely brought to site along with the firewood and subsequently burnt, rather than intentionally collected and consumed by the inhabitants of the site.

Charcoal - Fuel Selection

5.11.12 Oak wood makes an excellent fuel and is renowned for its high temperatures and prolonged burning time, as is that of hazel (*Corylus avellana*), elm (*Ulmus* sp.) and ash (*Fraxinus excelsior*) (Austin, 2003). Taylor (1981) suggests that oak wood would have been reserved for use as structural timber and not used as fuel. The dominance of oak at Birchen Lane, Haywards Heath implies that it was abundant within the local area, enough to be exploited for both timber and fuel. The 'greenwood' of ash burns similar to that of dead or seasoned wood (Austin, 2003, 99), it is advantageous as it does not need to be dried out before being burnt like other taxa and may have been selected at Haywards Heath for this reason. Fragments of round wood were not abundant within the assemblage suggesting that larger branches or stem wood were being exploited. This points to the practice of woodland management techniques at Haywards Heath, through coppicing or pollarding, to ensure a secure and regular supply of fuel for the industrial furnaces. Ash and hazel are valuable as a fuel source as both are naturally self-coppicing and provide a steady supply of branch wood (Smith, 2002). The ash of oak and birch is rich in lime, potash and magnesia and are known to have been selected in the Iron Age for use in the smelting process (Paynter, 2006, 272). The wood from these taxa may

have been deliberately burnt to ash for this purpose at Birchen Lane.

Local Environment

5.11.13 The range of taxa identified at Haywards Heath indicate the presence of a mixed oak woodland in the vicinity. Ash wood may not have been immediately available on the local silty sandstone soils and may have derived from the chalk soils of the South Downs due to its preference for calcareous soils (Rodwell 1991; Polunin and Walters 1985). Hazel, although not a strong ecological indicator, is a common component of deciduous oak woodland (Zohary and Hopf 1994, 179) and was likely available in the local woodland. Birch indicates the presence of local acidic soils and was possibly growing on nearby heathland. Alder is an ecological indicator for damp and wet environments, such as river valleys and would have been available along the banks of the nearby River Ouse and its associated tributaries. Hornbeam, widely available throughout Southeast England, would have also been available locally from the clay alluvium soils of the River Ouse. Yew is poorly represented from archaeological sites in Sussex despite the fact that it would have been widely available within the local area. Mooney (2015) identified a similar pattern within the Iron Age charcoal assemblage at Peacehaven and suggests it may have been intentionally avoided as a fuel source due to its associations with death and burial in the past.

	Sample Number	101	102/107	106	108	109
	Context	121	137	120	181	183
	Parent Context	118				172
	Context / Deposit Type	Quarry/ Rake-out pit				Quarry/ Rake-out pit
Taxonomic Identifications						
Taxus baccata	Yew			1		
***Ulmus* sp.**	Elm		1			
***Quercus* sp.**	Oak	77	76	75	67	97
cf. *Quercus*	cf. Oak	6	1	2	1	1
Quercus/ Corylus	Oak/ Hazel	3	2		1	
Quercus/ Castanea	Oak/ Sweet Chestnut		1		1	
Betulaceae	Birch Family		2		1	
***Betula* sp.**	Birch			1		
***Alnus* sp.**	Alder		2		4	1
Carpinus betula	Hornbeam			1		
Corylus avellana	Hazel	1	1	3	5	
Populus/ Salix	Poplar/ Willow		1	3	2	
***Salix* sp.**	Willow			1		
Fraxinus excelsior	Ash	1	6	4	1	
Rosaceae	Rose Family		1			
Maloideae	Apple Sub-Family	1	5	2	12	
***Prunus* sp.**	Plum Sub-Family			1		
Acer campestre	Field Maple			1		
***Viburnum* sp.**	Viburnum				2	
Indet.	Indeterminate	11	2	6	3	1
	Vitfrified	28	29	15	15	24
	Radial Cracks	10	11	6	9	16
	Post-depositional Sediment	9	4	4	4	5
	Distorted	19	7	15	10	16
	Round wood		3	4		
	Knot wood	3			1	

Table 6: Charcoal identification of 100 fragments from selected samples.

Sample Number	Context	Context / Deposit Type	Sample Volume (L)	Charcoal >4mm	Weight (g)	Charcoal 2-4mm	Weight (g)	Charred Botanicals	Weight (g)	Other (eg, pot, cbm) (presence/ weight)
100	104	Pit [106]	30	*	<1	**	<1			Ore (*/2g) Slag (***/142g) Mag.Mat. (***/8g)
101	121	Furnace pit [118]	40	***	11	****	28			B.Clay (*/3g) Stone (*/33g) Slag (***/111g) Hammerscale (***/3g) Mag.Mat. (****/552g) Ore (****/44g) Ind.Mat. (****/585g)
102	137	Furnace pit [118]	20	***	33	****	40			B.Clay (**/48g) Slag (**/30g) Ore (****/59g) Mag.Mat. (****/632g) Ind.Mat. (***/805g)
103	142	Furnace pit [117]	15	**	2	***	9			B.Clay (**/45g) Slag (***/296g) Glass Slag (*/9g) Ind.Mat. (***/861g) Ore (**/2g) Mag.Mat. (****/848g)
104	145	Furnace pit [144]	10	*	<1	**	<1			B.Clay >8mm (**/129g) Slag (**/252g) Ind.Mat. (***/161g) Mag.Mat. (****/110g)
105	146	Furnace pit [144]	10	*	<1	**	<1			Slag (**/15g) Ind.Mat. (**/65g) Mag.Mat. (****/156g)
106	120	Furnace pit [118]	20	***	29	****	30			Mag.Mat. (****/938g) B.Clay (*/6g) Slag (**/41g) Ore (****/61g) Ind.Mat. (***/519g)
107	137	Furnace pit [118]	10	***	10	****	36			CBM (*/221g) Ind.Mat. (***/604g) Slag (**/57g) Ore (****/166g) Mag.Mat. (****/324g)
108	181	Furnace pit [118]	10	**	9	***	12			B.Clay (*/4g) Slag (**/8g) Ore (****/50g) Ind.Mat. (**/170g) Mag.Mat. (****/396g)
109	183	Furnace pit [172]	40	****	47	****	35	*	<1	Slag (*/20g) Mag.Mat. (***/58g) Ore (***/9g) Ind.Mat. (*/85g)

Table 7: Residue quantification (* = 1-10, ** = 11-50, *** = 51-250, **** = >250) and weights in grams

Sample Number	Context	Weight (g)	Flot Volume (ml)	Volume Scanned	Uncharred (%)	Sediment (%)	Seeds Uncharred	Charcoal >4mm	Charcoal <4mm	Charcoal <2mm	Other Botanical Charred	Identifications	Preservation	Insects, Fly Pupae etc.	Notes
100	104	12	130	100	70	5	Chenopodiaceae * *Stellaria palustris* *	*	**	***				***	Worm capsules, fly pupae. Blue inclusions.
101	121	39	250	100	60	5	*Rubus* *	***	****	****				*	
102	137	5	15	15	20	20		**	***	****					
103	142	11	25	25	20	40		**	**	***					
104	145	8	40	40	40	20		*	**	***					
105	146	10	30	30	20	25		*	**	***					
106	120	6	15	15	5	5		*	***	****					
107	137	19	55	55	5	5		**	***	****					Ind.Mat **
108	181	5	15	15	20	5	*Rubus* *	**	**	***					
109	183	13	60	10	5		Culm node *	**	**	***	*	*Corylus avellana* shell frags from residue)	++	*	

Table 8: Flot quantification (* = 1-10, ** = 11-50, *** = 51-250, >250) (+ = poor, ++ = moderate, +++ = good

6.0 DISCUSSION AND CONCLUSIONS

6.1 Overview of stratigraphic sequence

Underlying geology

6.1.1 The geological substrate was encountered at a height of between 46m and 53m AOD, being lowest above the bank of the west-east running stream, and highest towards the top of the southern side of the valley. To the immediate north of the stream the underlying geology (GP 22) consisted of pale yellow and grey alluvial clay, with varying amounts of ironstone and manganese inclusions; at the extreme north and north-west it trended into light orange brown clay, which became increasingly oxidised towards the slow-moving stream at the site's north-eastern corner.

6.1.2 The evaluation had identified a broadly northeast-southwest aligned palaeochannel (49.50m AOD) in this part of the site, which had truncated the orange Wadhurst Clay and was filled with a stiff grey-blue alluvium, devoid of any obvious inclusions. An indurated dark brown - black layer with ferruginous inclusions overlay this alluvial clay along the channel's northeast edge, at the same level as the natural Wadhurst Clay. This indicates that the channel was of pre-Pleistocene date. This brown/ black layer was likely similar in composition and origin to the ore-bearing seam which was exploited in Period 2 along the northern bank of the west-east running stream to the south.

Superficial deposits

6.1.3 The likely naturally-formed hollows recorded in the north-western part of the site were infilled by colluvially-derived deposits, generally composed of fine-grained orange brown sandy clay silts. The colluvium sealed an alluvial layer at the base of the valley and the along the north-eastern part of the site. The topographic variation of the valley was considerably more pronounced in the past than at present where the natural gradient has become levelled-out by blanket alluvium and colluvium. The deposition of sediments by downslope soil movement and overbank deposition indicates that the impact the extant water courses had in this area were once more extensive than in the recent past.

Prehistoric features

6.1.4 While no cut features or deposits of early prehistoric date were identified on-site, a small assemblage of reworked, but relatively fresh-looking, lithic material of pre-Middle Bronze Age date, was recovered from colluvium across the northern part of the site.

6.1.5 The earliest direct evidence for human activity within the site was represented by a group of six features (47.40m to 47.60m AOD) located at the base of the valley, on the northern side of the stream. These features included quarry pits for the extraction of iron-ore, a smelting furnace and three smaller pits, of uncertain function. This metallurgical activity has been dated to the Middle Iron Age.

6.1.6 The Middle Iron Age activity appears to have been short-lived, perhaps lasting only two seasons, and was sealed by a 0.30m thick layer of colluvium,

from which a range of reworked material of pre-Bronze Age to 2nd century BC date was recovered.

Subsoil

6.1.7 The subsoil varied between leached ironstone and manganese–flecked clay-silt in the southern part of the site, which measured between 0.09m and 0.35m in thickness. In the north-western part of the site it comprised moderately compact, ironstone and manganese–flecked brown clay-silt. This measured between 0.09m and 0.60m in thickness and overlay a series of colluvial deposits at the extreme north-west of the site. This subsoil contained artefactual material of mixed medieval to post-medieval date.

Post-medieval features

6.1.8 The subsoil was cut by a number of post-medieval to modern agricultural features, including land drains and four postholes delineating a former field boundary (47.14m to 49.73m AOD).

6.2 Deposit survival and existing impacts

6.2.1 The evaluation and excavation results revealed that there is very little evidence of modern truncation within the site area (with the exception of limited construction-related disturbance at the south-east, as identified in Trench 27) and there was good archaeological deposit survival, particularly at the base of the valley slope on the northern side of the stream. Here, colluvial deposits sealed Middle Iron Age features protecting them from superficial past impacts (such as ploughing) and contributing to their survival.

