

**A POST-EXCAVATION ASSESSMENT
AND UPDATED PROJECT DESIGN REPORT**

Land at Oldlands Farm, Bognor Regis, West Sussex

Planning Ref: BE/73/14/PL

NGR: 494307 101946

ASE proj no: 6594, 7006

Site Code: OFB14

ASE Report No: 2015088

OASIS id: archaeol6-210021



Andrew Margetts

**With contributions by
Lucy Allott, Luke Barber, Trista Clifford, Anna Doherty,
Hayley Forsyth, Kristina Krawiec, Dawn Mooney,
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Abstract

This report presents the results of an extensive programme of archaeological trenching, strip, map and sample investigations, and geotechnical watching brief carried out by Archaeology South-East (ASE) on land at Oldlands Farm, Bognor Regis, West Sussex for CgMs Consulting Ltd on behalf of the client Bericote Properties Ltd. The work was undertaken between June and November 2014. The archaeological excavation area totalled c. 3.3 hectares with additional trenching, test pitting and borehole survey. The work was conducted prior to the creation of a Flood Compensation Area. The main development area was to receive imported material to raise levels between 0.5 m and 1.5m above existing levels and therefore a design solution was apparent to mitigate the impact of this part of the development. The fieldwork and post-excavation assessment stage was conducted under the overall management of CgMs Consulting Ltd on behalf of their client.

The excavations represent one of a small number of large archaeological investigations conducted on the West Sussex Coastal Plain. It complements recent projects at Medmerry (Stephenson forthcoming) and North Bersted (Taylor et al. 2015). Archaeological work related to the wider development of the area has been carried out in the immediate surrounding of the site including the Bognor Regis Northern Relief Road (Archaeophysica 2014; ASE 2014c; Cotswold 2008; Wessex 2007). The site lies on the interfluvium between the Aldingbourne and Lydsey Rife, is in close proximity to the medieval hamlet and manor of Shripney and was previously laid to arable bounded by drainage ditches and mature hedgerows.

Archaeological remains dating from the Mesolithic to the post-medieval period were encountered including important Late Neolithic/Early Bronze Age features associated with occurrences of Grooved Ware pottery; a rare find from Sussex in general. Also found at the site was extensive evidence of Middle and Late Bronze Age occupation, land division, enclosure and funerary activity as well as Middle Iron Age-Later Romano-British remains and a medieval strip field system.

This report is written and structured so as to conform to the required standards for post-excavation analysis work. Preliminary analysis of the stratigraphic, finds and environmental data has highlighted the potential of the site to address the original research aims. The significance of the findings has also been assessed. Together these elements have been drawn together to produce a new research agenda and task list suggesting what further work is needed in order to enable suitable dissemination of the findings by final publication.

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1 INTRODUCTION

1.1 Site Location

- 1.1.1 Archaeology South-East (ASE), the contracting division of The Centre for Applied Archaeology at the Institute of Archaeology, University College London, were commissioned by CgMs Consulting Ltd, to undertake an archaeological excavation at Oldlands Farm, Bognor Regis, West Sussex. This was in response to a planning application made by Bericote Properties Limited for the “Erection of 2no. detached industrial/distribution units (B1(c)/B2/B8) including access and servicing arrangements, car parking, landscaping and associated Flood Compensation Area”. The excavation with which this document is concerned is related solely to the Flood Compensation Area.
- 1.1.2 The site comprises agricultural land to the north of Bognor Regis immediately east of the medieval hamlet of Shripney. It is bounded by the A29 to the west, the relief road easement to the south and agricultural land to the north and east. The wider development area extends northwards towards Sack Lane, southward towards Steyning Way, and eastwards towards the railway line (Figure 1; National Grid Reference centred on 494307 101946).
- 1.1.3 The fieldwork was conducted in accordance with the agreed Written Scheme of Investigation (ASE 2014a) and comprised geotechnical monitoring and evaluation of the wider development area as well as ‘strip, map and sample excavations’ of the Flood Compensation Area which lies entirely to the north of the relief road. This would lead to full excavation where significant archaeological remains were encountered.

1.2 Geology & Topography

- 1.2.1 The underlying geology of the wider development area comprises the heavily weathered Cretaceous Chalk of the Culver Formation, overlain by cryoturbated Middle-Late Pleistocene Calcareous Basin Deposits. The drift sediments comprise loessic brickearth and raised marine deposits. The site lies on the interfluvium between the Aldingbourne and Lydney Rife (CgMs 2014).
- 1.2.2 The excavation area was situated on arable land which slopes gently to the south and east. A drainage ditch accompanied by a mature hedgerow effectively forms the western boundary, whereas the arable field extends further to the north and east. As previously discussed, the relief road easement provided the southern boundary
- 1.2.3 The slightly sloping, low lying, topography ranges from c. 3.2m, AOD in the west to 2.2m AOD in the east. To the south the level falls to c. 1.73m AOD.

1.3 The Scope of the Project (Figure 2)

- 1.3.1 This report relates to the geotechnical monitoring and evaluation of the wider development area as well as the excavation (‘strip map and sample’) which took place in the Flood Compensation Area only. This work is part of a wider

site that has been the subject of other archaeological investigations (detailed in section 1.4 below) and previous planning applications. The Written Scheme of Investigation preceding the evaluation phase (CgMs 2014) should be referred to for a full planning background for the project.

- 1.3.2 Prior to the excavation, the site had been subject to previous archaeological evaluation (Cotswold 2008; ASE 2014b) as well as geophysical survey (Archaeophysica 2014) and a geoarchaeological watching brief during site investigation works (ASE 2014c). Summaries of the results of this work are detailed below.

1.4 Circumstances and Dates of Work (Figure 3)

- 1.4.1 Details of previous work at the site were provided as part of a Written Scheme of Investigation related to the Flood Compensation Area evaluation phase (CgMs 2014), details of which are reproduced in sections 1.4.2-1.4.4 below (with due acknowledgement).

- 1.4.2 West Sussex County Council granted Outline Planning Permission on the site (BE/61/13), subject to implementation of an archaeological mitigation strategy prior to the commencement of development.

- 1.4.3 Permission was duly granted for a hybrid application (Full planning application for Access and road and Flood Compensation Area. Outline application for 33,116sq m of mixed commercial and industrial uses, comprising A1, A3, A5, B1, B2 and B8, with associated works and landscaping). Condition 13 stated:

13. An archaeological investigation of the site shall be carried out at the expense of the developer in accordance with a specification (written scheme of investigation) to be submitted to and agreed by the Local Planning Authority in writing before the commencement of building works.

Reason: To ensure appropriate investigation and recording of archaeological heritage assets on the site prior to commencement of new building works.

- 1.4.4 A specific history of all archaeological work relating to the site or the immediate area is as follows:

- Evaluation trenching of the Bognor Regis Northern Relief Road (Wessex 2007). This road bisects the development area and is to the south of the excavation area (Flood Compensation Area) to which this report largely relates.
- Evaluation of the wider area by Cotswold Archaeology (2008). Some of the trenches were within or partially within the current development area.

Stage 1

- Phase 1: Geophysical survey was undertaken within accessible parts of the site (12.8 ha) in June 2104 by ArchaeoPhysica (2014).

- Phase 2: Geoarchaeological observation of the excavation of 43 test pits excavated by Hydrock was undertaken by Archaeology South East in June 2014 (ASE 2014c)

Stage 2

- ASE evaluation of the development area and borehole survey of the floodplain area (ASE 2014b; this report)

Stage 3

- ASE strip map and sample excavations of the Flood Compensation Area (this report).

1.5 Archaeological Methodology (Figure 2)

- 1.5.1 The archaeological methodology was outlined in a preceding Written Scheme of Investigation (ASE 2014a) which was approved by the principal archaeologist at WSCC, in their capacity as archaeological advisor to Arun District Council.
- 1.5.2 Topsoil from the excavation area shown on Figure 2 (amounting to some 3.5ha) was initially stripped to within 100mm of the interface with the subsoil using a bulldozer.
- 1.5.3 Subsequent removal of topsoil and subsoil was undertaken using a tracked mechanical excavator fitted with a toothless ditching bucket under the direct supervision of an archaeologist. Deposits were removed in spits no greater than 200mm in thickness. Machine excavation was carried down on to the top of archaeological deposits or the surface of natural Brickearth deposits, whichever was uppermost. Care was taken not to machine off seemingly homogenous layers that may include the upper parts of archaeological features. A metal detector was used throughout the programme of topsoil/subsoil removal and a log of its use was kept. The resultant surfaces were cleaned as necessary.
- 1.5.4 Once the machine strip of the area was complete a fixed site grid was established relative to Ordnance Datum using a Total Station and/or survey grade Global Positioning System (GPS). A full pre-excavation plan was prepared as the stripping progressed using GPS planning technology in combination with Total Station surveying. This was made available to the Project Manager, the Supervisor, CgMs Consulting Ltd and WSCC. This pre-excavation plan was available in AutoCAD or PDF format and was printed at a suitable scale (1:20 or 1:50) for on-site use. The plan was updated by regular visits to site by the Archaeology South-East Surveyor who would then plot excavated features and record levels in close consultation with the Supervisor and/or the excavators. Where it was deemed necessary (for example detailed structural features or burials) features were hand planned at a scale of 1:20 from the grid and then digitised to be included on the overall plan.
- 1.5.5 Any hand excavation was carefully undertaken and followed the stratigraphy of any encountered archaeological layers, features and/or deposits. In

certain circumstances machine excavation was undertaken but was only utilised in respect of homogenous low-grade deposits or very large and deep features or features of suspected recent origin. Such techniques were not used in other situations where careful hand excavation was required such as burials.

1.5.6 As a minimum the following sampling strategy was employed. Deviations to the strategy, as set out in the preceding WSI (ASE 2014a), were discussed and agreed with Archaeology South-East, CgMs Consulting Ltd and WSCC.

- All structures and all zones of specialised activity (e.g. funerary, ceremonial, industrial, agricultural processing) were fully excavated and all relationships recorded.
- Ditches and gullies had all relationships defined, investigated and recorded apart from examples where relationships could clearly be seen in plan or the same relationships had been clearly demonstrated elsewhere. All terminals were excavated apart from examples where clearly there had been some truncation and the feature would have originally continued. Sufficient of the feature lengths were excavated to determine the character of the feature over its entire course; the possibility of recuts of parts, and not the whole, of the feature will be considered. This will be achieved by a minimum 10% sample of each feature.
- All pits were initially half-sectioned and fully recorded. Pits where no dating had been recovered were in some cases subsequently fully excavated to facilitate 100% collection of artefact assemblages.
- For post and stake holes where they are clearly not forming part of a structure (see above) 100% (by number) were half-sectioned ensuring that all relationships were investigated. Where deemed necessary, by artefact content, a number demanded full excavation.
- For other types of feature such as working hollows, quarry pits etc., all relationships at least were ascertained. Further investigation was a matter of on-site judgement, but would seek to establish as a minimum their extent, date and function.
- For layers (exposed during machine stripping) a decision on-site was made as to the extent that they were excavated. The factors governing the judgement included the possibility that they mask earlier remains, the need to understand function and depositional processes, and the necessity to recover sufficient artefacts to date the deposit and to meet the project aims.
- Consideration was given to employing the single context recording system if remains were sufficiently complicated.

1.5.7 As human burials or remains were encountered CgMs Consulting Ltd, the Archaeological Advisor and the Coroner's Office were immediately informed.

1.5.8 The provisions of the *Treasure Act* of 1996 were observed. If finds of precious metals such as gold and silver and other finds as defined under the Act were made, they would have been reported to the local Coroner and then deposited with the Coroner's local Archaeological Advisor. Should the removal of such objects be unable to be made during the same working day, suitable and appropriate security arrangements would have been made to deposit them with the local Coroner's Office.

- 1.5.9 The site work was directed by a Member of the Chartered Institute for Archaeologists (MCIfA) with experience of prehistoric landscapes.
- 1.5.10 CgMs Consulting Ltd and WSCC were informed at the earliest opportunity of any archaeological features or deposits worthy of preservation. They were free to visit the site at any time during the work in order to view the fieldwork whilst it was in progress.
- 1.5.11 All excavation work was carried out in line with the Recommended Standards Archaeological Conditions (WSCC 2007) and in line with relevant CIFA guidance documents (Cifa 2014a; Cifa 2014b).
- 1.5.12 All exposed features were recorded according to current professional standards using the standard context record sheets and masonry sheets used by ASE employing a single context recording system.
- 1.5.13 All structural and other relationships were recorded and a structural matrix was created.
- 1.5.14 A full photographic record was made of all significant archaeological features comprising monochrome prints and colour transparencies. All photographs included a board that detailed: the site code, date, context number, section number, a scale and a north arrow. All photographs were fully indexed and cross-referenced on ASE context sheets and photographic registers.
- 1.5.15 Detailed elevation and/or section drawings were hand-drawn at 1:10 on plastic draughting film (permatrace).
- 1.5.16 A detailed plan of all archaeological features and the site limits was prepared using Global Positioning System (GPS) planning technology in combination with Total Station surveying. The plan was created by an Archaeology South-East Surveyor who plotted the features and recorded levels as well as drawn section and/or elevation locations in close consultation with the archaeological supervisor. Where it was deemed necessary, for example with very detailed structural features, then features, or parts of features were also hand planned at a scale of 1:20 on permatrace using a planning frame. Any hand planned elements were located on the site grid and then digitised in AutoCAD to be included in the overall plan.
- 1.5.17 The borehole survey was carried out using a windowless sampling rig which recovered sleeved cores in 1m lengths. These were recorded on site using the Troels-Smith (1955) system of sediment classification. The scheme can be found in Appendices 7-9. These sediment logs were supplemented with digital photographs and three cores were retained for specialist analysis. The core locations were recorded with a GPS and the deposits were modelled as interpolated surfaces within ArcGis. The interpolation was created using a tension spline which allows surfaces to be created from irregularly distributed data-points.
- 1.5.18 Deposits suitable for environmental sampling (such as dated excavated contexts of buried soils, well-sealed slowly silting features, sealed hearths, sealed features containing evident carbonised remains, peats, water-logged or cess deposits), bulk soil samples (40 litres or 100% of smaller features)

were taken for environmental analysis. Bulk samples were processed using tank flotation unless considered detrimental to the samples or recovery rate (such as for waterlogged samples). Bulk samples targeted recovery of plant remains (charcoal and macrobotanicals), fish, bird, small mammal and amphibian bone, as well as small artefacts. Waterlogged samples were wet sieved through nested sieves and stored in wet, cool conditions or dried if considered an appropriate form of conservation for the remains. Specialist samples were also taken from dry or waterlogged contexts. Such samples targeted recovery of pollen (using monolith tins), molluscs, foraminifera, parasites and insects. Larger samples (80-100 litres) would have been extracted wholesale from deposits rich in marine molluscs and large mammal bones had they been encountered. As a general rule waterlogged wood specimens were recorded in detail in their original location, however in some cases this was impractical due to the deep and unsafe nature of excavations. In these cases, once removed the waterlogged wood was cleaned, photographed and a thin section sample was taken for identification. Specimens were either stored in wet cool conditions or dried if considered appropriate for the material. In all instances deposits with clear intrusive material shall be avoided.