6.3 Discussion of archaeological remains by period

Period 1: Early Prehistoric

6.3.1 A small assemblage of worked flint, recovered, for the most part, from colluvial deposits, has revealed limited evidence for human activity in the vicinity of the site during the prehistoric period. No chronologically diagnostic pieces were recovered, but based on technological and morphological grounds, the bulk of the assemblage is likely to predate the Middle Bronze Age, with a number of pieces of likely Mesolithic-Neolithic date. Although the pieces were recovered from the subsoil and from colluvial deposits, the overall fairly fresh condition of the pieces suggests that the artefacts have undergone negligible post-depositional disturbance and that activity was being carried out in the immediate vicinity of the site. A location upslope from the later prehistoric activity identified at the valley base is the most likely.

6.3.2 This evidence of early prehistoric activity is consistent with the pattern recorded across the Weald, where clusters of Mesolithic flint scatters representing activity zones predominate in the river valleys (Margetts in prep.). This flint assemblage adds to the previously recorded evidence of early prehistoric activity in this valley represented by the assemblage of Mesolithic flints, including a Tranchet axe, found on the southern side of the valley *c.*270m east of the site.

Period 2: Middle Iron Age

6.3.3 The location of the ore-quarry and furnace at Birchen Lane is typical of the earliest evidence for ore-extraction in the Weald; the earliest ironworkers derived their ore from natural exposures of the mineral in stream banks, digging back into the ground and removing the layers of nodules as required (Hodgkinson 2008, 12).

6.3.4 Analysis of the recovered environmental material indicates the presence of a mixed oak woodland in the vicinity, which would have served as the source of fuel for the furnace. Charcoal recovered from samples of the raked-out ash deposits within the back-filled quarry indicates that oak was the dominant species selected for fuel, with wood charcoal of the apple-sub-family, as well as lesser amounts of Hazel and Ash, indicating that these species were also intentionally selected.

6.3.5 C14 dates achieved from samples of the furnace demolition layer, recovered during the evaluation excavation, produced calibrated date ranges of 380-200 BC and 370-180 BC for the final use of the bloomery. While furnaces of this date are rare in the archaeological record, a number of broadly contemporary sites have been identified in the wider area. A charcoal sample from a smelting hearth excavated at Tablehurst Farm, Forest Row, *c*.10km northeast of the site, yielded a date between 370 BC and AD 30, which, at a less confident level, could be narrowed down to between the late 3rd to mid-1st century BC (Hodgkinson 2008, 28). In the wider Weald an increasing number of bloomery sites of similar date have been identified; a recently excavated bloomery furnace at Brokes Wood, Southborough has produced a C14 date of *c*.340 BC (Stapple 2016).

6.3.6 Previous studies have suggested that the earliest furnaces in Britain were of simple non-slag tapping 'bowl furnace' types, which have a westerly distribution and date from *c.*400-100 BC but that the earliest furnaces in the Weald were of the slag-tapping type, with non-slag tapping furnaces absent in the region until the mid-Saxon period (Cleere and Crossley 1995, 39, 52-53). The inspiration for these Wealden slag-tapping types was assumed to have had a Rhineland origin dating from the 1st century BC/ AD. However, the smelting slag recovered from the furnace and rake-out deposits at Birchen Lane indicates that this furnace was of a non-slag-tapping bloomery type, as were the other Early/ Middle Iron Age examples cited above and below.

6.3.7 Recent archaeological work has shown that the earliest evidence for iron working in the southeast, and from Britain in general, is from the Thames Valley region; large quantities of hammerscale and other iron working debris were found in association with two round-house structures dated to the 10th century BC on a site at Hartshill Copse, on the north side of the Kennet Valley, in West Berkshire (Lambrick and Robinson 2009, 215-218). The iron working evidence from this site is exceptionally early for northwest Europe in general, let alone Britain, and it does not appear to signal the beginning of a continuous, fully fledged, British iron working tradition. Evidence for iron working in the earliest Iron Age is, however, represented in the region by a site at Coopers Farm, Dunston Park, not far from Hartshill Copse, where smithing slag was also recovered from a 7th century BC pit (*ibid*.).

6.3.8 Closer to the site, early iron working is evidenced, to the northwest of the Weald, by the iron working settlement at Brooklands, Weybridge, which is dated to the 6th or 5th century BC (Hodgkinson 2004). An Early to Middle Iron Age settlement with associated metal-working debris, but no *in situ* structural remains of furnaces or hearths, has been excavated at St. Ann's Heath School, Virginia Water (Lambert et al. 2013) and a number of Middle Iron Age iron working sites have been recorded in the Surrey and Hampshire region. To the northeast of the Weald, on the chalk downlands of Kent, at Canterbury Road, Hawkinge metal-working waste associated with both bronze-working and iron-smelting was found in association with the remains of probable furnaces, which have been dated on pottery evidence to *c.* 550-350 BC (Paynter 2000 and Dawkes, in prep.). A potentially Early Iron Age smelting-site has recently been investigated within the Weald itself; trial investigations into the slag heap of a bloomery site in Cullinghurst Wood, Hartfield, *c.*16km northeast of the site, produced a calibrated date range of 750-350 BC (Hodgkinson 2008, 28).

6.3.9 In addition, possible evidence for western British influence on Wealden metallurgical processes may be supported by an unusual structure, excavated at Wickhurst Green, Broadbridge Heath *c.*15km west of the site (Margetts, in prep.); this structure comprised a spiral-shaped gulley, enclosing a small post-built structure, which contained quantities of fired-clay and fuel ash slag. This feature was dated to 400-200 cal BC. The strongest parallels for this structure were with the so called 'snail-shaped' smithy buildings of North Wales, particularly that at Bryn y Castell, Gwynedd, the earliest phase of which returned an initial date of 230 ± 100 B.C., which was later revised to 320 ± 110 B.C (*ibid.*).

6.3.10 The metalworking processes identified at Birchen Lane consisted, for the most part, of the extraction of Iron ore from the stream bank and the smelting of that ore into bloom. Metallurgical waste recovered from the latest rake-out in-fill deposit from the GP 3 quarry and from the fill of the GP 8 pit, indicates that some primary smithing was taking place on-site towards the end of this phase of activity. It seems clear that for the majority of the bloomery's period of use the slag was taken elsewhere for further processing or that it was stored prior to smithing at the end of the smelting season(s). Evidence of further metal-working activity in the vicinity of the site has been identified at Graveleye Lane, *c.*2km to the southwest, where evaluation excavations identified a number of broad, shallow pit features, displaying evidence *of in-situ* burning. One of these produced a piece of probable smithing slag (Nicholls 2014). These pits were morphologically similar to the GP 8 pit and samples of hazel/ alder and oak charcoal, recovered from the fill of one pit, returned date ranges of 340-50 BC and 390-205 BC respectively. This indicates broad contemporaneity with the bloomery at Birchen Lane.

Period 3: Post-Bloomery

6.3.11 The Middle/Late Iron Age sherds recovered from the colluvium layer which sealed the furnace demolition deposits, represent the latest artefactual material recovered from this colluvial layer and suggest that it had started to form by the later 2nd century BC. This indicates that metal-working had ceased on-site by that date. No evidence of Later Iron Age, Romano-British

or Saxon/ early medieval activity was identified during the evaluation or mitigation excavations, suggesting that the site was not settled or exploited for agricultural purposes in these periods.

Period 4: Later medieval to post-medieval agricultural activity

6.3.12 A small pottery assemblage, of 13th century date, was recovered, along with post-medieval material, from the subsoil (GP 23), in the northern part of the site. This assemblage was indicative of manuring, indicating that assarting of the site had occurred by this date. The small size of the pottery assemblage suggests that agricultural activity during this period was of low intensity.

6.3.13 Cartographic analysis indicates that the field division represented by the fence line FS1 is of at least late 18th century date, as both Gardner and Gream's map of 1795 (Figure 12) and the draft Ordnance Survey (OS) map of 1808 (not illustrated) appear to depict two field plots on the northern side of the west-east running stream. This boundary was dismantled and these plots were merged into one at some point in the early-mid19th century, as the 1874 edition OS map shows the field north of the stream much as it is today.

6.3.14 The 19th century linear feature (GP 19) recorded in evaluation Trench 25, south of the west-east stream, likely dates to the early to middle part of this century, as no landscape features are depicted in this position on the 1874 OS or later maps. The features broad and shallow profile suggests that it was perhaps a sunken trackway, as opposed to a field boundary ditch.

6.4 Consideration of research aims

6.4.1 In this section the relevant original research aims listed in section 3 are addressed.

- *To excavate and record all archaeological remains and deposits exposed in the excavation with a view to understanding their character, extent, preservation, significance and date before their loss through development impacts.*

The mitigation excavation has succeeded in characterising the nature, extent, date and function of the archaeological deposits identified in the previous evaluation.

- *To understand to what extent the features exposed during the evaluation can be explained through excavation of the wider area.*

The mitigation excavation has succeeded in clarifying the nature and function of the archaeological features exposed during the evaluation and their stratigraphic and functional relationships to each other.

- *To refine the dating, character and function of the features at this site.*

The results of the mitigation excavation have established a chronological framework for the archaeological features identified during the evaluation and have confirmed the interpretations set out in the evaluation report for some of these features and overturned others.

- *To make the results of the investigation publicly accessible through submission of a report to the West Sussex Historic Environment Record and the project archive to the local museum*

This report will, subject to review and approval by the archaeological advisor to Mid Sussex District Council, be made publicly accessible through submission of a report to the West Sussex Historic Environment Record and the project archive to the local museum.

6.4.2 Specific research aims, taking into account the forthcoming South-East Research Framework, were:

- *To study the use and occupation of the Weald in later prehistory*

The archaeological excavation has succeeded in confirming the presence of archaeological deposits and features associated with Middle Iron Age iron working activity. Evidence for such activity during this period is rare in the Weald, although, as outlined in the discussion of these archaeological remains above, recent investigations in the region have added to a growing body of sporadic but widely distributed evidence. The phase of metallurgical activity on-site appears to have been short-lived and restricted to a limited area. It was apparently sited on marginal land, not associated with any areas of core settlement or agricultural activity. This is likely to be reflective of functionally similar sites from the same period. Therefore, the discrete nature of these sites and their lack of proximity to identifiable landscape features associated with areas of settlement renders them practically invisible in the landscape. They are most likely to be encountered 'accidentally' during pre-development investigations. It is entirely possible that metalworking sites from this period are far more numerous in the Weald than existing archaeological evidence might suggest. As development continues to expand into previously marginal land, more such sites will no doubt be encountered.

- *To study the multi-faceted landscape of the post-medieval period*

The archaeological excavation has shown that the landscape in the vicinity of the site has changed little since the mid-19th century. It has produced evidence for the existence of smaller field divisions in the 18th and earlier 19th centuries. The disestablishment of these fields likely reflects the introduction of mechanised agricultural technologies during the early modern period.

6.5 Conclusions

6.5.1 The archaeological excavation at Birchen Lane has confirmed the presence of a bloomery, suggested by the results of the archaeological evaluation, and has dated this activity to the Middle Iron Age. Ironworking at the site appears to have been short-lived, perhaps carried out over two seasons. It comprised the excavation of iron-ore from an exposed seam in the northern bank of a west-east running watercourse at the bottom of a small valley and the smelting of this ore in a bowl furnace. Evidence of limited on-site primary smithing was also recorded, as evidenced by small quantities of smithing slag and hammerscale retrieved from ash deposits from the backfilled quarry and the fill of a small pit. This primary smithing activity appears to have been

associated only with the final use of the furnace.

6.5.2 The archaeological features and deposits associated with the bloomery were sealed by a layer of colluvium, which had likely formed by the transitional later Middle late/ Iron Age period.

6.5.3 The pottery assemblage recovered from the subsoil indicates that assarting had occurred by the 13th century, although the small number of recovered sherds suggests that medieval agricultural activity was likely to have been of low intensity.

6.5.4 A field boundary comprised of a fence line was identified in the northern part of the site, which appears, from cartographic evidence, to have been disestablished in the earlier 19th century. A number of land drains and a sunken trackway, identified during the evaluation, to the south of the stream, also likely date to this period.

6.5.5 A small, and largely undiagnostic, assemblage of residual flint flakes recovered from the colluvium deposits to the north of the valley is indicative of low-level activity in the valley, from the Late Mesolithic/Early Neolithic to the Middle Bronze Age.

PART 2: UPDATED PROJECT DESIGN FOR PUBLICATION

1.0 INTRODUCTION

1.1 This second section of the report details the potential and significance of the data in relation to the wider area, how the sites will be progressed through to publication and what steps will be needed to achieve this.

2.0 UPDATED RESEARCH AGENDA

2.1 The metallurgical remains are directly relevant to the interpretation of the iron working activity on site and it is therefore proposed that a brief specialist report should be included in the proposed summary publication, based on an expanded version of the above specialist report.

2.2 Charcoal fragments from the earliest rake-out deposits associated with the GP 3 smelting furnace (samples <102> and <107>) have the potential to be submitted for C14 dating to refine the chronology for the iron working on-site. An updated radiocarbon dating section including the results of C14 analysis of these should also be included in the final publication.

3.0 PUBLICATION PROJECT

3.1 Preliminary publication synopses

3.1.1 It is suggested that the results of the excavation should be published as an article (of c. 5000 words) in the local annual archaeological journal, the Sussex Archaeological Collections. This will comprise of an integrated text combining the results of all elements of fieldwork, including the evaluation. The text will include supporting specialist information, figures and photographs as necessary, and attempt to place the site in its local context, particularly with regards to the nearby sites to the east of Gravelye Lane (Nicholls 2014) and at Cullinghurst Wood (Hodgkinson 2008), but also within its regional context. The article will also address the updated research agenda identified in this excavation report.

3.1.2 This report should present a detailed chronological narrative of the site sequence, attempt to address the questions posed in the revised research agenda and would pursue the following suggested structure:

Working Title: *A Middle Iron Age Bloomery at Birchen Lane, West Sussex*

Introduction

- Circumstances of fieldwork
- Site location, geology and topography
- Archaeological and historical background

Excavation results

- The earliest recorded human activity on the site, as indicated by residual flintwork
- The extraction and primary processing of iron-ore in the Middle Iron Age period

- The apparent abandonment of the site in the Middle/ Late Iron Age transitional period

Specialist reports

- Metallugical material
- Radiocarbon analysis
- Other finds categories, which have no potential for further analysis, will be discussed within the site narrative

Discussion

- The evidence for early prehistoric exploitation of the landscape
- The pattern and function of the Middle Iron Age iron working features
- Regional patterns for Early/ Middle Iron Age metallurgical activities

Conclusions and future research

Acknowledgements
Bibliography

Stratigraphic Tasks	
Check the subgroup and group structure and alter if required	0.5 day
Define land uses and complete the land use register	0.5 day
Produce land use and period driven site narrative	1.5 days
Examine the site in the regional context of East Sussex and research sites of a similar type and date	2 days
Consider and integrate the specialist reports	1 day
Prepare and collate illustrations, and brief illustrators	0.5 day
Compile 1st draft of publication text with reference to the revised research aims and submit for review and editing	2 days
Post referee edits	1 day
Subtotal	**9 days**
Specialist Analysis	
Metallurgical Material	1 day
Environmental Material	0.5 days
Subtotal	**1.5 days**
C14 Dating Up to 2 dates (fee)	
Illustration	
Stratigraphic figures	1.5 days
Subtotal	**1.5 days**
Production	
Review and editing of the period-driven narrative	1 day
Project Management	0.5 day

Table 9: Resource for completion of the period-driven narrative of the site sequence

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APPENDIX 1: HER Summary

Site code	BIR15					
Project code	160746					
Planning reference	DM/15/3415					
Site address	Birchen Lane, Haywards Heath, West Sussex					
District/Borough	Mid Sussex District Council					
NGR (12 figures)	533280, 125810					
Geology	Ardlingly sandstone, Lower Tunbridge Wells Sand, Wadhurst Clay formation and Upper Tunbridge Wells Sand.					
Fieldwork type	Eval	**Excav**	**WB**	HBR	Survey	Other
Date of fieldwork	Exc: 12th - 30th September 2016 WB: 18th – 21st September 2017					
Sponsor/client	CgMs Consulting Ltd.					
Project manager	Paul Mason					
Project supervisor	Garrett Sheehan					
Period summary	Palaeolithic	**Mesolithic**	**Neolithic**	**Bronze Age**	**Iron Age**	
	Roman	Anglo-Saxon	**Medieval**	**Post-Medieval**	Other	
Project summary	An archaeological excavation and subsequent watching brief was conducted at Birchen Lane, West Sussex, between the 12th of September 2016 and the 21st of September 2017. This fieldwork comprised the excavation of a bloomery, identified during a prior archaeological evaluation. The bloomery comprised a bowl furnace and associated ore-quarry, with evidence of limited on-site primary smithing. This activity has been radiocarbon dated to the Middle Iron Age. Evidence of agricultural activity was also recorded from the 13th to earlier 19th centuries. A small residual lithic assemblage indicated low-level Late Mesolithic/ Early Neolithic to Middle Bronze Age activity on site. A subsequent watching brief was carried out, between the 18th and 21st of September 2017, during ground reduction for the new construction site compound and access through an adjacent hedgerow. No archaeological deposits, features or finds were encountered.					

APPENDIX 2: OASIS Form

OASIS ID: archaeol6-276008

Project details	
Project name	Land at Birchen Lane, Haywards Heath, West Sussex
Short description of the project	An archaeological excavation and watching brief were conducted at Birchen Lane, West Sussex, between the 12th of September 2016 and the 21st of September 2017. This fieldwork comprised the excavation of an iron working site, identified during a prior archaeological evaluation. This site comprised a bowl furnace and associated ore-quarry, with evidence of limited on-site primary smithing, which has been radiocarbon dated to the Middle Iron Age. The bloomery was sealed by a layer of colluvium, which had likely formed by the Late Iron Age. Evidence of low-level agricultural activity was recorded for the 13th and 18th to earlier 19th centuries. A small residual lithic assemblage indicated low-level Late Mesolithic/ Early Neolithic to Middle Bronze Age activity in the vicinity of the site. A subsequent watching brief was carried out, between the 18th and 21st of September 2017, during ground reduction for the new construction site compound and access through an adjacent hedgerow. No archaeological deposits, features or finds were encountered.
Project dates	Start: 12-09-2016 End: 21-09-2017
Previous/future work	Yes / No
Any associated project reference codes	BIR 15 - Sitecode
Type of project	Recording project
Site status	None
Current Land use	Grassland Heathland 1 - Heathland
Monument type	BLOOMERY Middle Iron Age
Significant Finds	SLAG Middle Iron Age
Significant Finds	POTTERY Middle Iron Age
Significant Finds	LITHICS Mesolithic
Significant Finds	LITHICS Neolithic
Significant Finds	LITHICS Early Bronze Age
Significant Finds	LITHICS Middle Bronze Age
Project location	
Country	England
Site location	WEST SUSSEX MID SUSSEX LINDFIELD Birchen Lane
Postcode	RH16
Study area	0.25 Hectares
Site coordinates	TQ 533280 125810 50.891753472664 0.180355328196 50 53 30 N 000 10 49 E Point

Prompt	Planning condition
Height OD / Depth	Min: 46m Max: 53m
Project creators	
Name of Organisation	Archaeology South-East
Project brief originator	CgMs Consulting
Project design originator	CgMs Consulting
Project director/manager	Paul Mason
Project supervisor	Garrett Sheehan
Type of sponsor/funding body	Consultant
Name of sponsor/funding body	CgMs
Project archives	
Physical Archive recipient	Lewes Museum
Physical Contents	"Metal"
Digital Archive recipient	Lewes Museum
Digital Contents	"Metal"
Digital Media available	"Database","GIS","Geophysics","Images raster / digital photography","Survey","Text"
Paper Archive recipient	Lewes Museum
Paper Contents	"Metal"
Paper Media available	"Context sheet","Correspondence","Drawing","Map","Matrices","Notebook - Excavation',' Research',' General Notes","Photograph","Plan","Report","Section","Survey ","Unpublished Text"
Entered by	Garrett Sheehan (g.sheehan@ucl.ac.uk)
Entered on	25 October 2017

APPENDIX 3: Excavation Context Register

Context	Type	Interpretation	L (m)	W (m)	D/T (m)	Group	Sub Group	Landuse	Period
100	Layer	Topsoil	-	-			94	OA7	4
101	Layer	Subsoil	-	-	0.3	23	88	OA4	4
102	Layer	Colluvium	-	-	0.65m	10	44	OA3	3
103	Layer	Geological substrate	-	-	-	22	87	OA1	1
104	Fill	Fill of [106]	0.77	0.65	0.09	8	52	OA2	2.3
105	Fill	Heat (?) affected geological substrate at base of pit [106]	0.77	0.65	0.03	8	51	OA2	2.3
106	Cut	Pit	0.77	0.65	0.09	8	50	OA2	2.3
107	Fill	Fill of [108]	1.25	0.98	0.19	9	49	OA2	2.3
108	Cut	Pit	1.25	0.98	0.19	9	48	OA2	2.3
109	Fill	Colluvium filling [110]	6.6	5.55	0.65	13	2	OA3	3
110	Cut	Quarry?	6.6	5.55	0.65	3	1	OA2	2.3
111	Fill	Colluvium filling [112]	-	2.84	0.24	13	6	OA3	3
112	Cut	Quarry?	-	2.84	0.24	3	3	OA2	2.3
113	Fill	Fill of [114]	0.09	0.09	0.06	12	5	OA2	2.3
114	Cut	Stakehole	0.09	0.09	0.06	12	5	OA2	2.3
115	Fill	Fill of [116]	0.31	0.26	0.12	33	4	OA2	2.3
116	Cut	Posthole	0.31	0.26	0.12	33	4	OA2	2.3
117	Cut	Furnace Same as [144] and [6/006]	0.85	0.82	0.21	4	41	ST1	2.3
118	Cut	Quarry/ rake-out pit Same as [6/008]	5.7	1.75	1.02	3	16	OA2	2.3
119	Layer	Colluvium sealing fills of [118]	5.6	1.5	0.23	10	19	OA3	3
120	Fill	Final furnace rake-out / demolition Fill of [118]	2.4	1.5	0.3	5	18	OA2	2.3