- 1.5.19 The exact level and detail of recording met the standards defined within the WSI (ASE 2014a), but also remained flexible and was reviewed regularly with CgMs Consulting Ltd and WSCC on site.

1.6 Organisation of the report

- 1.6.1 This report presents an assessment of the findings of the evaluation and excavation, integrated with the results of the Stage 2 geophysical survey and geotechnical watching brief, where relevant.
- 1.6.2 This Post-Excavation Assessment (PXA) outlines the original research aims of the project; provides an interim statement on the archaeological findings; provides quantification of the finds and environmental material recovered from the site; informs as to the archaeological potential of the findings and their significance. The Updated Project Design (UPD) outlines a proposed publication project, listing revised research aims, and a proposed task sequence for the programme of works.
- 1.6.3 This post-excavation assessment (PXA) and updated project design (UPD) has been prepared in accordance with the guidelines laid out in Management of Research Projects in the Historic Environment (MoRPHE), Project Planning Notes 3 (PPN3): Archaeological Excavation (English Heritage 2008).

2 HISTORICAL AND ARCHAEOLOGICAL BACKGROUND 2.1 Wessex Evaluation of Relief Road Corridor

2.1.1 Trial trenching within the corridor of the Bognor Regis Northern Relief Road, undertaken by Wessex Archaeology for CgMs Consulting Ltd in 2007 (Wessex 2007) involved the excavation of 15 trenches in the zone between the main development area and the Flood Compensation Area. Further trenches to the east had to be abandoned due to poor weather and the high water table. The trenches contained no significant archaeology, although localised areas of Bronze Age and Roman activity were identified within the road corridor to the east and south-east. This project also involved a detailed geological and palaeoenvironmental investigation of Middle-Late Pleistocene sediments (DAS 2013; see section 2.4.1 below).

2.2 Cotswold Archaeology Evaluation (2008)

2.2.1 There was a significant amount of information already available for the wider development area from the trial trenching undertaken by Cotswold Archaeology in 2008 (Cotswold Archaeology 2008). Thirty-eight trenches were excavated, thirteen of which were within, or partially within the main development area (Figure 3), although, none were located within the Flood Compensation Area. The report should be consulted for a detailed account of the findings. A summary of the findings are presented in Table 1 below:

| Trench | Features | Significance |
|--------|--|---|
| 9 | One area of burnt/heated stone. Unexcavated | Unclear – but probably peripheral to settlement |
| 10 | Two undated ditches, one undated pit | Unclear – but probably peripheral to settlement |
| 11 | One pond with modern fill | Of no archaeological interest |
| 12 | One pond with modern fill | Of no archaeological interest |
| 13 | No features | No archaeological interest |
| 24 | One Middle Bronze Age ditch; one LBA posthole; one LBA/EIA ditch; one EIA ditch, one undated ditch; one undated pit; three undated postholes | Within the possible focus for Bronze Age settlement and possibly also Iron Age activity (identified by CA) – although trenches to the south-west contain the concentration of burnt flint |
| 25 | One undated sub-circular pit | Within the possible focus for Bronze Age settlement (identified by CA) – although trenches to the south-west contain the concentration of burnt flint |
| 33 | One LBA/EIA pit; one EIA pit; two undated pits and 2 undated linear features | Within the possible focus for Bronze Age settlement and possibly also Iron Age activity (identified by CA) – although |

| Trench | Features | Significance |
|--------|---|--|
| | | trenches to the south-west contain the concentration of burnt flint |
| 34 | One Middle Bronze Age ditch; five undated pits; two undated postholes | Outside of the identified focus of Bronze Age activity (identified by CA) – but appears to contain similar density of? settlement related features |
| 35 | One LBA/EIA ditch | Likely to be within field system |
| 37 | Possible palaeochannel; two possible furrows | Palaeochannel undated – significance would depend on date and any relationship with known archaeology on the site |
| 38 | One undated ditch | Unclear – but probably peripheral to settlement |

Table 1: Cotswold (2008) trenches within development area.

2.3 Stage 2, phase 1: Geophysical Survey

2.3.1 The geophysical survey undertaken by Archaeophysica in June 2014 (Archaeophysica 2014) was mainly concentrated to the south of the relief road, where a number of weakly enhanced anomalies (possible ditches) were recorded, many correlating with features identified in previous archaeological work. To the north of the relief road, a small number of linear anomalies were also identified adjacent to the proposed development area; these were thought to be agricultural boundaries (Archaeophysica 2014).

2.4 Stage 2, phase 2: Geoarchaeological Watching Brief (ASE 2014c)

2.4.1 A brief summary of geoarchaeological potential of the site was carried out by Chris Pine and Mark Roberts in 2013 (DAS 2013). This determined that the calcareous basin deposits (represented by cryoturbated chalk) had the potential to preserve rare molluscan remains. This may provide evidence relating to the climatic regime of the late Pleistocene and early Devensian.

2.4.2 Additionally the site location between two rifees would have been a favoured position for human activity during the late Pleistocene and early Holocene. The planform of the area would have comprised a braided river system, with the palaeovalley of the Aldingbourne Rife being up to 500m wide.

2.4.3 A total of 43 test geotechnical pits were monitored and the lithology recorded across the site. The watching brief identified a single post hole infilled by burnt flint and recorded a horizon of archaeological material from which prehistoric pottery and worked flint was recovered. In addition, the edge of alluvial deposition associated with the Aldingbourne Rife was identified, the western limits of which had been levelled up masking the true edge of the alluvial deposition at the site. A programme of borehole survey was recommended in order to better characterise the sediments, the results of which will be reported as part of this post-excavation assessment

2.5 Mesolithic

- 2.5.1 Mesolithic flintwork on the Sussex Coastal Plain mainly comprises tranchet adzes and other core implements such as picks. Microliths were thought to be completely absent (Pitts 1980), although excavations at Fishbourne (Wymer 1977) produced Mesolithic material that included five obliquely blunted microliths, as well as other flintwork indicative of microlith manufacture (Butler 2003). Excavations on the A27 east of Fishbourne also produced material of Mesolithic date including four microliths (Goodburn 1996).
- 2.5.2 Archaeological investigation connected to the Westhampnett Bypass produced flintwork of Mesolithic date and the wide range of implement types together with a water-side location, suggests the presence of long-stay camps (Holgate 2003). The pattern for more recent, developer funded work is that flintwork assemblages of the Coastal Plain largely comprise late prehistoric material but normally include a significant proportion of residual Mesolithic pieces (Butler 2008). The corpus of Mesolithic evidence thus suggests that numerous short-stay hunting camps together with longer stay base camps, associated with watercourses, existed on the Sussex Coastal Plain (*ibid*).

2.6 Neolithic

- 2.1.1 Monuments of Neolithic date survive more readily in the non-agricultural areas of south-western Sussex, thus they are restricted to the South Downs, rather than the more favourable soils of the Coastal Plain (Drewett 2008, 31). Pits of Neolithic date have occasionally been found on the Coastal Plain, with examples recorded at Golf Links Lane, Selsey (White 1934), Copse Farm, Oving (Bedwin and Holgate 1985), Westbourne (Seager-Thomas 2010) Portfield Football Ground, Church Road, Chichester (ASE 2000a) and Chalkpit Lane, Lavant (unpublished). Recent thinking suggests these features may relate to wider use of the landscape rather than simply representing settlement sites (Drewett 2008, 33-4).
- 2.6.2 In addition to rare examples of Neolithic pits, many lithic assemblages and findspots perhaps relate to herding rather than discrete settlements. Neolithic activity on the Coastal Plain was therefore possibly more akin to the Mesolithic rather than the Bronze Age with its defined landscape (Drewett 2008, 34).

2.7 Bronze Age

- 2.7.1 The Bronze Age coastline of this part of Sussex has been conjectured to be around 1-2km further south of the current day foreshore (Woodcock 2003) and the Sussex Coastal Plain has produced significant concentrations of Bronze Age activity. Particularly relevant to the site is the focus of Late Bronze Age activity centred on the Aldingbourne Rife (Dunkin and Yates, 2008, 38). At North Bersted an evaluation by Archaeology South-East (2005) identified a Late Bronze Age land surface as well as burnt flint concentrations capped by alluvium of Early Iron Age date. Subsequently the site has been subject to further archaeological investigation by Thames Valley Archaeological Service (TVAS), which revealed Bronze Age settlement evidence as well as a small hoard of four Middle Bronze Age axes (palstaves) (Taylor *et al.* 2015). The proximity of further hoard sites,

such as those at Flansham, Bilsham, Yapton or Bognor, as well as currently unpublished settlements at Westergate and Medmerry (ASE 2000b; Stephenson forthcoming) indicate the importance of this part of the coastal plain to the understanding of the Bronze Age period of the region (Dunkin and Yates 2008).

- 2.7.2 The results of the Cotswold evaluation (2008) clearly showed a high potential for further Later Bronze Age settlement and land-division.

2.8 Iron Age

- 2.8.1 The Late Bronze Age/Early Iron Age transition is poorly represented on the Sussex Coastal Plain, in contrast to the well-known hilltop enclosure sites that dominate the neighbouring area of the South Downs. While a picture has emerged of an organized and partitioned downland landscape, likely linked to pastoralism (Hamilton 2003, 76-7), a postulated sea level rise during the Late Bronze Age/Early Iron Age transition may have made large areas of the Coastal Plain unsuitable for large scale settlement and farming (Bedwin 1983, 43).

- 2.8.2 During the course of the Middle Iron Age, occupation on the coastal plain becomes increasingly visible and several permanent sites are established. Of the recorded Iron Age settlements it has been noted that many are associated with extensive networks of drainage ditches, such as the site at North Bersted (Bedwin 1983). Development across the coastal plain is thought to have increased throughout the period and by c. 100BC the area is presumed to have been widely settled with large areas given over to agriculture.

- 2.8.3 The Late Iron Age is subject to continued development from the preceding Middle Iron Age with settlements and enclosures and increasingly complex sites, such as the cemetery at Westhampnett (Fitzpatrick *et al.* 2008) and a Late Iron Age site at North Bersted that included the important discovery of a warrior burial (Taylor *et al.* 2015). It is likely that the area had become a highly developed, structured landscape bounded by the so called Chichester Entrenchments which may have provided either a defensive, administrative or social role. Southern Britain at this time was becoming increasingly affected by the proximity of the Roman Empire, and the Sussex Coastal Plain in particular was subject to high levels of external influence.

2.9 Roman

- 2.9.1 Findspots and sites of Romano-British date are unsurprisingly clustered in the Chichester and Fishbourne area of the coastal plain, with a further possible focus of activity on Selsey Peninsula, as well as the various roads and trackways on the area, including Stane Street (Manley *et al.* 2008).
- 2.9.2 Sites include Fishbourne Palace and the walled Roman town of Chichester, as well as a dense rural settlement pattern, including North Bersted which is in close proximity to the site (Taylor *et al.* 2015). Industrial complexes are also known from the Coastal Plain and mainly include salt works (Manley *et al.* 2008).

2.10 Medieval

- 2.10.1 The nature of Anglo-Saxon settlement on the Sussex Coastal Plain is still relatively little understood (Gardiner 2008). A small excavation close to the south of the site (Stevens 2006) has, however, encountered rare material of Middle Saxon origin as well as other features of Saxo-Norman and later medieval date. Even closer to the site, archaeological work at Shripney Road produced medieval features and possible plot boundaries fronting onto the historic alignment of Bersted Street (John Mills, quoted in Stevens 2006, 115). The Sussex Coastal Plain has a great number of both upstanding and buried medieval remains including field systems related to this period as well as the medieval villages themselves. Both make up a significant component of the medieval landscape of the area, although only slight archaeological evidence of medieval cultivation has so far been uncovered. This is perhaps due to the problems with dating ditches that have been in use over a long period of time (Barber 2008).
- 2.10.2 The medieval hamlet of Shripney close to the north-east of the site incorporates the manor house of Shripney that is part of a manorial moated site (ASE 1999).

3 ORIGINAL RESEARCH AIMS & OBJECTIVES

3.1 Original Aims

3.1.1 The general aims of the archaeological excavation, as set out in the Written Scheme of Investigation (ASE 2014a) were:

- 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 landscape 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 Original Research Objectives

3.1.2 In addition, the following specific research objectives, with reference to the forthcoming South East Research Framework, were defined:

- RO1: To study the evolution of settlement in the mid Bronze Age and early Iron Age;
- RO2: To study the long term history of land divisions laid out in the mid Bronze Age and early Iron Age;
- RO3: To ascertain whether the Roman features noted to the south of the relief road extend into the Flood Compensation Area, and if so, to determine their date and character;

4 ARCHAEOLOGICAL RESULTS

4.1 Overview

- 4.1.1 The excavations revealed evidence of activity at the site dating from the Mesolithic to the post-medieval periods.
- 4.1.2 Periods with associated and closely dated features are discussed below. Some periods on site were only represented by a small number of features or residual finds. While these periods will be discussed within the framework of the stratigraphic narrative (below) they await definitive phasing, pending the results of further stratigraphic analysis and scientific dating.
- 4.1.3 The earliest evidence for occupation in the vicinity of the site dates to the Mesolithic and/or Early Neolithic periods. This comprised residual finds of flintwork indicating a very light background scatter attesting to transient activity.
- 4.1.4 The first phase of activity represented by archaeological features comprised a group of four large and deep pits, currently dated to the Late Neolithic/Early Bronze Age periods. These were orientated on a roughly north-west to south-east alignment. Occasional sherds of Grooved Ware and contemporary flintwork were recovered from the features fill deposits as well as clearly intrusive material perhaps introduced by rooting or the plough. In addition one of the pits incorporated a fragmentary red deer antler, possibly a pick.
- 4.1.5 The Mid-Late Bronze Age archaeology at the site is currently separated into two distinct phases: Period 2: Phase 1 and Period 2: Phase 2. Period 2.1 was dominated by the fragmentary remains of a coaxial field system bounded by double ditched stock-proof hedges, or narrow droves or tracks around field edges. As well as fields the system also incorporated up to three, small, rectilinear enclosures, which occasionally included placed deposits. A large waterhole existed within the corner of one of the fields as did a small cremation cemetery, further to the north and east.
- 4.1.6 Period 2.2 activity appears to be largely related to settlement, comprising roundhouses and four-post structures, as well of evidence of cooking and other activities. A new co-axial field system was laid out in the north of the excavation area and there was evidence for the elaboration of a pre-existing enclosure. As well as settlement and land division, evidence of funerary related activity was also encountered.
- 4.1.7 A broad period currently designated as Middle Iron Age – Early Roman (Period 3) largely comprised drainage ditches and occasional pits. Early indications are that this activity may be pre-Conquest in date.
- 4.1.8 Period 4 is also divided into two phases (Periods 4.1 and 4.2). Period 4.1 comprised Early Roman activity (probably of 1st century AD date), including ditches relating to a field system as well as a small, presumably circular, enclosure that extended beyond the limit of excavation.
- 4.1.9 Period 4.2 consisted of Later Roman activity (late 2nd- early 4th century) and is restricted to contemporary material within dis-use deposits of the earlier

field system as well as a portion of a rectangular or square ditched enclosure that directly overlay and replaced the 'circular' early Roman example described above.

- 4.1.10 Medieval activity was poorly and broadly dated but comprised strip-fields and evidence of cultivation as well as a quarry pit and animal burials. Although the field system is currently attributed to this phase it may have had earlier, possibly Later Roman, origins. It would have stayed in use until Parliamentary Enclosure of the area.
- 4.1.11 Post-medieval activity is largely restricted to the canalisation of a possible watercourse and associated land-drainage. Ditches of the medieval or earlier field system would have been decommissioned during Parliamentary Enclosure of the area.

4.2 Natural deposits

- 4.2.1 Excavations in all parts of the site revealed a typical stratigraphic sequence of c. 0.15-0.45m of subsoil overlain by c. 0.30m of topsoil. This overburden overlay a manganese-flecked orange-brown loessic brickearth.
- 4.2.2 Deposits of alluvium associated with silted watercourses were also encountered, as well as shallow deposits of colluvium where gentle slopes met. Small superficial outcrops of the cryoturbated Pleistocene Calcareous Basin Deposits were also encountered across the site while some of the deeper features and one of the test pits reached the solid but heavily weathered Cretaceous Chalk of the Culver Formation.

4.3 Site Sequence

- 4.3.1 On both the plans and in the text, individual contexts are referred to in squared brackets [00]. Where context have a prefix number, for instance [1/002], then the first number denotes an evaluation trench number, the second the context. Test pits were prefixed thus [TP0/00].
- 4.3.2 Most contexts have been sub-grouped during post-excavation analysis, although interventions are generally referred to in the text by context.
- 4.3.3 Environmental samples are listed within triangular brackets <00> and registered finds thus: RF<0>.
- 4.3.4 The archaeological results are organised via subheadings. It must be noted that formal grouping or land-using has not been undertaken so all 'land use' designations are provisional only at this stage and may change at the next stage of analysis. The context register is reproduced in Appendix 17 of this report.

4.4 Geoarchaeology

- 4.4.1 The low lying area to the south of the main area of excavation was subject to a borehole survey and palaeoenvironmental assessment (Figure 2). This comprised 3 transects of regularly spaced boreholes which recorded an area of mainly minerogenic sedimentation. The environmental evidence from the deposits here indicates accumulation within a wide embayment or estuary with fringing saltmarsh and tidal flats. The pollen assemblage was extremely poorly preserved and does not significantly contribute to the understanding of the site. However, the ostracod/foram and diatom assemblages allow us to provide an accurate characterisation of the accumulation conditions within the estuary.
- 4.4.2 In addition, waterlogged deposits were recorded within a waterhole feature of Bronze Age date. The resultant pollen and plant macrofossil assemblages were sufficiently well preserved to characterise the on-site vegetation contemporaneous with the occupation of the site.
- 4.4.3 The estuarine deposits were dated using organic material and bulk sediments recovered from the boreholes, however the micro-fossil assemblage demonstrates a degree of reworking within the sediment archive which has affected the efficacy of the dating programme. The most that can be said about the timing of sediment accumulation is that this was occurring throughout the prehistoric period and exact onset of accumulation probably relates to early Holocene sea level rise.

4.5 Residual Material

- 4.5.1 A small quantity of flints (c. 13) are considered to be of likely Mesolithic and/or Early Neolithic date. All the artefacts recovered were as residual finds in later contexts or in currently un-phased contexts (see section 5.2).
- 4.5.2 This very light background scatter probably represents transient activity at the site during the Mesolithic/Early Neolithic period.

4.6 Period 1: Late Neolithic-Early Bronze Age (Figure 4)

Pit Group

- 4.6.1 A group of four large pits [258], [283], [342], [347], as well as a smaller shallower pit [4/011] were encountered in the southern part of the Flood Compensation Area. These all appeared to be orientated on a roughly northeast-southwest alignment and all (apart from [347] which was not fully excavated due to water ingress) had sharp, steeply sloping sides onto rounded bases. Pit [258] was ovoid and elongated in plan; it measured 2.7m in length and 1.45m in width with a maximum depth of 1.35m. It was filled by three distinct deposits the lowest of which [259] comprised a light yellow grey silt clay with moderate inclusions of small crushed shell as well as fragments of chalk, manganese and charcoal flecks. Finds retrieved from this silting and weathering deposit included flintwork (14 chips, 2 flakes and a multiplatform flake core in relatively fresh condition) as well as two sherds of Grooved Ware pottery with applied cordons. A sherd of prehistoric flint tempered pottery was also recovered, and it has been noted that it may be of Early Neolithic date. Overlying [259], was mid-brown grey clay silt [260]

which was similar to the surrounding natural brickearth. Inclusions incorporated in the deposit comprised moderate amounts of naturally occurring flint as well as manganese flecks and sporadic chalk and charcoal fragments. Finds recovered included further flintwork (27 chips and 3 flakes) as well as some diagnostic Grooved ware (2900-2000 BC), probably derived from the same vessel as that found in context [259]. In addition, another two sherds were recovered which could be either Grooved ware or Beaker (2500-1700 BC). All the sherds were fairly abraded perhaps indicating that they had silted into the pit rather than being deliberately deposited. The uppermost fill [261] was similar in composition to [260] but was somewhat firmer in consistency and darker in colouration. This clear silting deposit had similar inclusions to [260] below, but also included pieces of fire-cracked and worked flint including 33 chips and 7 flakes, one of which was blade-like.

- 4.6.2 Pit [283] was similar in plan to [258] described above, it did, however, have a small projection on the north-western side that may relate to a cut for access. It was much shallower in depth (0.70m) as compared to the feature described above. Also in contrast to [258], this feature was only filled by a single homogenous deposit of light brown grey clay silt that contained inclusions of charcoal flecks. The small group of bodysherds recovered were in a very coarse flint-tempered fabric which was unlikely to be later than Middle Bronze Age in date and may in fact be of Early Neolithic origin. The small assemblage of flintwork (8 pieces) recovered from the feature may also be indicative of a Neolithic date as two bladelets were counted amongst the pieces found.
- 4.6.3 Pit [342] measured 2.84m in length and 2.17m in width. It reached a maximum depth of 1.14m. It was filled by a light-orange grey deposit similar to the surrounding brickearth [343] but with a slightly sandier texture perhaps indicating a mixture of silt and wind-blown deposition. The fill incorporated natural and fire-cracked flint inclusions as well as finds of flintwork (32 pieces including an end scraper) and a tiny sherd of prehistoric pottery. Also found within [343] was a large fragment of poorly preserved antler (see section 5.10.6). Overlying [343], context [344] was similar in consistency and composition but was darker in colouration. This was due to the presence of more frequent inclusions of charcoal flecks. Also within the fill were both naturally occurring, worked (24 pieces) and fire-cracked flint as well as fired clay, and 3 sherds of pottery of Late Neolithic/Early Bronze Age date (2900-1700 BC). The inclusions and finds may indicate that nearby occupation activity contributed material to this clearly silted fill.
- 4.6.4 Pit [347] underlay a deposit of later livestock poaching, [216], and was only revealed once this masking material had been removed by machine. It was very similar in profile to pit [258] and was also filled by three distinct deposits [348], [349] and [350] the base of the feature was not reached due to the presence of the water table at 1.10m below the natural and archaeological horizon. All three deposits related to silting episodes. Finds recovered included a single sherd of later prehistoric pottery, together with four sherds of Late Neolithic/Early Bronze Age date, a tiny piece of fired-clay was retrieved along with 7 pieces of fire-cracked flint.
- 4.6.5 Pit [4/011] encountered during the evaluation stage was shallow (0.45m deep) compared to the features described above and has been somewhat uncertainly associated with the other pits on the grounds of a reasonable

proximity to pit [347] as well as the presence of blade technology flintwork as well as fire-cracked flint from the single fill [4/012].

Pit [811]

- 4.6.6 Situated some 100m to the north of the pit group described above, pit [811] is probably more correctly interpreted as a pit dug for deliberate depositional purposes. It was roughly sub-circular in plan with a diameter of 0.90m and measured 0.21m in depth. It had gradually sloping sides onto a rounded base and was filled by two distinct deposits. The uppermost of these [813] was probably related to a deliberate backfill event and was of mid-dark brown grey colouration and a fairly loose consistency of clay silt. Moderate-frequent inclusions of fire-cracked flint were encountered along with fired clay and a tiny fragment of bone. The charcoal identified from sample <36> produced an array of different taxa including, Maloideae (a group of taxa which includes apple, whitebeam, rowan, hawthorn), oak (*Quercus* sp.), hazel (*Corylus avellana*) and wild cherry/blackthorn (*Prunus* sp; it is interesting to note that all these taxa are fruit producing). Some 34 sherds of Late Neolithic/Early Bronze Age (2900-1700 BC) pottery were also recovered from this fill including sherds specific to the Durrington Walls sub-style of Grooved Ware. In addition to the pottery a large assemblage of unburnt worked flint (121 pieces) was also recovered. The earlier fill [812] was difficult to discern from the underlying natural and may in fact represent a rooted interface between the two.

Other Features

- 4.6.7 A pit, or less likely, tree-throw [1396] was encountered in the north-east of the site. It had clearly been disturbed by nearby poaching deposit [1383]. It contained a single sherd of Late Neolithic/Early Bronze Age pottery.
- 4.6.8 Within the area that would later be occupied by Enclosure 1, described below, was encountered a deposit of Late Neolithic/Early Bronze Age pottery [460], comprising 28 small sherds from a single vessel. This was situated within the subsoil and had clearly been truncated by the plough.

4.7 Period 2: Mid-Late Bronze Age

- 4.7.1 The Mid-Late Bronze Age activity at the site can be said to comprise the first intensive land-use of the area. Phase 2.1 has been separated from Phase 2.2, largely on the strength of spatial and stratigraphic interpretation; although it is likely that these do not necessarily mark a break in use at the site. Indeed, the period is likely represented by continual land-use, with increasing evidence for settlement in the latter phase. That said, there does seem to be an alteration in how field systems are bounded and a general reestablishment and replacement of a co-axial field system between the two phases. In contrast an enclosure within the Phase 2.1 field system remains in use but is further elaborated by Phase 2.2.
- 4.7.2 The evidence for both temporal changes as well as continuity of location is, in part, borne out by the ceramic evidence. Generally the Phase 2.1 fabrics are noted to be more typically Middle Bronze Age and the Phase 2.2 more characteristically Late Bronze Age but the difference between the two is reasonably subtle. It is perhaps more correct to view the entirety of Period 2

as a transitional Middle/Late Bronze Age period, with activity likely ongoing before and after c.1150BC

Period 2.1 Mid-Late Bronze Age (Figure 5)

Track/Droeway and Associated Enclosure

- 4.7.3 A likely track or droeway comprising two roughly parallel gully-like ditches was encountered in the southern part of the Flood Compensation Area. These had been truncated by ploughing to some degree and in total comprised up-to five discontinuous curvilinear features. The southerly of the two trackway ditches, contexts [139], [141], [174] and [211], measured between 0.09 and 0.30m in depth and had a maximum width of 0.44m. It had steep, sharply sloping sides and a flat, occasionally rounded, base. It was filled by a light-brown grey slightly clay silt and contained inclusions of natural and fire-cracked flint as well as charcoal flecks. Finds produced from the feature included small sherds of prehistoric pottery. The northerly ditch, contexts [135], [149], [165], [214] and [4/009] had a similar form and profile to its counterpart and was also filled by similar deposits. Finds produced included a single piece of abraded Grooved Ware as well as another likely Late Neolithic/Early Bronze Age sherd. Also found within the features were a few sherds of Middle/Late Bronze Age pottery.
- 4.7.4 Two postholes, [129] and [143], roughly in line with the southerly trackway ditch may be part of the same system. [129] contained both worked and fire-cracked flint as well as unworked pieces of Sarsen stone. The divergence of the two trackway ditches in the area of these postholes may relate to a stock funnelling capability. Another posthole, [176], underlay intervention [174] within the southerly trackway ditch. It was filled by similar deposits to the overlying feature and may relate to a post marker for the setting out of the trackway.
- 4.7.5 The routeway described above was clearly related to a small rectilinear gully-defined enclosure (contexts [242], [249], [270] and [275]) that extended beyond the western limit of the excavation area. The features that defined the space were filled by similar deposits to the associated trackway. The only find produced was a single piece of struck flint. Two shallow pits [266] and [268] were located both immediately outside and just within the enclosure respectively, although they contained no cultural material.
- 4.7.6 An ephemeral livestock poaching-type deposit was noted within the enclosure [251], it contained two pieces of struck flint as well as a small piece of likely plough introduced ceramic building material (CBM). Although currently undated the deposit is likely related to the enclosure.

Co-axial field system

- 4.7.7 The partial remnant of a truncated co-axial field system was situated in the central portion of the site. This comprised a few recognisable square or rectilinear spaces defined by double ditched boundaries or trackways. The vestiges of these 'fields' were obviously once part of a much larger system but had been truncated by both the plough and later features on site. The double ditched boundaries or tracks were comprised of narrow, shallow, parallel gullies of around 0.50m in width and reaching depths of c. 0.10-

0.25m. The features were filled by similar deposits of light grey brown clay silt with natural and fire-cracked flint inclusions as well as charcoal flecks. Finds produced included worked flint and pottery of Middle/Late Bronze Age date as well as rarer sherds of Late Neolithic/Early Bronze Age and Romano-British date. These are thought to be residual and intrusive respectively.

- 4.7.8 The most southerly of the trackways or boundaries had slightly darker fill deposits than the rest of the system and this is probably due to its re-use during Phase 2.2 when it was associated with an elaborate enclosure. Occasionally shallow, irregular, pit-like features (for example [1432]) were encountered within the interior of the parallel linear features and these are thought to relate to either the remains of hedges or poaching caused by livestock movement.
- 4.7.9 Occasional pits or postholes within this field system were dated by either stratigraphy (largely overlying poaching deposits) or diagnostic Middle Bronze Age pottery. In addition a well-like feature [1061], was clearly truncated by one of the linear features of the co-axial system. The feature was sub-circular in plan with a diameter of c. 1.35m. It had steeply sloping, near vertical sides, however, the base could not be reached by hand (dug to 1.10m). The feature was subsequently bottomed by machine to a maximum depth of c. 2.2m, however, effective recording was prevented by ingress of water. The feature was filled by a mid-orange brown silt clay that was similar to the surrounding natural brickearth. The fill deposit incorporated occasional, small, natural flint nodules as well as worked and fire-cracked flint and pottery of likely Middle/Late Bronze Age date.