Context	Type	Interpretation	L (m)	W (m)	D/T (m)	Group	Sub Group	Landuse	Period
121	Fill	Furnace rake-out Fill of [118]	5.3	0.96	0.24	3	17	OA2	2.3
122	Fill	Fill of [122]	0.95	0.65	0.16	7	55	OA2	2.3
123	Cut	Pit	0.95	0.65	0.16	7	53	OA2	2.3
124	Fill	Fill of [125]	0.06	0.06	0.16	7	54	OA2	2.3
125	Cut	Stakehole	0.06	0.06	0.16	7	54	OA2	2.3
126	Void								
127	Void								
128	Fill	Fill - ore extraction upcast Fill of [118]	0.4	0.28	0.23	3	17	OA2	2.3
129	Fill	Fill - trample layer Fill of [118]	0.5	0.48	0.15	3	17	OA2	2.3
130	Fill	Fill - ore extraction upcast Fill of [118]	0.96	0.8	0.14	3	17	OA2	2.3
131	Fill	Furnace rake-out Fill of [118]	1.1	0.78	0.12	3	17	OA2	2.3
132	Fill	Fill - ore extraction upcast Fill of [118]	2	1	0.15	3	17	OA2	2.3
133	Fill	Furnace rake-out Fill of [118]	1.9	0.9	0.14	3	17	OA2	2.3
134	Fill	Fill - ore extraction upcast Fill of [118]	2	1.02	0.38	3	17	OA2	2.3
135	Fill	Furnace rake-out Fill of [118]	2	0.2	0.06	3	17	OA2	2.3
136	Fill	Fill - ore extraction upcast Fill of [118]	1.6	0.2	0.2	3	17	OA2	2.3
137	Fill	Furnace rake-out Fill of [118]	2.3	1.8	0.15	3	17	OA2	2.3
138	Fill	Basal fill - trample layer Fill of [118]	2.1	0.75	0.11	3	17	OA2	2.3
139	Fill	Fill - ore extraction upcast Fill of [118]	2.4	0.6	0.4	3	17	OA2	2.3
140	Fill	Fill - ore extraction upcast Fill of [118]	3.1	1.4	0.36	3	17	OA2	2.3
141	Fill	Disuse/ superstructure demolition fill within furnace Fill of [117]. Same as [145] and [6/009]	0.85	0.82	0.14	5	43	OA2	2.3
142	Fill	Basal fill of furnace [117]. Same as [146] and [6/010]	0.8	0.6	0.08	4	42	ST1	2.3

Context	Type	Interpretation	L (m)	W (m)	D/T (m)	Group	Sub Group	Landuse	Period
143	Layer	Lining - oxidised geological substrate at base of furnace [117]. Same as [147] and [6/011]	1.1	1	0.06	4	41	ST1	2.3
144	Cut	Furnace Same as [117]	0.8	0.6	0.1	4	45	ST1	2.3
145	Fill	Disuse/ superstructure demolition fill within furnace-[144]. Same as [141] and [6/009]	0.57	0.45	0.06	5	47	OA2	2.3
146	Fill	Basal fill of furnace [144] Same as [142] and [6/010]	0.63	0.62	0.02	4	46	ST1	2.3
147	Layer	Lining – heat-affected geological substrate at base of furnace Same as [143] and [6/011]	0.8	0.63	0.05	4	45	ST1	2.3
148	Void								
149	Void								
150	Cut	Stakehole	0.05	0.05	0.08	35	89	ST1	2.3
151	Fill	Fill of [150]	0.05	0.05	0.08	35	89	ST1	2.3
152	Cut	Stakehole	0.05	0.05	0.07	36	90	ST1	2.3
153	Fill	Fill of [152]	0.05	0.05	0.07	36	90	ST1	2.3
154	Cut	Stakehole	0.03	0.03	0.04	37	91	ST1	2.3
155	Fill	Fill of [154]	0.03	0.03	0.04	37	91	ST1	2.3
156	Cut	Stakehole	0.04	0.04	0.07	38	92	ST1	2.3
157	Fill	Fill of [156]	0.04	0.04	0.07	38	92	ST1	2.3
158	Cut	Quarry/ rake-out pit	5.77	1	0.46	3	23	OA2	2.3
159	Layer	Colluvium sealing fills of [158]	5.77	1	0.46	10	25	OA3	3
160	Fill	Ore extraction upcast Fill of [158]	1.4	0.41	0.22	3	24	OA2	2.3
161	Cut	Pit	0.56	0.5	0.15	6	22	OA2	2.1
162	Fill	Fill of [161]	0.56	0.5	0.15	6	22	OA2	2.1
163	Layer	Alluvial deposit cut by quarry [158]	2	1	0.19	2	21	OA2	2.2

Context	Type	Interpretation	L (m)	W (m)	D/T (m)	Group	Sub Group	Landuse	Period
164	Cut	Drain	2.5	0.27	0.1	24	65	OA5	4
165	Fill	Fill of [164]	2.5	0.27	0.1	24	65	OA5	4
166	Cut	Drain	3.35	0.2	0.43	20	66	OA5	4
167	Fill	Fill of [166]	3.35	0.2	0.43	20	66	OA5	4
168	Cut	Posthole	0.33	0.28	0.1	21	60	FS1	4
169	Fill	Fill of [168]	0.33	0.28	0.1	21	60	FS1	4
170	Cut	Posthole	0.32	0.29	0.28	30	61	FS1	4
171	Fill	Fill of [170]	0.32	0.29	0.18	30	61	FS1	4
172	Cut	Quarry/ rake-out pit	4	1	0.88	3	29	OA2	2.3
173	Fill	Colluvium sealing fills of [172]	4	1	0.65	10	31	OA3	3
174	Layer	Allluvium cut by [172]	1	0.8	0.6	2	28	OA2	2.2
175	Fill	Fill of [199] - ore extraction upcast	1	0.54	0.2	1	27	OA2	2.1
176	Fill	Fill of [199] - Furnace rake-out	1	0.68	0.04	1	27	OA2	2.1
177	Fill	Fill of [172] - ore extraction upcast	3.14	1	0.3	3	30	OA2	2.3
178	Fill	Fill of [118] - trample layer	0.6	0.4	0.1	3	17	OA2	2.3
179	Fill	Fill of [118] - Furnace rake-out	1	0.5	0.1	3	17	OA2	2.3
180	Fill	Fill of [118] - ore extraction upcast	1.2	0.75	0.16	3	17	OA2	2.3
181	Fill	Fill of [118] - ore extraction upcast	1.2	0.75	0.16	3	17	OA2	2.3
182	Layer	Alluvial deposit cut by [118]	3	1.6	0.35	2	15	OA2	2.2
183	Fill	Fill of [172] - Furnace rake-out	2.7	0.5	0.06	3	30	OA2	2.3
184	Fill	Fill of [172]	2.1	0.5	0.1	3	30	OA2	2.3
185	Fill	Fill of [172] - Furnace rake-out	1.2	0.5	0.06	3	30	OA2	2.3
186	Fill	Fill of [172] - Furnace rake-out	1.26	0.5	0.07	3	30	OA2	2.3
187	Fill	Fill of [172] - ore extraction upcast	1.6	0.5	0.12	3	30	OA2	2.3
188	Fill	Basal fill of [199] - trample layer	0.6	0.5	0.06	1	1	OA2	2.1

Context	Type	Interpretation	L (m)	W (m)	D/T (m)	Group	Sub Group	Landuse	Period
189	Void								
190	Void								
191	Void								
192	Cut	Quarry	3.44	1	0.84	3	35	OA2	2.3
193	Fill	Basal fill of [192]	2.09	1	0.46	3	36	OA2	2.3
194	Fill	Colluvium sealing fills of [192]	3.44	1	0.57	10	37	OA3	3
195	Fill	Fill of [172] - ore extraction upcast	0.8	0.5	0.12	3	30	OA2	2.3
196	Void								
197	Void								
198	Void								
199	Cut	Quarry				1	26	OA2	2.1
200	Cut	Quarry				1	20	OA2	2.1
201	Cut	Quarry				1	14	OA2	2.1