Cremations

- 4.7.10 Within the co-axial field system outlined above were a number of, often truncated, urned cremations or possible cremations. Pits [805], [808], and [1333], (vessels [806], [809] and [1334]) comprised the fragmented bases of urns placed within deliberately cut pits. Unfortunately no elements of the upper profiles were present; the largest assemblage of burnt bone, 791.5 grams, was recovered from vessel [1334] and initial assessment indicates that it may be from a single individual probably an older juvenile or adult. This vessel was very thick-walled and in an exceptionally coarse fabric which is unlikely to post-date the end of the Middle Bronze Age (c.1150 BC). The others could probably be described transitional (Deverel Rimbury/post-Deverel Rimbury (DR/PDR) types. They are in fairly coarse fabrics and tend to be of medium wall-thickness. Vessels [806] and [809] did not contain any burnt bone, perhaps due to the high levels of truncation, however, a small quantity of unidentifiable bone was encountered within the backfill around vessel [806] (context [807]).
- 4.7.11 A further partially-complete vessel was encountered in feature [1342]. This comprised a sub-oval pit of roughly 1m diameter. It was filled by two deposits, the earliest of which, [1343], comprised a 0.19m thick lining of fired clay which included small quantities of unidentifiable burnt bone. Overlying this was a thicker deposit of dark black grey clay silt and charcoal (context [1344]). This vessel which was less obviously placed in an upright or inverted position compared to those discussed above, has been noted to be more typically Middle Bronze Age in terms of wall-thickness and coarseness

of fabric. It also resembles a Deverel Rimbury (DR) Barrel Urn in terms of profile, though it is on a smaller scale with a diameter of just 120mm. Human bone possibly from an adult was retrieved from samples of the fill deposit <43> as well as from the vessel <68>. It is possible that the feature may have originally comprised a large fire-pit or hearth that had been subsequently re-used for internments of a cremated individual(s).

- 4.7.12 Vessel [1154] from pit [1152], produced large areas from the upper body, probably suggesting an inverted DR Barrel Urn or an early PDR hook-rim jar. It was situated some way from the other cremations described above. Fragments of burnt bone were retrieved from both outside and inside the vessel.

Waterhole (Figure 6)

- 4.7.13 Situated towards the centre of the Flood Compensation Area was a large sub-circular waterhole, [1391]. This feature was encountered beneath an extensive area of silt clay [537] deposited through fluctuating water tables. The feature measured approximately 5.5m in diameter with sharply sloping sides. Due to the large size of the waterhole and the clear disuse nature of the upper horizons the feature was largely excavated by machine under geoarchaeological supervision. Further effective excavation was prevented at around 1.4m below ground level (bgl) due to water ingress. However, further sampling and the excavation of a sondage was undertaken. This allowed the bottom of the feature to be estimated at around 2.25m below the archaeological horizon. The feature and its associated deposits are fully discussed in sections 5.16 and 5.17 of this report. Finds recovered from the feature comprised Middle/Late Bronze Age pottery, animal bone and elements of an oak log ladder (see section 5.15)m, which has a calibrated radiocarbon date of around 1100 to 1000 BC (see section 5.17) from a piece of sapwood.

Enclosure 1

- 4.7.14 Enclosure 1 was integrated into the corner of a field-space within the co-axial field system described above. While most of the defining ditches related to the wider field system, there was also a pair of parallel ditches linking a roughly circular, gully defined space, to a northwest-southeast aligned trackway to the south. It is probable that the enclosure was related to the penning or corralling of livestock. It would remain a focus of activity as the period progressed but would be significantly re-cut, remodelled and elaborated during Phase 2.2.

Enclosure 2

- 4.7.15 Enclosure 2 comprised a small, roughly sub-rectangular enclosure with an external track or field boundary. It measured c. 24m in length and c. 14m in width (excluding the track). It was defined by narrow, shallow, gully-like features that were very similar to those which formed the co-axial field system described above. These were partially overlain by deposit [537]. Only a single feature was encountered within interior of the enclosure, posthole [564]. However, two postholes [477] and [574] were centrally positioned within the external track. These may relate to stock sorting facilities or gates. A deliberate deposition incorporating the remains of two

semi-complete Middle Bronze Age vessels as well as a fragment of quartzite battle axe (Figure 7) was encountered in the south-eastern corner of the enclosure.

Period 2.2 Mid-Late Bronze Age (Figures 8 and 9)

Drainage Ditch

- 4.7.16 A large drainage ditch with sharply sloping sides and a north-east sloping base, was encountered in interventions [110] and [159] in the south-east of the excavation area. It was filled by mid-light brown grey silt clay with moderate inclusions of angular flint nodules and occasional rounded pebbles. Pottery recovered from the ditch fill deposit dated from the Middle/Late Bronze Age. The feature was clearly intended to drain into a nearby watercourse (context [171]).
- 4.7.17 A curvilinear ditch (contexts [134], [151] and [157]) was heavily impacted by the presence of later features and was clearly truncated by the drainage ditch described above. It had near vertical sides and a slightly rounded base and was filled by a light brown grey silt clay. Finds produced included a single Late Neolithic/Early Bronze Age sherd as well as many more less abraded sherds of later prehistoric date. Flintwork was also recovered from the feature, as well as a copper-alloy spring fragment from an early bow brooch, probably of 1st-century date (RF <1>).

Burnt Mound

- 4.7.18 A roughly square 4.7m x 4m deposit of fire-cracked flint (fire-cracked flint) measuring approximately 0.45m in thickness comprised the remains of a Bronze Age 'burnt mound'. The heated flint [204] filled a shallow slightly irregular depression [203] and overlay a number of features that were separately recorded but filled with similar material to that above. Two gully-like features [205] and [207] fed a roughly rectangular 'trough' [272]. This measured c. 0.65m in length, 0.35m in width with a shallow depth of c. 0.07m. It had sharply sloping near vertical sides and a rounded base.
- 4.7.19 Another shallow feature which underlying the main dump deposit of fire-cracked flint comprised a possible pit [281], which is more likely the result of an undulation at the base of the burnt mound deposit. Environmental samples taken from the main dump deposit <102> overwhelmingly incorporated fire-cracked flint, although struck flint and charcoal was also encountered.

Co-axial Field-system

- 4.7.20 A co-axial field system was located in the northern part of the excavation area. The foundation of this system indicates a change from the earlier system which fell out of use, was replaced by settlement-related activity (see below) and was orientated on a different axis. How this field system was demarcated also indicates different origins; the ditches that largely comprise this land-use entity reflect certain field boundaries rather than the slighter, double ditched tracks or boundaries of the earlier fields. The ditches measured c. 2.5m in width and reached depths of around 0.55m. Where it was located close to a postulated pre-existing watercourse (now marked by a post-medieval drainage ditch, see below) the field system showed some

signs of re-cutting (contexts [1385] and [1420]). The ditches were filled by mid-orange brown silt clay. Dating material retrieved from the features fills largely comprised sherds of Middle/Late Bronze Age pottery, although sherds of early Roman material were also encountered which are thought to be intrusive. Also indicating an early date was the fact that parts of this system were clearly overlain by the Period 3 drainage ditches.

Enclosure 1

- 4.7.21 Enclosure 1 was significantly elaborated during this phase. This comprised the re-modelling of the attendant drove or trackway to the south of the enclosure, with the addition of a d-shaped curving race, sorter or crush as well as a gateway indicated by the presence of paired postholes [340] and [356]. The rectilinear enclosure of the preceding phase was transformed with the addition of further gullies and ditches into a circular enclosure with a restricted or controlled entrance (marked by a short length of ditch) and 'antennae' ditches effectively joining the enclosure to the drove.
- 4.7.22 The enclosure defined a sub-circular space of approximately 30m diameter with the attendant antennae ditches demarcating a corridor of c.14-15m length. Within the enclosure was a large area of 'cobbling' [456] comprising fragments of both heated and naturally occurring flint. This surface survived to a depth of c. 0.30m and incorporated charcoal as well as large pottery sherds of Middle/Late Bronze Age date from a few separate vessels. The ditches defining the enclosure were filled by up-to two distinct deposits comprising mid-orange brown sandy clay similar to the surrounding brickearth. This was overlain by mid grey brown clay silt with occasional charcoal inclusions. The lower fill deposits may relate to slumping derived from an internal bank within the enclosure while the overlying deposits likely result from natural silting during a period of disuse. Overlying the terminal, [419], of the western most enclosure ditch was a deposit of dark black brown clay silt with moderate charcoal, fire-cracked flint and fired clay inclusions as well as finds of pottery and struck flint. An environmental sample, <11> was retrieved from this deposit. Due to its location and distinction from the underlying ditch deposit this material was thought to perhaps derive from a deliberate deposition. The only additional type of material produced by the sample, to that collected by hand, was a fragment of bone.
- 4.7.23 The enclosure is currently interpreted as having a primarily livestock related function. There was no evidence of internal structural evidence. However, it is possible that the enclosure could have housed a single farmstead. The low-moderate quantities of material that could be derived from domestic activity could just as easily be associated with short periods of seasonal occupation or perhaps other usage such as feasting. The internal surface may relate to hardstanding for a yard to prevent poaching by corralled livestock.

Settlement (Figure 9)

- 4.7.24 At least three and possibly four post-built roundhouses were clustered within the excavation area. These were represented by concentrations of postholes which occasionally contained small sherds of Middle/Late Bronze Age pottery as well as charcoal and fire-cracked flint. The largest postholes measured c. 0.40m in diameter and reached depths of around 0.35m, the

smallest were c. 0.20m in diameter and reached depths of around 0.10m. Two of the buildings were largely unaffected by later activity (apart from ploughing) while the remaining pair had been significantly impacted by the presence of a post-medieval drainage ditch. One of the latter was somewhat atypical in form in that it was defined by two short curvilinear features (contexts [916], [921], [925] and [994]) which were filled by two distinct deposits comprising mid orange grey sandy silt overlain by dark grey sandy silt with moderate-frequent inclusions of fire-cracked flint. Early prehistoric flintwork was also encountered, as well as bodysherds of Middle/Late Bronze Age date. This probable, but by no means certain, building may represent a different use, or indeed date, to the other roundhouses encountered on site.

- 4.7.25 Beyond the roundhouses outlined above, were numerous unspecified pits and postholes which only occasionally incorporated contemporary dating material. The remaining features were largely equated with this phase due to similarity of fill deposits and their proximity to the buildings outlined above.
- 4.7.26 Two separate lengths of ditch (contexts [1279], [1188] and [634], [842], [939], [1045], [10/008]) are thought to be related to this general area of settlement. It is possible that they relate to settlement boundaries or, more likely, functional separation.
- 4.7.27 A number of four- or five-post structures existed within the excavation area. Such features are often thought to represent the remains of granaries, although a number of other interpretations such as fodder racks or excarnation platforms are also possible. Some of the structures were of typical plan (although sometimes with the addition of a fifth post) while others were of a distinctly narrower type.
- 4.7.28 Scattered across the site were a large number of pits with similar morphology. These were typically sub-oval in plan and were filled by dark deposits rich in fire-cracked flint. Occasionally the pits had a lining of re-deposited heated sandy brickearth. Tentatively interpreted as 'cooking pits', these features may have been related to slow cooking methods or may also have comprised troughs beneath burnt mounds that have subsequently been ploughed away. Alternative functions are also possible and further analysis on these features may illuminate the different function or functions to which the features related.

Cremations

- 4.7.29 Context [998] comprised a cremation pit in which vessel [999] had been inserted. This was in a fabric probably associated with the PDR tradition although a single rimsherd of probable 1st millennium date was also recovered from the surrounding backfill [1000]. The cremation vessel produced a small amount of unidentifiable burnt bone. It is possible that the feature will be re-assigned to period 2.1 during analysis.
- 4.7.30 [328], [334] and [351] comprised three small pits in close proximity to each other within the negative space between the trackway and livestock race associated with Enclosure 1 (described above). They were filled by similar deposits of mid brown grey clay silt with occasional burnt bone, fire-cracked flint and charcoal inclusions. They were thought to be the remains of un-

urned cremations in the field and this is likely to be true for all three, even though only [328] and [351] produced any burnt bone from environmental sampling. The fill deposits produced no dating material and it is possible that the features may be of entirely different date to Phase 2.2. This said they have been associated with this phase due to their close proximity to Enclosure 1. They may be re-phased as 2.1 during analysis.

- 4.7.31 Pit [891] was the later of two intercutting pits (partially truncating [893]; Figure9). It was filled by light grey brown clay silt [892]. It contained a small quantity of unidentifiable burnt bone as well as Middle/Late Bronze Age pottery. The earlier feature, [893], was filled by two deposits, the earliest of which, [894], comprised dark, black brown clay silt with frequent charcoal and occasional cremated human bone. This was overlain by lighter black brown clay silt, [895], which had similar inclusions to [894] but smaller quantities of bone. Crumbs of prehistoric pottery were the only dating material from the feature.
- 4.7.32 Pyre deposit [1264] (Figure8) comprised mid black brown clay silt with frequent inclusions of charcoal and moderate frequencies of fire-cracked flint and burnt bone. It was irregular in plan and up-to 0.20m in thickness. It was stratigraphically later than the Phase 2.2 co-axial field system discussed above.

4.8 Period 3: Middle Iron Age-Early Romano-British (Figure10)

Drainage Ditches

- 4.8.1 A number of ditches along the western side of the site have been assigned a broad Middle Iron Age – Early Roman date. In the main the features comprise a c. 3m wide and c. 1m deep north-south example (with two east-west projections) as well as two earlier east-west examples of similar width and depth.
- 4.8.2 The earliest ditch (contexts [471], [1336], [1338], [1354] and [1415]) contained no dating evidence, showed signs of re-cutting and incorporated up-to three fills. The lowest of these comprised light-purple grey clay silt with occasional inclusions of angular flint nodules and fire-cracked flint. This silting deposit was overlain by light-blue grey clay silt with occasional inclusions of angular flint nodules and moderate inclusions of fire-cracked flint. The latest fill was mid-brown grey, silt clay with occasional inclusions of fire-cracked flint.
- 4.8.3 Partially truncating the ditch described above, a further example was represented by interventions [1284], [1277] and [1412] which were filled by up-to two distinct deposits comprising mid grey brown silt clay overlain by mid-orange brown silt clay. Both deposits contained fire-cracked flint inclusions. Only two sherds of pottery were encountered; a sherd of Romano-British date from later turfing deposits accompanied by a late prehistoric example in a flint tempered fabric.
- 4.8.4 The east-west orientated ditches described above may have drained into an earlier watercourse or represent an attempt to consolidate the same natural feature.

- 4.8.5 The latest drainage ditch (contexts [393], [814], [816], [830], [1111], [1115], [1117], [1180], [1181], [1186], [1192], [1258], [1260], [1365], [8/009]) showed much evidence of re-cutting, it was filled by up-to three deposits representing episodes of silting slumping and turfing. The ditch was dated by pottery indicating a later Middle Iron Age – Late Iron Age origin with residual Middle/Late Bronze Age material also present.

Other Features

- 4.8.6 Other features comprised three short lengths of ditch these related to both earlier and later elements of the drainage system (described above). Contexts [1271] and [1273] may relate to the initial marking out of these ditches. The feature was undated but is perhaps of late Middle Iron Age origin. A further gully-like feature, [198], located in the south of the excavation area was somewhat uncertainly dated by two tiny sherds of possible Late Iron Age pottery.
- 4.8.7 The final linear feature associated with this phase comprised a roughly north-northeast/south-southwest orientated field boundary (contexts [731], [1081], [1102], [1356], [1360] and [14/004]) this clearly overlay the Phase 2.2 co-axial field system (described above). It was filled by a mid-orange brown silt clay which produced a mixed assemblage of Roman and flint tempered sherds as well as likely residual Middle/Late Bronze Age pottery.
- 4.8.8 As well as the linear features described above, four pits filled by similar deposits (contexts [1059], [1065], [1069] and [1071]) were located close to the western limit of the excavation area, these formed a rough arc. Three of the pits were largely unremarkable. However, [1071] was sub-circular in form with a diameter of c. 0.80m and a maximum depth of 0.25m. It had gradually sloping sides onto a flat base and was filled by a mid-black brown sandy silt [1072] with occasional inclusions of fire-cracked flint. [1072] was overlain by dark brown black silty sand [1073] with occasional inclusions of fire-cracked flint and charcoal. Finds produced from this fill deposit comprised sherds of a fragmentary, but largely complete jar with a slightly beaded rim of later Iron Age date.

4.9 Period 4: Romano-British

- 4.9.1 Period 4 is of likely post-Conquest date and is represented by two discrete phases of activity (Periods 4.1 and 4.2), with a likely hiatus in-between.

Period 4.1 Early Romano-British 1st-mid-2nd century (Figure11)

Field-system

- 4.9.2 Evidence of a 1st-2nd century field system was encountered in the central and southern part of the site. This comprised field-boundaries and drainage ditches. These were on a different orientation to both the preceding and later field systems encountered at the site. The field-boundaries/drainage ditches in the south of the Flood Compensation Area were clearly intended to drain into a pre-existing watercourse represented by alluvium [171]. A ditch encountered during the evaluation stage [3/006] may also represent a drainage ditch associated with this system. The features produced a pottery assemblage that overwhelmingly pointed towards a mid-1st- mid 2nd century

date, but also incorporated residual prehistoric material as well as two abraded sherds of medieval pottery which are thought to be intrusive. The upper horizons of the ditches occasionally contained CBM (ceramic building material) as well as later Roman material indicating that the features had been decommissioned by Phase 4.2.

Possible Circular Enclosure

- 4.9.3 Against the western limit of excavation, within the Flood Compensation Area, two curvilinear abutting ditches, probably representing a circular enclosure, were encountered (contexts [442], [524] and [526]). The features had sharply sloping- near vertical sides and a tapered base. They were filled by similar deposits of mid-grey brown clay silt with occasional inclusions of angular flint nodules and charcoal flecks. Two sherds of earlier Roman fabric were recovered. It is possible that this enclosure was replaced by a later Roman square example outlined below.

Period 4.2 Later Romano-British 3rd to mid-4th century (Figure 12)

Rectilinear Enclosure

- 4.9.4 Partially overlying the probable Phase 4.1 circular enclosure outlined above was a right-angled length of ditch representing the corner of a later enclosure (contexts [545], [824], and [828]). The ditch was largely filled by a single deposit, however, there were possible signs of a re-cut or two sequential fills at the most northerly extent against the baulk (contexts [824] and [826] – not illustrated). There were also signs of disturbance or perhaps rooting or burrowing at this location (context [828]). The feature produced a mixed assemblage of earlier and later Roman pottery with a near complete Rowland's Castle everted rim jar coming from the upper levels of [824]. As well as the pottery, possible fragments of tegula were also recovered along with three Roman sestertii, <RF's 3-5>, of 1st to mid-3rd century date.

4.10 Period 5: Medieval (Figure 13)

Field-system

- 4.10.1 A field system provisionally dated to the medieval period was also recorded at the site. This comprised four northeast-southwest orientated ditches with broadly perpendicular evidence of plough furrows indicating cultivation. The ditches ran up to, but did not extend beyond a large drainage ditch (described below), which may mark the line of a pre-existing watercourse. A further part of the same system was encountered in the north-eastern part of the site and comprised a roughly right angled ditch relating to the corner of a field. All ditches associated with this field system were filled by similar deposits of mid-grey brown silt clay. Inclusions consisted of moderate angular flint nodules, occasional charcoal flecks and very occasional fire-cracked flint. Some of the interventions contained deposits rich in land snails from the lower levels. The finds assemblage was diverse in both type and date and included prehistoric flintwork, rare small sherds of abraded late prehistoric pottery, animal bone, Roman sherds (both abraded and fresh), medieval pottery of 13th-15th century date derived from manuring, a vitrified fragment of brick showing signs of re-use, roof tile of possible late medieval/early post-medieval date, possible briquetage, fired clay, slag, and

a fragment of glass wine bottle (AD 1750-1900). An iron sickle, RF<12>, was recovered from ditch fill [554] (SG244). The object was found directly below a large flint beach cobble which may have been utilised to deliberately bend the sickle out of shape prior to its deposition. The sickle is of Roman or later date (see section 5.13.6).

Quarry Pit

- 4.10.2 A large sub-circular pit [1409], likely associated with quarrying activity (perhaps for marl) was located within the field system outlined above. The feature had sharply sloping sides and was excavated to a depth of c. 0.45m by hand before water ingress prevented further investigation. Two fills were encountered prior to the abandonment of the feature. The lower (context [1410]) comprised mid-yellow grey silt clay with occasional large nodules of naturally occurring flint, moderate inclusions of chalk fragments and occasional pieces of fire-cracked flint and Bognor Rock. No finds were recovered from the deposit. The uppermost fill [1411], comprised mid-grey brown silt clay, with frequent inclusions of chalk marl introduced via the plough as well as occasional nodules of flint. Finds recovered from this fill included fragments of brick as well as a sherd of medieval pottery.

Animal Burials

- 4.10.3 Two pits, [1143] and [1198], containing animal burials have provisionally been assigned to this phase, largely on the strength of a single medieval sherd from [1198]. Considering the lack of dating material it is perhaps as likely that the features derive from more recent, post-medieval, activity. The animal burials relate to adult cattle and a juvenile sheep or goat respectively.

4.11 Period 6: Post-Medieval (Figure 14)

Drainage

- 4.11.1 The northern portion of the site was dominated by a very large drainage ditch (contexts [358], [363] and [1029]) which measured up to 7m in width and reached depths of around 2m. Interventions excavated within this feature were undertaken by machine which showed that it was cut through the natural brickearth horizon, sealed by the modern plough soil and impacted upon the underlying chalk of the Culver Formation. It had sharp, steeply sloping sides and a rounded base; it was filled by a sequence of distinct deposits. The earliest fill comprised light-white grey, clay silt, which relates to the interface between the drainage ditch and the underlying chalk. This was overlain by dark black brown peaty silt, with moderate inclusions of charcoal and preserved organics, a fragment of Roman brick was recovered from the deposit. This was overlain by light blue grey clay silt which produced an 18th-19th century brick with deliberately glazed headers. The upper half of the ditch was filled by a thick silting and turfing deposit comprising mid-grey brown silt clay which also produced fragments of brick as well as metalwork finds including a post medieval half penny, RF<13>. Although currently dated to, and likely to be of post-medieval origin, the occurrence of a fragment of Roman brick from the lower fill deposits perhaps points to earlier inception or more likely truncation of an earlier feature.

- 4.11.2 A shallow deposit of alluvium [1408] was encountered to the immediate east of the ditch described above. The feature's sinuous plan, clearly drainage related function and the fact that earlier activity tended to respect this general area may indicate that the ditch was excavated to consolidate and in effect 'canalise' a pre-existing watercourse.
- 4.11.3 A northwest-southeast orientated ditch (contexts [1287], [1379] and [1388]) measuring c. 31m in length, c. 0.65m in width and c. 0.25m in depth, may be related to drainage or the field system of provisional medieval date described above. The ditch was filled by mid-grey brown clay silt with frequent natural flint and occasional charcoal flecks, it produced finds of metalwork.
- 4.11.4 As well as the ditches described above 19th century land drains also existed at the site.

4.12 Undated (Figure 15)

- 4.12.1 Most undated features comprise natural features or deposits and isolated pits and postholes, as well as lengths of ditch which produced no dating material and could not be associated with any of the archaeological phases on the basis of stratigraphic or spatial grounds. A number of poaching deposits were also encountered that likely date to the Late Neolithic/Early Bronze Age or the Middle/Late Bronze Age; their dating will hopefully be refined at analysis stage.
- 4.12.2 As well as the undated features and deposits outlined above, four partial ring gullies (one of which was segmented in form) were encountered in the northern half of the Flood Compensation Area. These produced very little in the way of dating material, amounting to a single denticulated scraper from the segmented example (despite 100 percent excavation of two of the features). Where stratigraphic relationships were present, two of these 'ring gullies' could be demonstrated to be earlier than Period 3.1 and Period 2.2 activity. Although reminiscent of roundhouse gullies the lack of domestic material within the features fill deposits, a lack of internal structural features, their apparent early date and a rough east-west alignment of three of the examples, may make an alternative explanation as small barrow ditches appropriate. Having said this, gully defined buildings of non-domestic function may explain a lack of domestic type material and therefore dating evidence.

| Type | Description | Quantity | Notes |
|-------------------------------|--|----------------------|---|
| Context sheets | Excavation and evaluation | 1476 | Individual context sheets |
| Section sheets | Excavation and evaluation | 30 | A1 Multi-context permatrace sheets |
| Digital Plans | Excavation, evaluation and geotechnical investigations | All features | Multi-context DWG plan |
| Photos | Excavation, evaluation and geotechnical investigations | All contexts | Black and white transparency Colour slide Digital |
| Environmental sample sheets | Excavation, evaluation and geotechnical investigations | 68 | Individual sample sheets |
| Context register | Excavation, evaluation and geotechnical investigations | All contexts | Context register sheets and digital |
| Environmental sample register | Excavation, evaluation and geotechnical investigations | All sampled contexts | Environmental sample register sheets |
| Photographic register | Excavation, evaluation and geotechnical investigations | All contexts | Photograph register sheets |
| Drawing register | Excavation, evaluation and geotechnical investigations | All contexts | Section register sheets |
| Small finds register | Excavation, evaluation and geotechnical investigations | 1 | Small finds register sheets |

Table 2: Stages 1, 2 and 3 site archive quantification

5 QUANTIFICATION AND ASSESSMENT: FINDS AND ENVIRONMENTAL

5.1 Introduction

5.1.1 A large assemblage of finds was recovered during the excavations at Oldlands Farm, Bognor Regis (Appendix 1). Finds were all washed and dried or air dried as appropriate. They were subsequently quantified by count and weight, and bagged by material and context. Finds are packaged and stored according to ClfA guidelines (2014b). No further conservation is required unless stated.

5.2 The Flintwork by Karine Le Hégarat

Introduction

5.2.1 The geoarchaeological watching brief, the evaluation and the excavation resulted in the recovery of 862 pieces of struck flint (including 325 chips) weighing 8622g and four flint hammerstones (630g) (Table 3). A sizeable assemblage of unworked burnt flint weighing just over 126 kg was also recovered (Table 4). The material was hand collected and retrieved from sample residues. With the exception of a small number of Mesolithic or Early Neolithic artefacts that were found as residual finds, the material can largely be dated to the Middle Neolithic - Late Bronze Age. This report characterises the nature of the flint assemblage and assesses its potential for further detailed analyses.

| Provisional periods | Flakes * | Blades, Blade-like flakes, Bladelets | Chips | Irregular waste | Cores, Core fragments | Retouched forms | Hammerstones | Total | % |
|---------------------------------------|------------|--------------------------------------|------------|-----------------|-----------------------|-----------------|--------------|------------|----------------|
| 0 - undated | 31 | 4 | 7 | 1 | 1 | 6 | - | 50 | 5.77% |
| 1 - Late Neolithic - Early Bronze Age | 110 | 16 | 124 | 7 | 9 | 6 | - | 272 | 31.41% |
| 2 - Mid-Late Bronze Age | 201 | 28 | 189 | 5 | 15 | 13 | 4 | 455 | 52.54% |
| 3 - Middle Iron Age ER, 4 and later | 58 | 4 | 5 | 2 | 5 | 10 | - | 84 | 9.70% |
| Unstratified and geoarch | 2 | 1 | - | - | 1 | 1 | - | 5 | 0.58% |
| Total | 402 | 53 | 325 | 15 | 31 | 36 | 4 | 866 | 100.00% |

Table 3: Summary of the struck flint by provisional period (fragments of burnt unworked flint are not included) - (* includes a core preparation flake)

| | Burnt Flint collected - weight (g) | Unworked Hand - weight (g) | Burnt Unworked Flint from sample residues - weight (g) | Flint - residues - Total |
|----------------------------------|---|-----------------------------------|---|---------------------------------|
| Geoarch WB and Evaluation | 8802 | | 708 | 9510 |
| Excavation | 8263 | | 109099 | 117362 |
| Total | 17065 | | 109807 | 126872 |

Table 4: Summary of the burnt unworked flint (this represents only a sample of the burnt flint present on site)

Methodology

5.2.2 The pieces of struck flint were individually examined and classified using standard set of codes and morphological descriptions (Butler 2005; Ford 1987 and Inizan *et al.* 1999). Basic technological details were noted in order to aid characterising the material, and further information regarding the condition of the artefacts (evidence of burning or breakage, degree of cortication and degree of edge damage) were recorded. Dating was attempted when possible. The assemblage was catalogued directly onto a Microsoft Excel spreadsheet.

5.2.3 The fragments of hand-collected burnt unworked flint were rinsed, scanned for worked pieces and quantified by piece and by weight. The burnt unworked flint from the sample residues were scanned for worked material and quantified by weight.