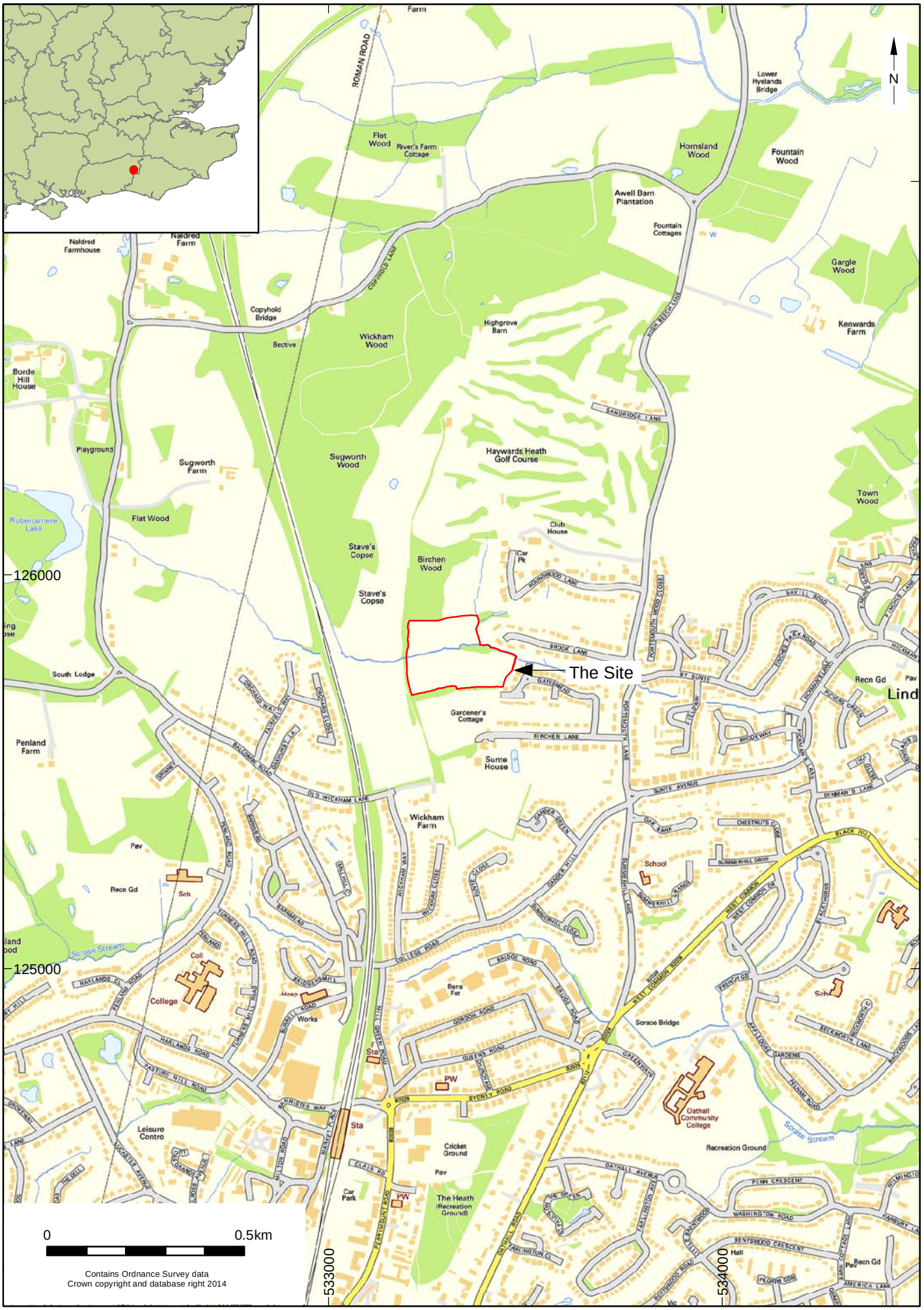
APPENDIX 4: Evaluation Context Register

Trench	Context	Type	Interpretation	Depth/ Thickness (m)
T1	1/001	Layer	Topsoil	0.5
T1	1/002	Layer	Subsoil	0.44
T1	1/003	Layer	Natural	-
T1	1/004	Fill	Colluvium	0.48
T1	1/005	Cut	Quarry?	0.48
T2	2/001	Layer	Topsoil	0.22
T2	2/002	Layer	Subsoil	0.42
T2	2/003	Layer	Natural	-
T3	3/001	Layer	Topsoil	0.45
T3	3/002	Layer	Subsoil	0.19
T3	3/003	Layer	Natural	-
T4	4/001	Layer	Topsoil	0.6
T4	4/002	Layer	Subsoil	0.6
T4	4/003	Layer	Natural	0
T4	4/004	Layer	Colluvium	0.4
T5	5/001	Layer	Topsoil	0.32
T5	5/002	Layer	Subsoil	0.12
T5	5/003	Layer	Natural	0
T5	5/004	Cut	Land drain	0.36
T5	5/005	Fill	Primary fill of [5/004]	0.1
T5	5/006	Fill	Secondary fill of [5/004]	0.26
T5	5/007	Fill	Fill, of [5/008]	0.04
T5	5/008	Cut	Posthole	0.04
T6	6/001	Layer	Topsoil	0.39
T6	6/002	Layer	Subsoil	0.2
T6	6/003	Layer	Natural	0
T6	6/004	Cut	Hollow/ quarry	0.4
T6	6/005	Fill	Primary silt fill of [6/004]	0.3
T6	6/006	Cut	Furnace	0.2
T6	6/007	Layer	Colluvium/ alluvium sealing [6/004]	0.8
T6	6/008	Cut	Rake-out/ quarry pit	0.58
T6	6/009	Fill	Secondary fill of [6/006]	0.14
T6	6/010	Fill	Primary fill of [6/006]	0.12
T6	6/011	Layer	Lining of furnace	0.06
T6	6/012	Fill	Fill of [6/008] - furnace demolition layer	0.35
T6	6/013	Fill	Fill of [6/008] - ore extraction upcast	0.37
T6	6/014	Fill	Fill of [6/008] - furnace rake-out	
T6	6/015	Fill	Fill of [6/008]- ore extraction upcast	

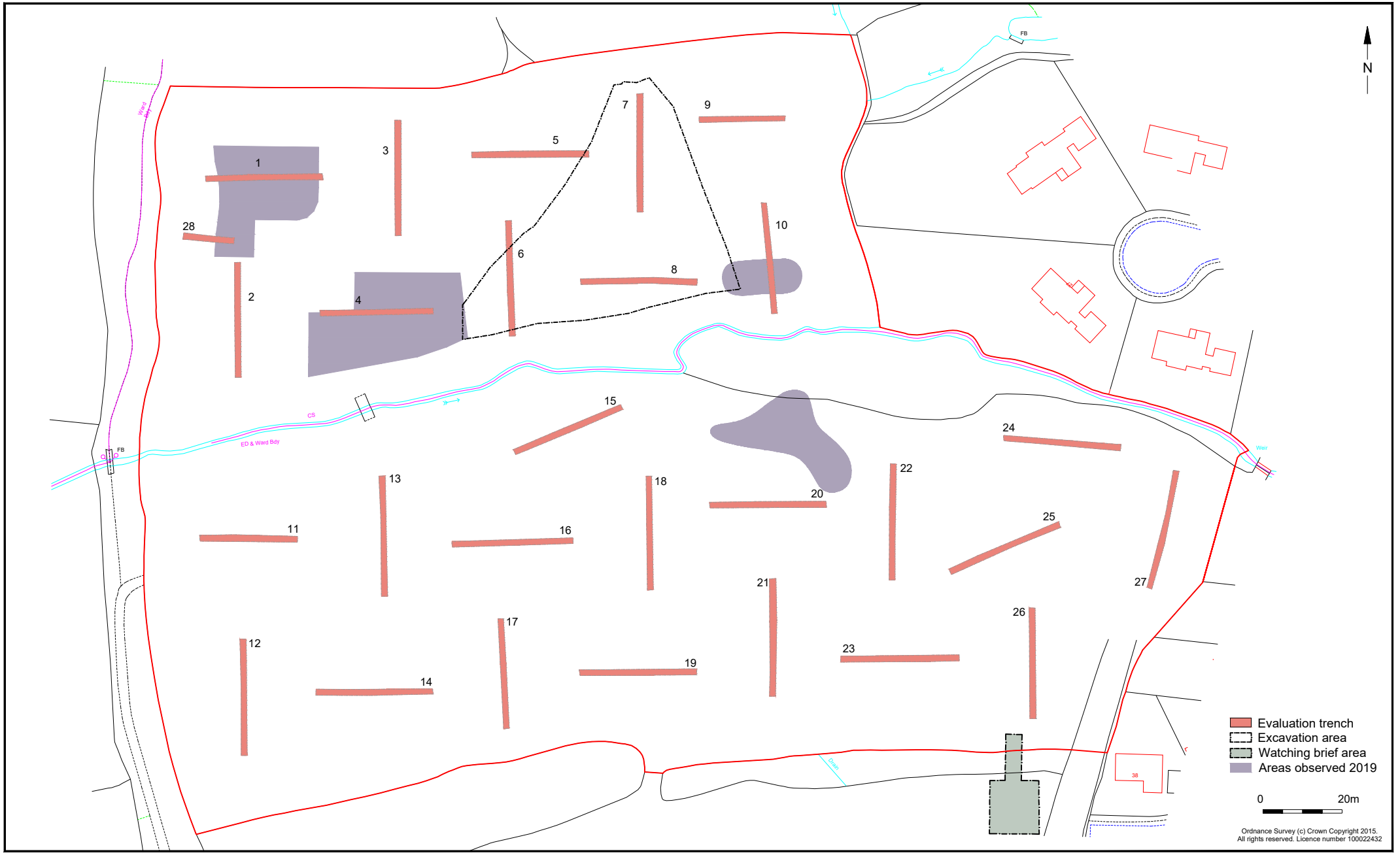
Trench	Context	Type	Interpretation	Depth/ Thickness (m)
T6	6/016	Cut	Rake-out/ quarry pit same as [6/008]	
T6	6/017	Fill	Fill of [6/016]	
T6	6/018	Fill	Tertiary silt fill of [6/004]	
T6	6/019	Fill	Secondary fill of [6/004] - poss. furnace rake-out	
T6	6/020	Layer	Colluvium sealing fills of [6/008]	
T6	6/021	Fill	Same as [6/010]	
T6	6/022	Fill	Same as [6/009]	
T7	7/001	Layer	Topsoil	0.38
T7	7/002	Layer	Subsoil	0.4
T7	7/003	Layer	Natural	0
T7	7/004	Layer	Natural	0.23
T7	7/005	Fill	Natural alluvial deposit	1.2
T7	7/006	Cut	Palaeochannel	1.2
T8	8/001	Layer	Topsoil	0.35
T8	8/002	Layer	Subsoil	0.15
T8	8/003	Layer	Natural	0
T8	8/004	Fill	Fill of [8/005]	0.2
T8	8/005	Cut	Drain	0.2
T8	8/006	Fill	Fill of [8/007]	
T8	8/007	Cut	Drain	
T8	8/008	Fill	Fill of [8/009]	0.05
T8	8/009	Cut	Posthole	0.05
T9	9/001	Layer	Topsoil	0.45
T9	9/002	Layer	Subsoil	0.35
T9	9/003	Layer	Natural	0
T9	9/004	Fill	Fill of [9/005]	0.7
T9	9/005	Cut	Land drain	0.7
T9	9/006	Fill	Fill of [9/007]	0
T9	9/007	Cut	Land drain	0
T9	9/008	Fill	Fill of [9/009]	0
T9	9/009	Cut	Land drain	0
T9	9/010	Layer	Natural	0
T9	9/011	Layer	Natural	0.3
T9	9/012	Void		
T9	9/013	Layer	Natural alluvial deposit	0.1
T10	10/001	Layer	Topsoil	0.3
T10	10/002	Layer	Subsoil	0.3
T10	10/003	Layer	Natural	0
T10	10/004	Fill	Natural alluvial deposit	0.3
T10	10/005	Cut	Palaeochannel	0.3

Trench	Context	Type	Interpretation	Depth/ Thickness (m)
T11	11/001	Layer	Topsoil	0.25
T11	11/002	Layer	Subsoil	0.2
T11	11/003	Layer	Natural	0
T12	12/001	Layer	Topsoil	0.26
T12	12/002	Layer	Subsoil	0.35
T12	12/003	Layer	Natural	0
T12	12/004	Cut	Pit	0.1
T12	12/005	Fill	Fill of [12/004]	0.1
T12	12/006	Cut	Pit	0.17
T12	12/007	Fill	Fill of [12/006]	0.17
T12	12/008	Cut	Pit	0.25
T12	12/009	Fill	Fill of [12/008]	0.25
T13	13/001	Layer	Topsoil	0.3
T13	13/002	Layer	Subsoil	0.3
T13	13/003	Layer	Natural	0
T14	14/001	Layer	Topsoil	0.4
T14	14/002	Layer	Subsoil	0.3
T14	14/003	Layer	Natural	0
T15	15/001	Layer	Topsoil	0.3
T15	15/002	Layer	Subsoil	0.21
T15	15/003	Layer	Natural	0
T16	16/001	Layer	Topsoil	0.22
T16	16/002	Layer	Subsoil	0.22
T16	16/003	Layer	Natural	0
T17	17/001	Layer	Topsoil	0.28
T17	17/002	Layer	Subsoil	0.18
T17	17/003	Layer	Natural	0
T18	18/001	Layer	Topsoil	0.24
T18	18/002	Layer	Subsoil	0.26
T18	18/003	Layer	Natural	0
T19	19/001	Layer	Topsoil	0.28
T19	19/002	Layer	Subsoil	0.18
T19	19/003	Layer	Natural	0
T20	20/001	Layer	Topsoil	0.22
T20	20/002	Layer	Subsoil	0.2
T20	20/003	Layer	Natural	0
T20	20/004	Cut	Land drain	0.6
T21	21/001	Layer	Topsoil	0.27
T21	21/002	Layer	Subsoil	0.23
T21	21/003	Layer	Natural	0
T22	22/001	Layer	Topsoil	0.25