Raw material

5.2.4 The colour of the flint selected for the production of the lithics varies considerably. The majority of the flints were light to dark grey, but the assemblage also contains pieces of light to dark brown and orange/brown flint. Mottled inclusions were common. Where present, the outer surface was principally thin (1 or 2 mm thick), off-white or mid brown and only slightly weathered. Although thermal inclusions were occasionally observed, the material appeared to be of relatively good flaking quality. The raw material could have been collected at and around the site where it occurs as derived material in the superficial brickearth deposits covering the chalk. Flint with a greyish pitted cortex of a riverine or beach origin formed a very small component of the assemblage of struck flints. The large assemblages of burnt unworked flint from contexts [508] and [637] contained a few burnt pieces which suggest that pebbles were occasionally selected for burning activities.

Condition

5.2.5 A large quantity of the flintwork displayed minimal signs of weathering, with slight to moderate edge modification, and a few pieces were in a remarkably fresh condition. This implies that the material has undergone negligible post-depositional disturbance, or that it was not exposed for long periods before deposition or incorporation into archaeological features. A small proportion of the assemblage was less well preserved including 14 pieces that exhibited heavy edge-damage. This suggests that a small component of the

assemblage was left exposed for a long period before burial, or that it wasn't in its primary deposit.

- 5.2.6 The bulk of the flintwork was free from surface cortication, but 54 pieces displayed light and mostly partial white/bluish surface discolouration. The orange/brown colour of a few flints could be associated within the orange-brown manganese rich brickearth recorded during monitoring of geotechnical test pitting on the site (ASE 2014c). A total of 242 pieces were recorded as broken.

Provenance

- 5.2.7 The geoarchaeological watching brief produced just two pieces of flint. In total, 46 flint artefacts were recovered from 16 individually numbered contexts during the evaluation. A further 818 pieces were found during the excavation (two came from unstratified deposits, one from geoarchaeological sample <47> and 815 from 128 contexts). Although the artefacts were spread over the investigated area, the density of flintwork varies. A large amount of contexts produced only small quantities of flints, but 16 contexts produced between 11 and 121 pieces. However, with the exception of contexts [353], [259], [343], [813], [339] and [394] a large proportion of this assemblage is obviously biased towards chips recovered from the environmental samples. The greatest amount of struck flints by context was 121; this material came from context [813] (pit [811]).
- 5.2.8 The material came from a range of archaeological features and deposits ranging in date from the Late Neolithic period to the post medieval period (Table 3). Almost a third of the total assemblage of struck flint (31.41%, n=272) originated from archaeological features currently dated to the Late Neolithic/Early Bronze Age period (Period 1). In fact, this material was recovered from just four pits (pits/sumps [258], [283] and [342], and pit [811]). These features produced the largest quantity of un-biased material. No diagnostic pieces were found in these deposits, but based on technological and morphological grounds, the material is likely to be contemporary with the ceramic and the features. The flintwork is largely in fresh condition, but pits/sumps [258], [283] and [342] contained a few re-corticated pieces. While the later three features may also contained a few earlier and later material, pit [811] (121 pieces) produced the most coherent group. The material from the four pits currently phased to the Late Neolithic/Early Bronze Age period will be discussed separately.
- 5.2.9 Over half of the total assemblage of struck flints (52.54%, n=455) came from archaeological features currently dated to the Mid-Late Bronze Age (Period 2). They were retrieved from a range of features; ditches, postholes, a possible well and pits including cremation pits, sump pits, and cooking/fire pits. Most contexts produced just a few pieces; and, although a few contexts produced moderate amounts of flints (varying between 11 and 27 pieces), these are principally biased towards chips. The exceptions are contexts [394] (11 pieces) and [339] (13 pieces). The majority of the flintwork is also probably contemporary with the features; however, it is clear that the material occurs admixed with a few earlier flints (Neolithic/Early Bronze Age). Nonetheless, the overall fair condition of the flintwork indicates that the material hasn't been subject to different or significant post-depositional processes. The material that derives from later contexts (Periods 3 onwards)

- 84 pieces corresponding to 9.70% of the total assemblage - is likely to be residual.

5.2.10 A further 50 pieces (5.77% of the total assemblage) came from 12 contexts which are currently undated. Deposit [353] interpreted as a possible poaching area or shallow dew pond produced the largest group (20 pieces). Two flakes from this deposit could be thinning flakes, and a scale-flaked knife is likely to be Mid/Late Neolithic or Early Bronze Age in date. The artefacts display only slight edge modification, and they are possibly contemporary with the deposit.

The assemblage

5.2.11 A small quantity of flints (c. 13) are likely to indicate a Mesolithic or Early Neolithic date. No diagnostic pieces were recorded, but technological indicators point to a blade-orientating industry. All these artefacts were found residual in later contexts or in currently un-phased contexts. They consist mainly of blades and bladelets including two blades from deposit [263], two bladelets from pits/sumps [283] and [342], five blades from pit/sump [1391] (fills [1393] and [1395]), postholes [630] and [738], pit [9/005] and ditch [8/009]. In addition, ditch [330] produced a single platform blade core used to remove thin bladelets, and cooking/fire pit [636] produced an unclassifiable core with blade scar removals.

5.2.12 In total 272 pieces (almost a third of the total assemblage of struck flint) came from four archaeological features (three pit/sumps and a cooking/fire pit) currently dated to the Late Neolithic/Early Bronze Age period (Period 1) on the basis of ceramic material (Table 5).

| Category | Pit/Sump [258] | Pit/Sump [283] | Pit/Sump [342] | Cooking/Fire pit [811] |
|---------------------------------|----------------|----------------|----------------|------------------------|
| Flake | 11 | 3 | 23 | 73 |
| Blade-like flake | 1 | - | 4 | 6 |
| Blade | - | - | 2 | - |
| Bladelet | - | 2 | 1 | - |
| Chip | 74 | - | 20 | 30 |
| Irregular waste | - | - | 2 | 5 |
| Multiplatform flake core | 1 | - | - | 4 |
| Unclassifiable/fragmentary core | - | 1 | 1 | 1 |
| Core on a flake | - | - | - | 1 |
| End scraper | - | - | 2 | - |
| End-and -side scraper | - | - | 1 | - |
| Retouched flake | - | 1 | - | 1 |
| Misc. Retouch | - | 1 | - | - |
| Total | 87 | 8 | 56 | 121 |

Table 5: Summary of the struck flint from Neolithic - Early Bronze Age features (Period 1) by category type

- 5.2.13 The flint assemblage from pits [258], [283], [342] and [811] is in a relatively fresh condition, and it is likely to be mostly contemporary with the features. Pit [811] (fill [813]) produced the largest assemblage (121 pieces), followed by pit/sump [258] (fills [259], [260] and [261]) which contained 87 flints. Pit/sump [342] (fill [343] and [344]) and [283] (fill [284]) produced 56 and eight pieces each respectively. The flint assemblage is dominated by waste debris. Flakes dominate (110 pieces) over the blades/blade-like flakes (16 pieces) indicating a flake-based industry (Ford 1987). Nine flake cores are also present. Several flakes are crudely made, but others appear to be more carefully worked displaying thin flake scars on the dorsal face as well as limited platform preparation. Mixed hammer modes were recorded, but a fair proportion of the pieces displayed narrow or winged platforms with limited preparation. Evidence for careful reduction strategy indicates a Neolithic/Early Bronze Age date. Six modified pieces were recorded including three scrapers and three pieces with minimal retouch. All three scrapers come from pit/sump [342]. They have been finely retouched, and are likely to be Neolithic or Early Bronze Age in date. Technologically and morphologically the assemblage from the four pits forms a coherent group, although it contains occasional earlier pieces such as the two bladelets from context [284].
- 5.2.14 Several contexts currently dated to Period 3 onwards, or even undated, contained flakes with platform preparation. These flakes together with a core face/edge rejuvenation flake from ditch [6/006], a finely made knife from context [8/002], a flake core made on a broken polished axe from context [595], a flake scaled knife from context [353] as well as several finely made scrapers and a composite tool from ditch [446] confirm the presence of Neolithic to Early Bronze Age artefacts. While the majority of these artefacts are found admixed with later material, some of the modified pieces were encountered on their own.
- 5.2.15 Archaeological deposits currently dated to Period 2 (Mid-Late Bronze Age) produced large quantities of flints, but once the chips are discounted, the majority of contexts produced only small amounts of pieces. Again flakes dominate the unmodified pieces of flint débitage. A large proportion are small and display technological attributes characteristic of late prehistoric industries (Mid-Late Bronze Age – Mid Iron Age), such as absence of platform preparation, incipient cones of percussion and pronounced bulb of percussion. The majority of the cores had been randomly reduced to produce small flakes. A small flint nodule from context [455] had been minimally used. A limited number and range of modified tools were recorded, principally scrapers, notched pieces and minimally retouched pieces. Nonetheless, as noted above, artefacts that displayed evidence for a more careful reduction strategy were also present. These artefacts indicate the presence of Neolithic and Early Bronze Age flints. They could represent early material that may have originally accumulated on the land surface or material that was re-used during the late prehistoric period.

Burnt unworked flint

5.2.16 A substantial quantity of burnt unworked flint (just over 126kg) was recovered through hand-collection and from sample residues (Table 4). The amounts presented in Table 4 do not reflect the sheer quantity of burnt flints observed on site. The majority of the fragments of burnt unworked flint have been heavily calcined to a grey or white colour, but fragments that displayed red tinge were also occasionally recorded. The burnt material was recovered in varying quantity from features spread over the entire site. While a large proportion of features/deposits contained only small amounts of burnt material, the largest assemblages came principally from features currently dated to Phase 2.2 (Appendix 2); burnt mound [204], pit or burnt mound [281], cooking or fire pits [485], [507], [636] and [837], pit [750] and refuse pit [844]. Pit [811], currently dated to Late Neolithic/Early Bronze Age (Period 1) and two ditches ([1180] and [8/009]), currently dated Period 3 (Mid Iron Age/Early Roman period) also produced large assemblages of burnt flint.

5.3 The prehistoric and Roman pottery by Anna Doherty

Introduction

5.3.1 A reasonably large assemblage of prehistoric and Roman pottery was recovered during evaluation and excavation work at the site (quantified by stratigraphic period in Table 6); however, quite a large proportion of the sherd count and weight is made up by fragmentary partially-complete vessels from cremations and other possible placed deposits. More generally, larger stratified groups of pottery were rather lacking from the site. Of particular note is a small quantity of Grooved Ware/Beaker, stratified in contemporary pits/waterholes. The largest quantity of pottery has been assigned to period spanning the Middle Bronze Age and the earlier part of the Late Bronze Age. There are also some diagnostic groups of Middle/Late Iron Age to earliest Roman date and a small amount of Roman pottery including both early and later Roman assemblages.

| Period | Sherds | Weight | ENV |
|------------------------------------|--------|--------|-----|
| 1 Late Neolithic/Early Bronze Age | 105 | 622 | 44 |
| 2 Middle to Late Bronze Age | 1781 | 14580 | 667 |
| 3 Middle Iron Age to early Roman | 418 | 4232 | 141 |
| 4 Roman | 270 | 3060 | 66 |
| Unstratified/residual in Period 5+ | 35 | 314 | 25 |
| Total | 2609 | 22808 | 943 |

Table 6: Quantification of prehistoric and Roman pottery by stratigraphic period

5.3.2 The pottery was examined using a x20 binocular microscope. Prehistoric tempered wares were recorded according to site-specific fabric codes, formulated in accordance with the guidelines of the Prehistoric Ceramics Research Group (PCRG 2010). In the absence of a regional pottery types-series for Sussex, Roman fabrics were recorded using an adapted version of the Southwark/London typology (Marsh & Tyers 1978; Davies *et al.* 1994) (with some additional codes for local types) which will be published in a forthcoming summary of Roman pottery from the West Sussex coastal plain

(Doherty in prep a). Reference is also made to the type-series for Rowland's Castle wares (Dicks 2009).

Methodology

5.3.3 Hand-collected pottery was quantified in its entirety by sherd count, weight, Estimated Vessel Equivalent (EVE) and Estimated Vessel Number (ENV); pottery from the residues of environmental samples was subsequently scanned and compared with data from the hand-collected finds assemblage. Material from samples was only formally recorded if it provided additional dating evidence, diagnostic feature sherds or significant quantities of pottery. Data was recorded on pro-forma sheets for the archive and entered into an Excel spreadsheet.

5.3.4 Site-specific fabric type-series

- | | |
|-------|--|
| FLIN1 | moderate to common well-sorted flint of c. 0.5-1.5mm in a very silty background matrix |
| FLIN2 | moderate, moderately sorted flint, mostly of 0.2-2mm with some examples up to 3mm, in a non-sandy background matrix |
| FLIN3 | Sparse to moderate flint of 0.5-2mm in a slightly silty background matrix |
| FLIN4 | moderate ill-sorted flint, mostly of 0.2-4mm with some examples up to 5mm, in a non-sandy background matrix |
| FLIN5 | Moderate to common very ill-sorted flint ranging from 0.2-7mm in a dense fairly inclusionless matrix |
| FLIN6 | Common well-sorted flint 1-2mm (rarely a little larger) with a blocky appearance in a dense silty matrix – could represent DR fine wares |
| FLIN7 | Sparse flint, ranging from 1mm but mostly of 3-4mm with some examples up to 6mm in a fairly dense inclusionless matrix |
| FLIN8 | Moderate to common flint of 1-3mm with a occasional examples up to 4mm a non-sandy background matrix |
| FLGR1 | Moderate flint 0.5-3mm and sparse grog 1-2mm which is sometimes difficult to distinguish from the background matrix. |
| FLQU1 | Rare/sparse flint, mostly fine (0.5-1mm) with a few coarser examples (up to 2.5mm); moderate to common coarse quartz (c.0.3-0.5mm). |
| FLQU2 | Moderate flint of 0.2-2.5mm in a silty to fine sandy matrix (most quartz is 0.1mm or less though a few larger grains of 0.2-0.4mm are visible) |

- FLQU3 Rare/sparse flint of 0.2-2.5mm in a silty to fine sandy matrix (most quartz is 0.1mm or less though a few larger grains of 0.2-0.4mm are visible)
- GLFL1 Common glauconite c. 0.2-0.4mm, rare fine flint mostly of <0.5mm and rare large quartz grains up to 0.8mm
- GRFL1 Moderate grog of 1-2mm and rare/sparse flint (most <1mm although very rare large examples up to 8mm are occasionally observed)
- GROG1 Moderate grog of 1-2mm often blending into an otherwise quite inclusionless matrix
- GRQU1 Moderate grog of 1-2mm in a very silty background matrix containing sparse/moderate coarser quartz grains up to 0.2mm
- QUAR1 v. silty to fine sand matrix; rare larger grains 0.2-0.3mm. in one example some rare leached white calc material <1mm in size
- SHEL1 Common, moderately to ill-sorted shell of 0.5-4mm in a non-sandy background matrix

Period 1 Late Neolithic/Early Bronze Age

- 5.3.5 A small assemblage of diagnostic Late Neolithic/Early Bronze Age pottery was stratified in Period 1 features and deposits, with small/medium-sized groups from pit/waterhole [258], pit [811] and numerous undecorated sherds of one vessel found in subsoil layer [460]. Although the assemblage is largely thought to represent Late Neolithic Grooved Ware (dated c. 2900-2000 BC), some elements could be either Grooved Ware or Late Neolithic/Early Bronze Age Beaker (dated c. 2500-1700BC). The diagnostic Grooved Ware traits appear to belong to the Durrington Walls style which is generally thought to be later within the currency of this ceramic tradition, so it is possible that vessels of both Grooved Ware and Beaker could occur together. Most of the sherds are relatively small and abraded, suggesting that they are unlikely to represent primary deposits. However, very early Beaker assemblages pre-dating c. 2250-2150 BC are fairly rare and none of the sherds have decorative styles such as horizontal comb-stabbed bands or all-over-cord impressions which could be more certainly be attributed as Beaker.
- 5.3.6 As shown in Table 7, contemporary fabrics appear to be almost entirely grog-tempered. Most examples do not contain any other coarse inclusions (GROG1) though a number of examples with sandier matrixes (GRQU1) or grog-and-flint (GRQU1) also appear. Although relatively few Late Neolithic/Early Bronze Age assemblages have been found on the coastal plain, similar fabrics were associated with both Grooved ware and Beaker at Westhampnett and further afield in Sussex at Peacehaven (Mephram 2008; Doherty in prep b). A number of sherds found in Period 1 deposits are purely flint-tempered (fabrics FLIN, FLQU etc) although all of these are small undiagnostic bodysherds, they are in fabrics which are fairly atypical of Beaker/Grooved Ware and could instead represent residual Early Neolithic or – perhaps more likely, given the evidence from the rest of the assemblage

– intrusive Middle Bronze Age or later pottery. In addition to the stratified material c. 20 sherds in typical Beaker/Grooved Ware fabrics were noted as residual elements in later deposits.

| Fabric | Sherds | Weight (g) | ENV | %ENV |
|--------|--------|------------|-----|------|
| FLIN | 1 | 1 | 1 | 2% |
| FLIN2 | 2 | 4 | 2 | 5% |
| FLIN4 | 4 | 31 | 4 | 9% |
| FLIN5 | 2 | 5 | 2 | 5% |
| FLQU2 | 3 | 31 | 3 | 7% |
| GRFL1 | 14 | 194 | 7 | 14% |
| GROG1 | 78 | 353 | 24 | 56% |
| GRQU1 | 1 | 3 | 1 | 2% |
| Total | 105 | 622 | 44 | 100% |

Table 7: Quantification of pottery fabrics stratified in Period 1 deposits

5.3.7 Although the assemblage is very fragmentary, with no rims or larger parts of body profiles present, about a third of estimated vessels in probable Grooved Ware/Beaker fabrics feature diagnostic decoration. Of particular note are sherds featuring plain vertical applied cordons found in features [258] and [811]. This decorative style is fairly specific to the Durrington Walls sub-style of Grooved Ware and is not generally associated with other Late Neolithic/Early Bronze Age pottery traditions such as Beaker and Collared/Biconical Urn. Sherds from up to three cordoned vessels were noted across the different fills of pit/waterhole [258]. Although these are in very similar fabrics and could possibly be different elements of the same vessel, the sherds have slightly different characteristics: one example had columns of tool or small fingernail-impressed or dashes in between multiple cordons, whilst another features similar impressions between individual cordons and third only features multiple cordons. Another bodysherd in [258] has similar impressed dashes arranged in alternating columns, forming a lozenge pattern. Feature [811] also includes a small sherd with alternating diagonal grooved lines: again, a typical example of Grooved Ware style decoration. Several others, in both [258] and [811] and a range of other features, include fingernail-impressed decoration often in paired “crow’s feet” style. On balance all of the decorative styles could represent Grooved Ware vessels although fingernail impressions are characteristic of both Beaker and Grooved Ware. A number of fairly thick-walled but undecorated grog-tempered sherds of a single vessel, found in deposit [460] are even more difficult to pin down to an individual style; in addition to Grooved Ware and Beaker these could feasibly represent an Early Bronze Age Collared or Biconical Urn.

5.3.8 A thick internal sooted residue was noted on one sherd from environmental sample <36>, fill [813] of pit [811], representing one of the largest groups containing diagnostic Grooved Ware. It is recommended that this should be submitted for radiocarbon dating in order to better understand the dating of this pottery group and of the Late Neolithic/Bronze Age activity on the site. The date may also provide further evidence as to whether the assemblage is wholly Grooved Ware, which would be much more likely if the result

significantly pre-dates c. 2250BC or a mixture of Grooved Ware and Beaker which would be almost certain if the sample post-dates c. 2100/2000BC.

Period 2 Middle to Late Bronze Age

5.3.9 The Period 2 ceramics appear to represent a continuous period of activity spanning the Middle Bronze Age and earlier part of the Late Bronze Age. Stylistically it contains elements of Deverel-Rimbury (DR) and Post Deverel-Rimbury (PDR) pottery, with the latter being largely of early 'undeveloped plain ware' type, probably pre-dating c. 950BC. The stratigraphic sequence has been divided into two phases, Periods 2.1 and 2.2, and although these respectively contain some diagnostic groups or vessels which belong wholly in the Middle Bronze Age or Late Bronze Age, in reality, most individual spot-dates are ambiguous because change between these two ceramic styles was gradual. Whilst there is a tendency for an increase in thinner-walled vessels and of finer grades of flint-tempering over the course of the late 2nd millennium, it is usually difficult to differentiate these periods definitively unless diagnostic feature sherds or and/or fairly large groups are present.

| Fabric | Sherds | Weight (g) | ENV | %ENV |
|--------|--------|------------|-----|------|
| FLIN | 61 | 58 | 51 | 8% |
| FLIN1 | 49 | 151 | 20 | 3% |
| FLIN2 | 374 | 2550 | 212 | 34% |
| FLIN3 | 79 | 310 | 52 | 8% |
| FLIN4 | 441 | 4213 | 88 | 14% |
| FLIN5 | 285 | 3281 | 26 | 2% |
| FLIN6 | 10 | 56 | 7 | 4% |
| FLIN7 | 89 | 1145 | 16 | 1% |
| FLIN8 | 283 | 2393 | 157 | 23% |
| FLQU1 | 76 | 247 | 11 | 2% |
| FLQU2 | 5 | 48 | 5 | 1% |
| SHEL1 | 1 | 3 | 1 | <1% |
| Total | 1752 | 14452 | 645 | 100% |

Table 8: Quantification of fabrics in Period 2 (excluding residual Beaker/Grooved Ware and intrusive Roman sherds).

5.3.10 Excluding a small number of obviously residual grog-tempered and intrusive Roman sherds, the pottery from Period 2 is exclusively flint-tempered (Table 8), a pattern which is typical of both DR and earlier plain ware PDR assemblages from West Sussex (Seager Thomas 2008, 41). It is notable that the coarsest grades of flint-tempering, represented by fabrics FLIN5 and FLIN7 (usually associated with thick-walled heavy duty wares and therefore probably wholly Middle Bronze Age) make up a reasonable proportion (15% of ENV) in Period 2.1 but are much less common (6%) by Period 2.2. There also a decrease in the next coarsest ware FLIN4 and a corresponding increasing in the marginally finer coarse ware, FLIN8 over this period. Medium to fine coarse wares, FLIN2 and FLIN3, increase noticeably (from 25 to 42%) between Phases 2.1 to 2.2 but fine wares (FLIN1; FLIN6) are fairly uncommon in both phases. Overall, it can be said that the Phase 2.1

fabrics are more typically Middle Bronze Age and the Phase 2.2 more characteristically Late Bronze Age but the difference between the two is reasonably subtle so it would probably be accurate to characterise Period 2 as a whole as transitional Middle/Late Bronze Age, with activity likely ongoing before and after c.1150BC.

- 5.3.11 A few examples of flint-tempered wares with sandier matrixes appear in this period as well as one shell-tempered sherd (FLQU1; FLQU2 and SHEL1). These are not as typical of DR/early PDR assemblages and, given that a number sherds of Roman pottery were found in features phased to this period, it seems fairly likely that these may be intrusive later Iron Age/early Roman wares. However, it is worth noting that fabrics of this type are a feature of later developed/decorated PDR and Early Iron Age assemblages and it is not impossible that a few individual Period 2 features or deposits belong to the early/mid 1st millennium BC.
- 5.3.12 Quite a large proportion of the Period 2 assemblage is made up by truncated/partially complete vessels with possible funerary associations. All but one of these have been assigned to stratigraphic Period 2.1; the only vessel assigned to Period 2.2, from feature [998], does not necessarily look later in date to the others, although a single rimsherd of probable 1st millennium date was recovered from the surrounding backfill (see below). In features [805], [808], [998] and [1333], the fragmented bases of urns were recovered but unfortunately no elements of the upper profiles are present; another vessel, from feature [1152], produced large areas from the upper body, probably suggesting an inverted burial urn. One of the vessels, from [1333], is very thick-walled and in an exceptionally coarse fabric (FLIN5) which is probably unlikely to post-date the end of the Middle Bronze Age (c.1150BC). The others could probably be described transitional DR/PDR types. They are in fairly coarse fabrics (FLIN4, FLIN8) and tend to be of medium wall-thickness. One example, from [805], which had quite a complete body profile on initial block-lifting, appears to be of neutral tub-shaped profile – more of a DR trait – but also features flint-gritting on the underside of the base – more typically PDR. The vessel from [998] also has quite a crudely pinched out base, again something probably more readily associated with the PDR tradition. The one example with an intact rim, from [1152], could be described as a later thinner-walled DR Barrel Urn or an early PDR hook-rim jar.
- 5.3.13 A sixth partially-complete vessel, possibly from a burial or funerary-related feature, [1342], was less obviously placed in an upright or inverted position as sherds from upper and lower parts of the profile were recovered. This is probably more typically Middle Bronze Age in terms of wall-thickness and coarseness of fabric (FLIN5). It also resembles a DR Barrel Urn in terms of profile, though it is on a smaller scale with a diameter of just 120mm. Another likely placed deposit, found in ditch [547], belonging to Phase 2.1, comprises the partially-complete lower half of an urn of medium wall thickness which nevertheless has a very coarse flint-tempered fabric (FLIN5); alongside this, were sherds from the base and lower wall of another similar vessel.
- 5.3.14 Aside from the probable funerary/placed vessels, the remainder of the Period 2 pottery is mostly assigned to Period 2.2. A few larger groups of pottery were noted including in pits [750], [837], [507] as well as reasonably

large portions of individual vessels from pit [1038] and layer [192]; unfortunately all of these are generally made up by undiagnostic bodysherds. Overall Period 2.2 produced eight rimsherds; seven of these are from remarkably similar hook-rim jar types. This lack of form diversity is very typical of undeveloped plain ware PDR assemblages, reinforcing the impression that there was continuity between the Middle and Late Bronze Age phases, with the bulk of activity probably occurring in the later 2nd millennium BC.

- 5.3.15 A single rimsherd, found in the backfill associated with cremation [998] is the only PDR piece which appears diagnostically later than c. 950BC. Although, like the other hook-rim jars, it has quite a simple in-turning rim profile, it also features fingernail impressions along the top of rim. This style of decoration is may occasionally occur in 'developed plain ware' assemblages (dated c. 950-800BC) and becomes increasingly common in 'decorated' PDR groups (c. 800-600BC). This sherd therefore appears to be of significantly later date than the primary cremation vessel. It seems unlikely that a burial feature of this type would remain open for any length of time so this suggests: either that the urn was old at its time of burial, or that this sherd is intrusive. Radiocarbon dating of the associated human remains may help to resolve this point.
- 5.3.16 Also of note is a single example of comb-stabbed decoration on one bodysherd from ditch [378]. The feature is assigned stratigraphically to Period 2.2, although the sherd may be residual because comb-stabbing is certainly a DR trait and perhaps and an earlier Middle Bronze Age one. This style of decoration was relatively prominent in the assemblage from Medmerry, on the Manhood peninsula, and has also been noted at Durrington, Findon, Park Brow and Westhampnett, suggesting that it is a style which clusters west of the Adur (Doherty 2014; Seager Thomas 2008, 31).

Period 3 Middle/Late Iron Age to earliest Roman

- 5.3.17 A small assemblage of pottery has been broadly assigned to the Middle/Late Iron Age to earliest Roman period. Like the pottery from Period 2, this assemblage is almost entirely flint-tempered. Where a reasonable quantity of sherds are stratified together there is usually a readily apparent difference in the coarseness of tempering between these two periods; however, on an individual sherd-by-sherd basis it is often difficult to distinguish between the finer fabrics of the Late Bronze Age PDR tradition and later Iron Age flint-tempered wares. Table 9 shows that fabrics FLIN1 and FLIN2 make up the vast majority of the pottery in Period 3. Of other flint-tempered wares, FLIN3 is considered contemporary but it seems likely that the much coarser wares like FLIN4, and FLIN8 are residual Middle/Late Bronze Age sherds. Also represented in this period are a few examples of sandier fabrics including examples with and without flint (FLQU1; FLQU3; QUAR1). One example of a non-local flint-tempered fabric with glauconite was also noted (GLFL1).
- 5.3.18 The larger groups are entirely made up by hand-made tempered wares and do not contain any Roman fabrics; however, a few very small context assemblages contain both flint-tempered wares and early Roman sandy fabrics SAND1, OXID1 and Rowland's Castle grey ware (RWCG). It is assumed that these represent very early Roman contexts from a period

where Iron Age style tempered wares were still current; however, it is possible that they contain sherds of different periods.

| Fabric | Sherds | Weight (g) | ENV | %ENV |
|--------|--------|------------|-----|------|
| AVGW | 3 | 4 | 2 | 1% |
| FLIN1 | 90 | 452 | 66 | 47% |
| FLIN2 | 48 | 155 | 47 | 33% |
| FLIN3 | 230 | 3242 | 6 | 4% |
| FLIN4 | 4 | 67 | 4 | 3% |
| FLIN8 | 30 | 220 | 6 | 4% |
| FLQU1 | 1 | 7 | 1 | 1% |
| FLQU3 | 1 | 7 | 1 | 1% |
| GLFL1 | 1 | 8 | 1 | 1% |
| OXID1 | 1 | 9 | 1 | 1% |
| QUAR1 | 1 | 1 | 1 | 1% |
| RWCG | 7 | 50 | 4 | 3% |
| SAND1 | 1 | 10 | 1 | 1% |
| Total | 418 | 4232 | 141 | 100% |

Table 9: Quantification of pottery assigned to Period 3

5.3.19 Only a few Period 3 features contained any diagnostic material. Of particular note is a – likely deliberately deposited – fragmented but near-complete jar with a slightly beaded rim found in fill [1073] of pit [1071]. Fill [394] of ditch [393] also contained a small group of pottery including a plain jar of ovoid profile and plain rim jar with a slight corrugation at the shoulder. This may indicate the influence of later beaded rim Saucepan forms and/or of wheel-thrown Aylesford Swarling types. Another sherd from a jar with a shoulder cordon, from ditch [8/008] also looks likely to belong to this latter tradition.