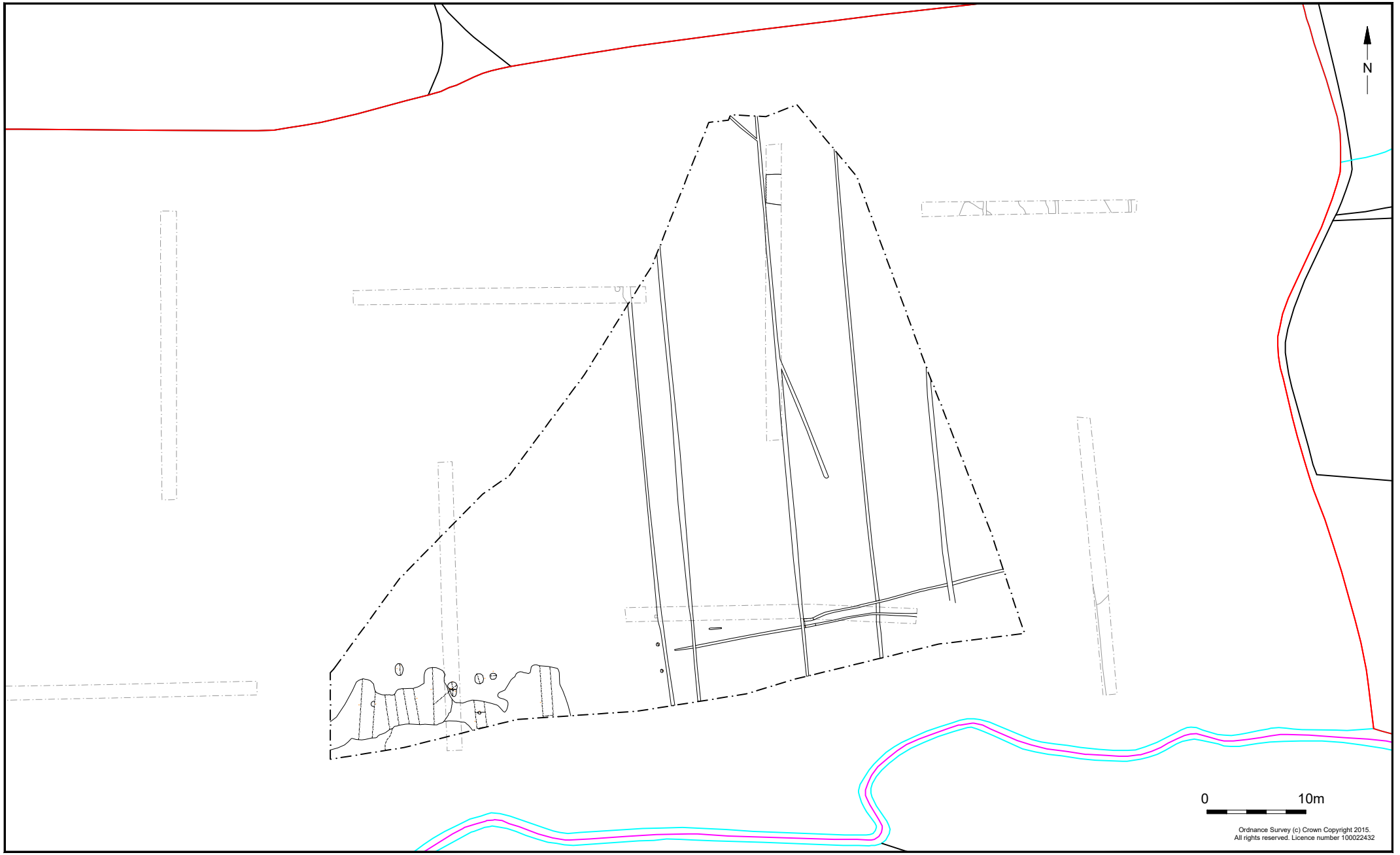
Trench	Context	Type	Interpretation	Depth/ Thickness (m)
T22	22/002	Layer	Subsoil	0.18
T22	22/003	Layer	Natural	0
T23	23/001	Layer	Topsoil	0.26
T23	23/002	Layer	Subsoil	0.18
T23	23/003	Layer	Natural	0
T24	24/001	Layer	Topsoil	0.24
T24	24/002	Layer	Subsoil	0.22
T24	24/003	Layer	Natural	0
T25	25/001	Layer	Topsoil	0.25
T25	25/002	Layer	Subsoil	0.22
T25	25/003	Layer	Subsoil	0.26
T25	25/004	Layer	Natural	0
T25	25/005	Cut	Ditch	0.14
T25	25/006	Fill	Fill, single	0.14
T26	26/001	Layer	Topsoil	0.23
T26	26/002	Layer	Subsoil	0.16
T26	26/003	Layer	Natural	0
T27	27/001	Layer	Topsoil	0.2
T27	27/002	Layer	Subsoil	0.25
T27	27/003	Layer	Natural	0
T28	28/001	Layer	Topsoil	0.42
T28	28/002	Layer	Subsoil	0.5
T28	28/003	Layer	Natural	0
T28	28/004	Layer	Colluvium	0.5
T28	28/005	Layer	Colluvium	0.2
T28	28/006	Cut	Hollow	



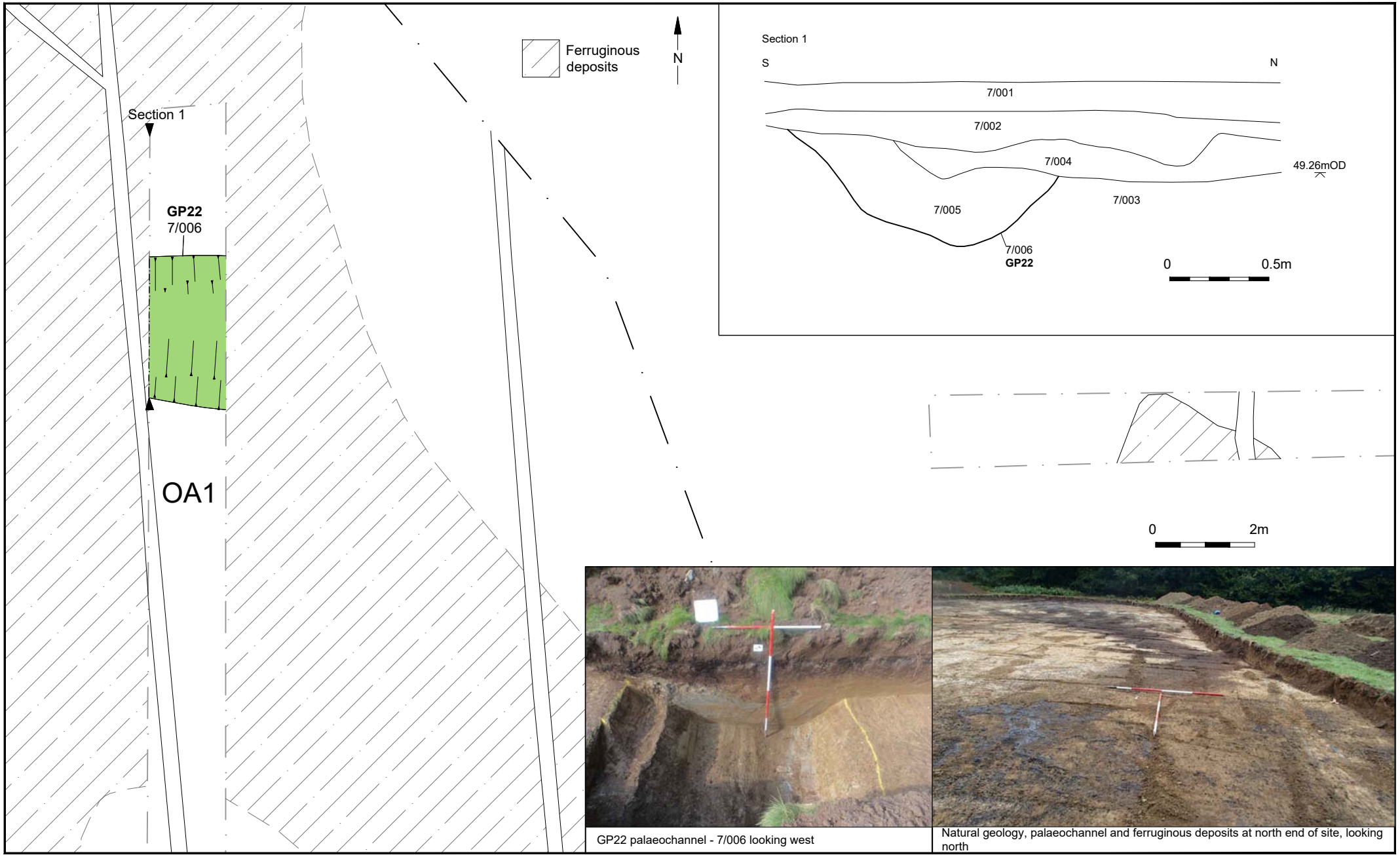
© Archaeology South-East		Birchen Lane, Haywards Heath	Fig. 1
Project Ref: 160746	February 2017	Site location	
Report Ref: 2017039	Drawn by: NH		



© **Archaeology South-East**		Birchen Lane, Haywards Heath	Fig. 2
Project Ref: 160746	October 2017	Location of evaluation trenches and excavation area	
Report Ref: 2017039	Drawn by: NH		



© Archaeology South-East		Birchen Lane, Haywards Heath	Fig. 3
Project Ref: 160746	February 2017	Site Plan Showing Excavated Features	
Report Ref: 2017039	Drawn by: NH		

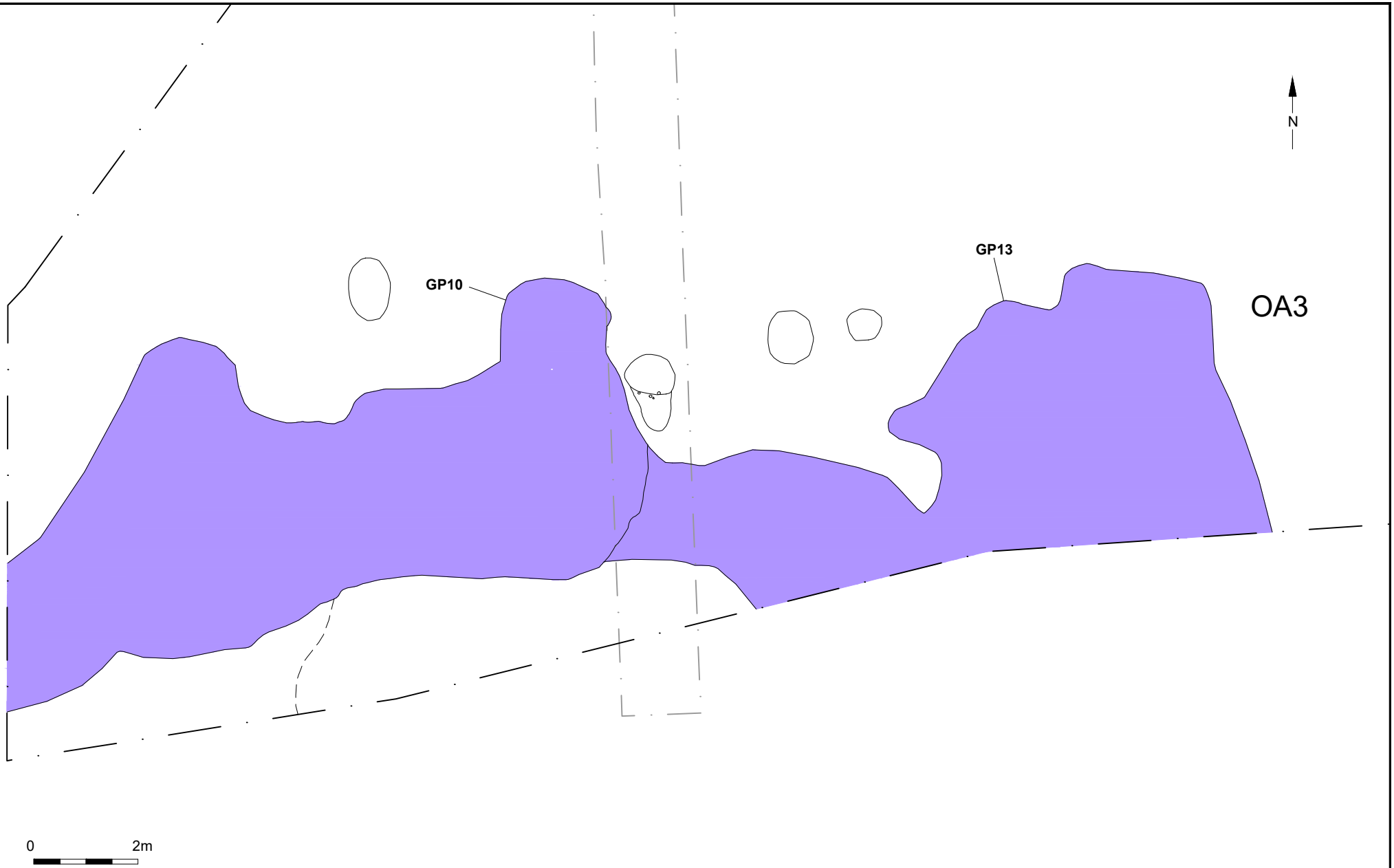


GP22 palaeochannel - 7/006 looking west

Natural geology, palaeochannel and ferruginous deposits at north end of site, looking north

© Archaeology South-East		Birchen Lane, Haywards Heath	Fig. 4
Project Ref: 160746	February 2017	Period 1: Natural geology and Early Prehistoric plan (of excavated areas), sections and photos	
Report Ref: 2017039	Drawn by: NH		

© Archaeology South-East		Birchen Lane, Haywards Heath	Fig. 5
Project Ref: 160746	February 2017	Period 2: Middle Iron Age plan	
Report Ref: 2017039	Drawn by: NH		



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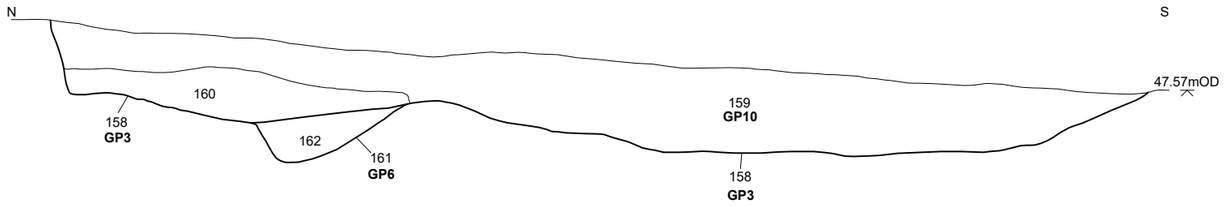
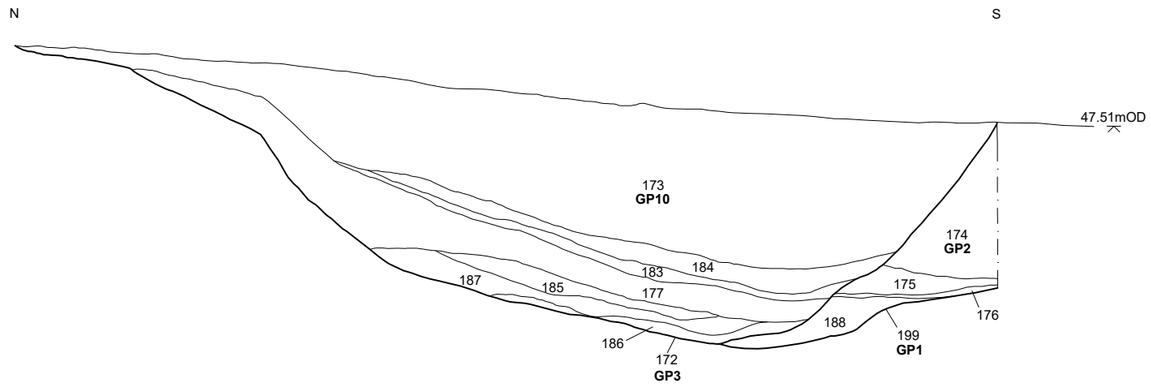
Project Ref: 160746	February 2017	Period 3: Middle/Late Iron Age plan	
Report Ref: 2017039	Drawn by: NH		

Section 2



Section 3

Section 4



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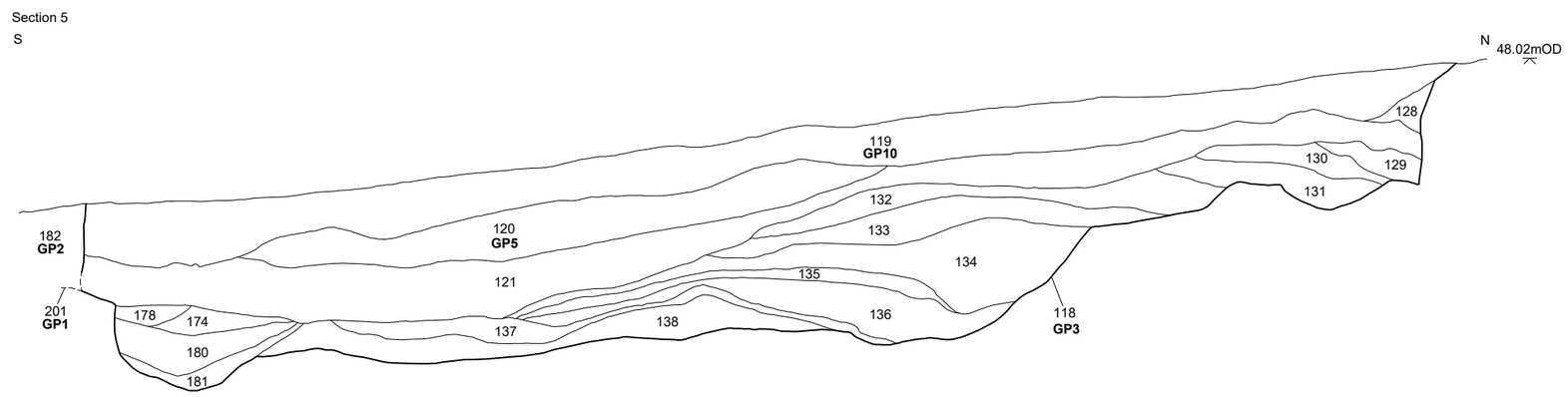
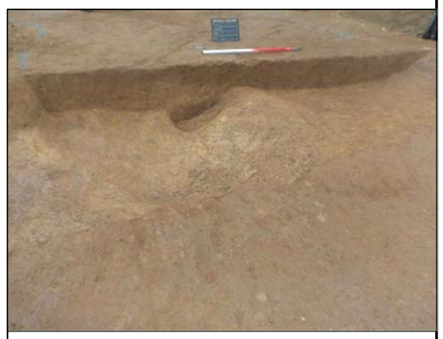


0 0.5m



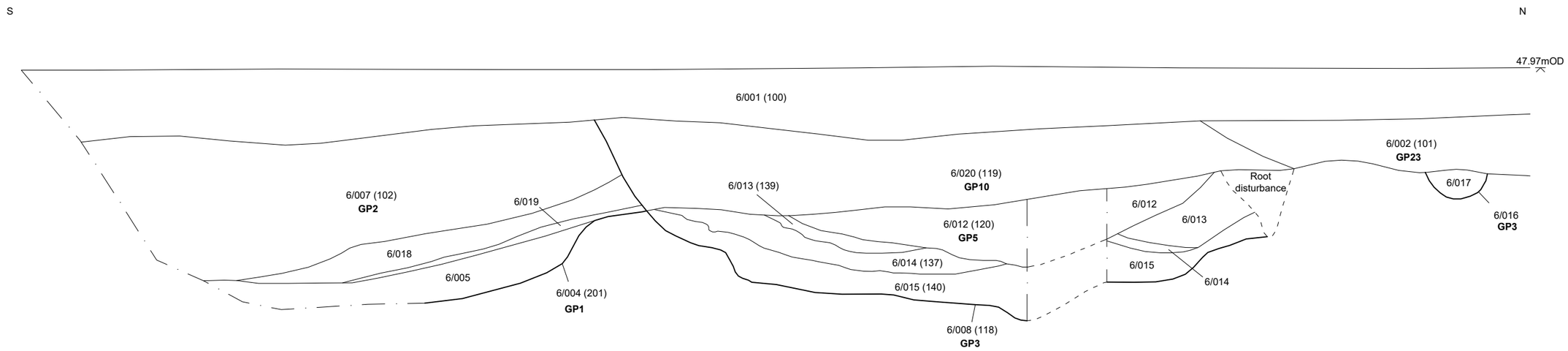
GP6 pit - 161 and GP3 quarry - 158, looking east

West end of GP3 quarry looking east-northeast

GP3 quarry - 118, looking east, showing alternating quarrying up-cast and rake-out deposits

© **Archaeology South-East**		Birchen Lane, Haywards Heath	Fig. 7
Project Ref: 160746	February 2017	Periods 2 - 3: Iron Age sections and photos	
Report Ref: 2017039	Drawn by: NH		

Section 6



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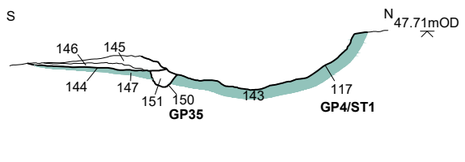
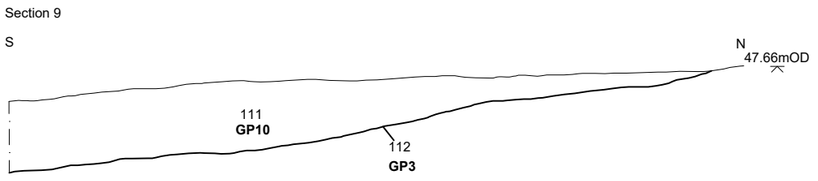


Section 8

Section 9



Heat affected natural

0 0.5m

GP1 quarry - 6/004 looking west

GP4 furnace - 117 and GP3 quarry - 118 looking southeast

GP3 quarry - 112 and GP4 colluvium looking southwest

GP4 furnace - 117 looking south

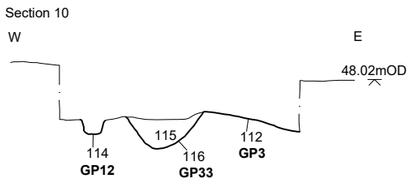
Project Ref: 160746	February 2017
Report Ref: 2017039	Drawn by: NH

Birchen Lane, Haywards Heath

Periods 2 - 3: Iron Age sections and photos

Fig. 8

Section 10



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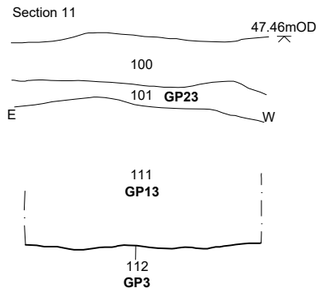
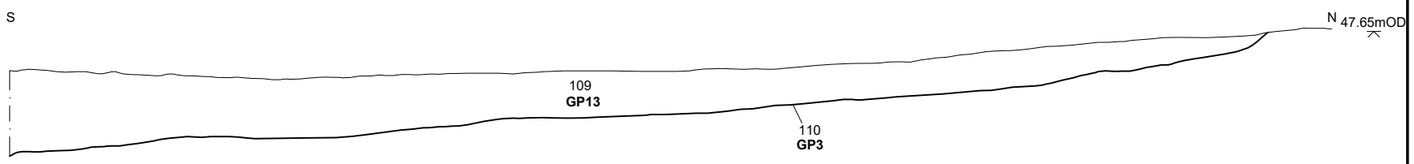


Section 12



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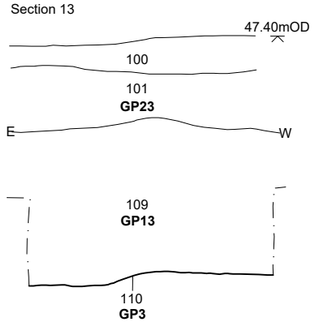

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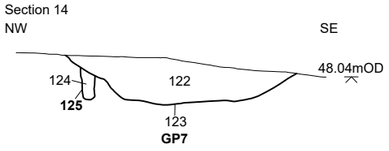

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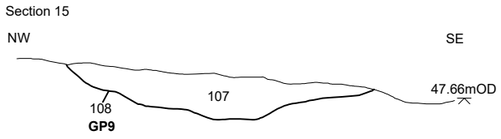

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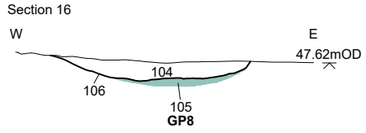


Heat affected natural

0 0.5m

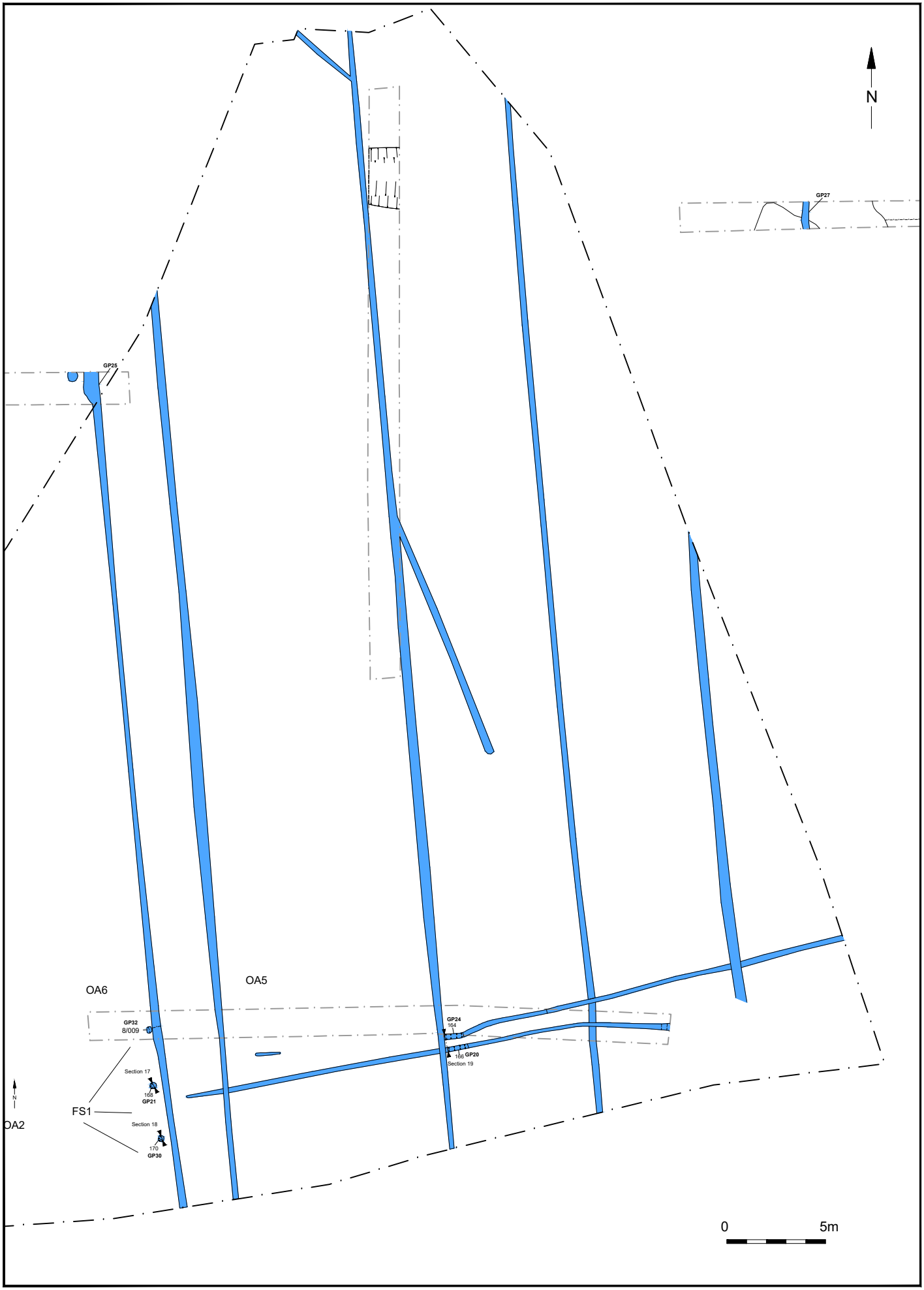
GP12 stakehole - 114, GP33 posthole - 116 cut into north slope of GP3 quarry - 112, looking north

GP7 pit - 123 and SG 54 stakehole - 125 looking northeast

GP9 pit - 108 looking east

GP8 pit - 106 looking north

Project Ref: 160746	February 2017	Birchen Lane, Haywards Heath	Fig. 9
Report Ref: 2017039	Drawn by: NH	Periods 2 - 3: Iron Age sections and photos	



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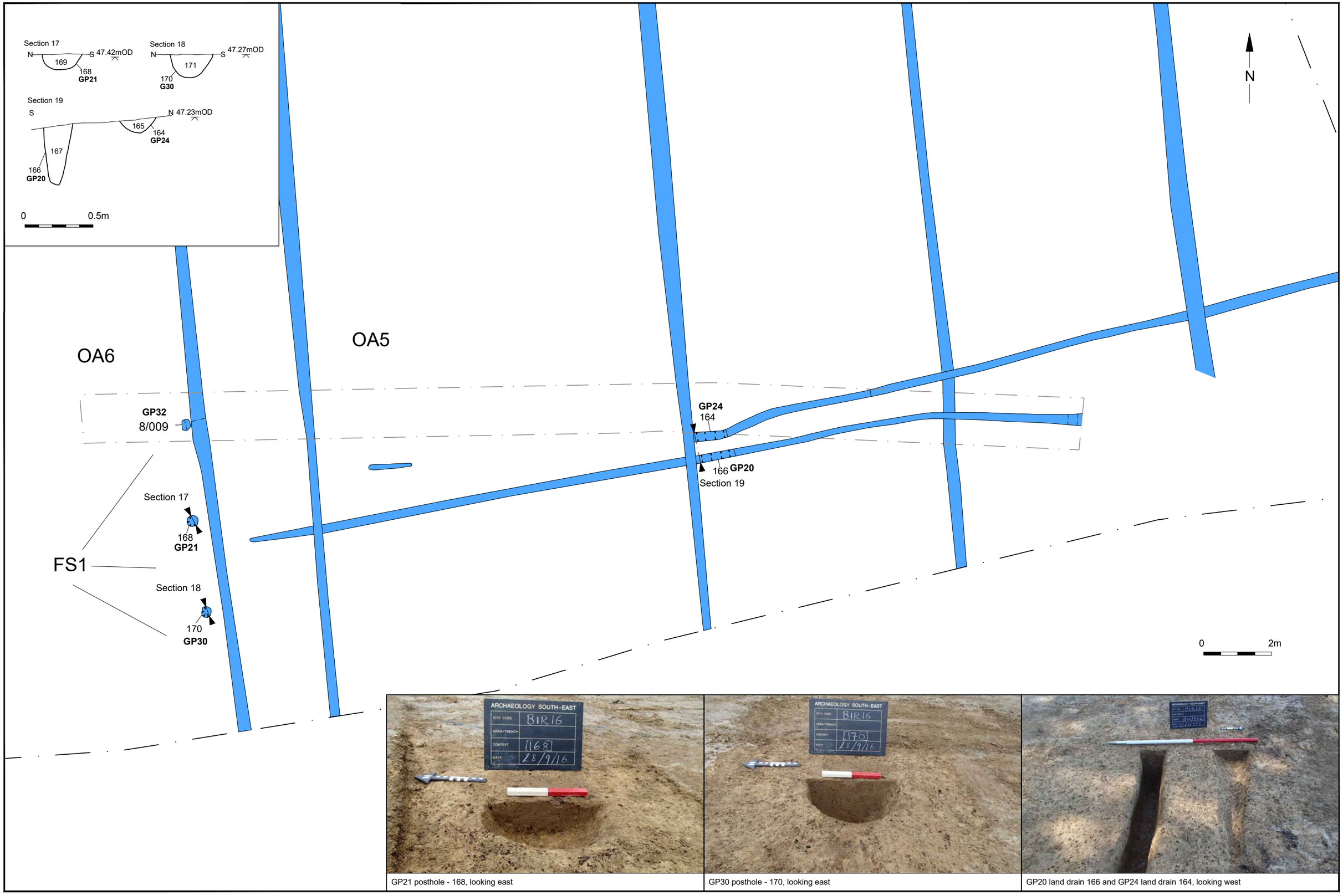
Project Ref: 160746	February 2017	Period 4: Post medieval plan	
Report Ref: 2017039	Drawn by: NH		



GP21 posthole - 168, looking east

GP30 posthole - 170, looking east

GP20 land drain 166 and GP24 land drain 164, looking west

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Project Ref: 160746	February 2017	Period 4: Post Medieval plan, sections and photos	
Report Ref: 2017039	Drawn by: NH		

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Project Ref: 160746	February 2017	Location of the site on Gardner and Gream 1795 map of Sussex	
Report Ref: 2017039	Drawn by: NH		

Plate 1: Stripping the compound area (looking south)

Plate 2: Stripping the compound area (looking north)

Plate 3: Stripped compound area showing breach though hedgerow in distance (looking north)

Plate 4: Breaching the hedgerow (looking south)

Plate 5: The hedgerow ridge (looking west)

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