Period 4 Roman

5.3.20 Only a small quantity of Roman pottery was recovered from the site and this divides into two discrete phases, probably with a period of hiatus in-between. In Period 4.1, which is fairly typical of the 1st to mid-2nd century, almost all of the assemblage can be accounted for by sandy coarse wares. Just over half of these are thought belong to the Rowland’s Castle industry, though some of these wares are dark surfaced (SAND1) or unevenly oxidised wares (OXID1), which seem to have been produced in the early life of this industry. However, the more recognisable grey wares (RWCG) do also occur. Black surfaced, oxidised and grey variants of Arun Valley wares make up much of the remainder of this assemblage, although there are also a few unsourced coarse sandy wares. Only three form profiles are represented: a bead rim jar, a necked jar and a slightly lid-seated “Surrey bowl” (Marsh & Tyers 1978 form 4K). The latter two were found as partially-complete vessels in ditch [3/007], perhaps suggesting a continuing pattern of structured deposition.

5.3.21 In Period 4.2, which is typical of the 3rd to mid-4th century, the make-up of fabrics is not that dramatically different although the early type Rowland’s Castle wares are replaced by grey ware variants and Arun Valley fabrics

have diminished in frequency. Some black-burnished ware (BB1 and local BB-style wares) are also present. Forms are made up almost exclusively by typical Rowland's Castle everted rim jars (Dicks D2), finger impressed bodysherds from (D4) storage jars and black burnished style bead-and-flange bowls. Again one example of a D2 jar was found in a fragmented but near-complete state in ditch [824].

5.4 The Post-Roman Pottery by Luke Barber

- 5.4.1 The excavations recovered just 15 sherds of post-Roman pottery, weighing 92g, from nine individually numbered contexts. The assemblage has been fully listed by fabric and form for the archive using Sussex fabric codes. On the whole the assemblage is characterised by small sherds with moderate to heavy abrasion. As such they appear to have been both reworked and affected by an acidic subsoil. This, together with the fact that most appear as isolated sherds within contexts, makes the material unreliable for feature dating with any degree of certainty as it is often impossible to be certain what is residual or intrusive.
- 5.4.2 All of the pottery appears to be of the High and Late Medieval periods. Perhaps the earliest consists of two conjoining oxidised sherds tempered with moderate medium/coarse sand with common white flint inclusions (ditch [180], fill [184]. SG45. Sussex fabric Q+f/M5).
- 5.4.3 These are likely to be of the 13th century and are perhaps the freshest post-Roman sherds from the site. The majority of the assemblage is composed of finer sandy wares, including fine green glazed West Sussex Ware type jugs (Q(f)/M2: 4/16g). With the exception of a heavily worn fine/medium sandy ware squared club cooking pot rim from ditch [553] (SG244) (Q/M24) there are no feature sherds. These finer wares mainly relate to the late 13th to early 15th centuries. The latest sherds consist of a couple of worn fine oxidised sandy sherds of the painted ware tradition (Q(f)/M20a and Q(f)/M21a) from ditch [232] (SG73) and ditch [1075] (SG523). These probably relate to 15th- century activity.

5.5 The Ceramic Building Material by Trista Clifford

- 5.5.1 Only 21 fragments of ceramic building material weighing a total of 5.387kg were recovered during the excavation. The ceramic building material (CBM) was recorded in full on pro forma sheets for archive and quantified by fabric, form, weight and fragment count. Fabrics were identified with the aid of a x20 binocular microscope. A total of five different fabrics were identified (Table 10). Data from the *pro forma* recording sheets was entered onto a digital database and forms part of the archive. Samples of identified fabrics were retained.

| Fabric | Comments |
|---------------|--|
| B1 | Moderate to frequent medium quartz, sparse to frequent coarse to very coarse ironstone lumps 0.2-10mm. |
| B2 | Abundant fine quartz with sparse black iron oxides |
| B3 | Orange with sparse fine cream streaks, common medium white/grey quartz well sorted sparse coarse flint very sparse red iron oxides. |
| T1 | Moderate fine to medium quartz, abundant coarse to very coarse quartz to 4mm. Sparse calcareous inclusions |
| T2 | Orange with cream lumps and marls. Moderate to common medium/coarse rose quartz, sparse medium red iron oxides, sparse to moderate coarse/very coarse iron oxide, sparse calcareous inclusions |
| T3 | Pink fabric with cream marls, common medium to coarse rose quartz, moderate coarse red iron oxides to 6mm sparse very coarse calcareous inclusions |
| T4 | Moderate coarse angular quartz, sparse coarse red iron oxides, very sparse calcareous inclusions |
| R1 | Moderate fine to medium quartz, sparse coarse quartz, sparse coarse black/red iron oxide,. Mid orange with thin streaks of pale cream |
| R2 | Common fine quartz, common coarse sub-rounded quartz, sparse black speckle, sparse medium calcium carbonate |

Table 10: CBM fabric descriptions

- 5.5.2 The assemblage is largely undiagnostic, consisting of isolated fragments which are sometimes intrusive within their context. Roman brick in fabric R1 was recovered from ditch fill [361] (SG142) measuring 45mm thick. Other possible Roman material in the same fabric was recovered from phase 4.1 ditch fill [608] (SG272). Period 4.2 ditch fills [546] and [825], and phase 2.2 ditch fill [1095] contained possible tegula fragments in fabrics R2 and T4 however these are extremely abraded so the identification is tentative.
- 5.5.3 Roofing tile was recovered from four contexts, including fragments from phase 5 ditch fills [802] (SG381) and [1089] (SG529). No diagnostic features are present however the sandy, calcareous fabrics may suggest a later medieval to early post medieval date. Vitrified roofing tile was recovered from [1089].
- 5.5.4 Brick was recovered from four contexts. The most complete example is an unfrosted brick from phase 6 ditch fill [359] (SG144) measuring 160+mm long, 94mm wide and 59mm thick, made in fabric B1. The broken end of this brick is significantly vitrified; brick fragments from phase 5 ditch fill [552] (SG243) and quarry pit fill [1411] (SG678) are also vitrified. The fragment from [552] also shows evidence of reuse in the placement of mortar on a broken edge. A fragment from ditch fill [1172] with a thickness of 45mm could be residual Roman but is more likely later; the remaining fragments are of early post medieval or later date. Ditch fill [360] (SG144) produced

the best part of a well formed and fired brick measuring 210 x 93 x 56mm. The brick, which has deliberately glazed headers, is tempered with sparse fine sand with common iron oxides to 1mm and sparse/common white flint to 20mm (though most is to 3mm). An 18th- to early 19th- century date is certain for this brick.

5.6 The Fired Clay by Trista Clifford

5.6.1 A small assemblage of 273 fired clay fragments weighing a total of 4050g was recovered from 92 separate contexts. A further 152g of material was recovered from bulk environmental samples. Fabrics were identified with the aid of a x20 binocular microscope (Table 11).

| Fabric | Description |
|--------|--|
| F1 | Sparse -moderate fine quartz, moderate iron rich inclusions |
| F1a | As F1 with sparse to moderate coarse rose quartz |
| F1b | As F1 without iron rich inclusions |
| F2 | Fine fabric with coarse calcareous inclusions/voids |
| F3 | Similar to F1 with sparse grassy voids |
| F3a | Calcareous version of F3 |
| F4 | Fine silty fabric with laminar appearance due to organic voids, sparse iron rich veining |

Table 11: Fired clay fabric descriptions

5.6.2 Samples of each fabric were retained, as were pieces of interest. The hand collected assemblage has been recorded in detail on *pro forma* sheets for archive and data has been entered onto digital spreadsheet; material from the environmental samples was rapidly scanned by eye for diagnostic fragments but not recorded at this stage. An overview of the assemblage by site phase shows that the peak of fired clay utilisation occurred during phase 2 (Table 12).

| Period | % by weight | % by fragment count |
|--------|-------------|---------------------|
| 1 | 0.5 | 4 |
| 2 | 92 | 87 |
| 3 | 2 | 4 |
| 4 | 0.5 | 1 |
| 5 | 3 | 2 |
| 0 | 2 | 2 |
| Total | 100 | 100 |

Table 12: Overview of the fired clay assemblage by Phase

5.6.3 The majority of the assemblage (3041g) consists of natural brickearth utilised as pit lining material, present in phase 2 pit fills [1343], [1344] and [834], which has fired as a result of exposure to heat. These pits may have been employed as cooking pits or hearths but no evidence of structural fired clay is present to confirm this. Period 2 pit fill [833] (SG397) contained conjoining fragments of a possible casting mould; this identification is tentative and will need to be confirmed. A single fragment of possible briquetage was recovered from Period 5 ditch fill [409] (SG171).

- 5.6.4 A single fragment of fired clay with possible comb impressed decoration was recovered from Period 5 ditch fill [517], RF<23>. The decoration is reminiscent of the Bronze Age fired clay weights recovered at Medmerry (Clifford 2014) and although it is significantly abraded it is almost certainly part of such a weight.
- 5.6.5 Two triangular loomweights were also recovered. RF<22> is broken across all three apices, with two piercings of 10mm and 12mm diameter apparent. RF<24> is more fragmentary therefore the identification is less certain. Both are made in fabric F4. The form is typical of the late Iron Age/early Roman period and is widespread across the south of Britain.
- 5.6.6 Rapid assessment of the sampled assemblage confirms that this almost exclusively made up of amorphous, abraded lumps with no diagnostic characteristics; the remaining hand collected assemblage is also undiagnostic although a small number of fragments do exhibit features such as flat surfaces.

5.7 The Glass by Elke Raemen

- 5.7.1 A green glass wine bottle body fragment (weight 53g) was recovered from [257]. The fragment can only be dated broadly to c. 1750-1900.

5.8 The Metallurgical Remains by Luke Barber

- 5.8.1 The excavations recovered just 108g material initially classified as slag from 40 individually numbered contexts. This total consists of 34g (2 individual pieces) of hand-collected material with the remainder being derived from one of 37 environmental residues. 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 database for the digital archive.
- 5.8.2 Virtually all of the material consists of magnetic fines from the residues. Essentially this consists of small granules of clay, siltstone and in some instances flint, that has been heated and duly magnetised. Such material could have been heated by a number of different processes including domestic hearths and funeral pyres. The 62g total for these fines is somewhat of an over-representation as many residues had negligible quantities, yet a minimum weight of 1g was always recorded.
- 5.8.3 Actual slag is very rare at the site, presumably the result of the early date of most of the activity. Period 5 ditch [408], fill [409] (SG171) produced a 6g piece of undiagnostic iron slag while Period 2.2 ditch [159], fill [160] (SG34) contained a 28g piece of iron smithing slag. The latter piece is probably intrusive according to the site stratigraphy. Certainly the single hammerscale flake from Period 2.2 ditch [921], fill [922] is an intrusive piece. The seven (1g) tiny pieces of late post-medieval clinker recovered from Period 2.2 pit [750], fill [751] (SG356) are also intrusive.

5.9 The Geological Material by Luke Barber

- 5.9.1 The excavations recovered 61 pieces of stone, weighing 12,732g, from 27 individually numbered contexts. The assemblage has been fully listed on pro forma for archive with the resultant information being used to compile an excel database as part of this assessment.
- 5.9.2 Of the deposits involved only two remain unphased at the time of assessment: neither produced stone of any note, the more exotic being the chert cobble fragment from context [1278] (24g). Another chert cobble fragment was recovered from Period 1 pit [258], fill [259] (SG87). Such stone would have been locally available on the beach, but the current example shows no obvious signs of wear. This is the only stone ascribed to this phase.
- 5.9.3 Period 2.1 deposits produced 11 pieces of stone, weighing 2049g. These include a clearly intrusive granule of coal from ditch [571], fill [572] (SG253) as well as unworked pieces of Sarsen sandstone (1832g from post-hole [129]) and ferruginous carstone (6/104g from context [1395]) (SG689). Of more interest is the broken fragment of perforated tool from ditch [571] (SG253) RF<25>. This is in a dark grey fine-grained non-calcareous stone (sandstone/quartzite) and appears to be of Roe's intermediate form of battle axe (Roe 1979, 25; Figure 7), though too little is present to completely rule out an axe-hammer. The hour-glass perforation appears to have been set badly off-centre which may have contributed to its breakage. Such items are typical of the earlier part of the Bronze Age.
- 5.9.4 Period 2.2 produced 38 pieces of stone, weighing 1691g. Most of the material consists of unworked pieces that would have been available locally through natural processes. These include chalk (1/1g), downland flint (2/4g), iron concretion (3/4g), carstone (2/130g), Tertiary sandstone (2/3g) and Sarsen sandstone (2/54g). None of these pieces show signs of having been modified at the hand of man. However, there are 25 pieces of glauconitic Lower Greensand (1494g) that all appear to have derived from one of at least four querns though admittedly the 284g fragment from contexts [835]/[836]/[838]/[839] retains no worked faces. The others all have remains of worn grinding faces though no pieces are large enough to allow form/dimensions to be established. The conjoining pieces from pit [919], fill [920] (SG444) do not have a complete stone thickness, but those from contexts [636] (SG289) and [1393] (SG670) have thicknesses of 44 and 50mm respectively. As such they may be from the smaller upper stones instead of the much larger base pieces of saddle querns.
- 5.9.5 A single 618g fragment from a Lodsworth Lower greensand quern (RF<19>) was recovered from ditch [322], fill [323] (SG121) of Period 2. The stone has part of its grinding face surviving and is in excess of 73mm thick, suggesting it to be part of the lower 'saddle' stone.
- 5.9.6 Period 3 deposits produced single pieces of Tertiary sandstone (48g) and a flint beach cobble (586g), neither with any sign of human modification. The latest phase producing stone was Period 5. This produced a 180g unworked fragment of granite (ditch [499], fill [500]. SG216) and five pieces of irregular Bognor Rock (7382g). The latter was mainly recovered from quarry pit [1409], fill [1410] but show no signs of modification.

5.10 The Marine Mollusc by Trista Clifford

- 5.10.1 Three lower edible oyster (*Ostrea edulis*) valves were recovered weighing a total of 96g were recovered. The valves show minimal evidence for parasitic activity and are all adult specimens.

5.11 Animal Bone by Hayley Forsyth

- 5.11.1 The excavations at Oldlands Farm, West Sussex produced a small assemblage of animal bone containing 1259 fragments. Provisional dating indicates that the majority of the assemblage derives from medieval deposits including pit and ditch fills. Small quantities of faunal remains were also recovered from the Iron Age – Early Roman, Middle – Late Bronze Age and Late Neolithic – Early Bronze Age deposits.

Methodology

- 5.11.2 The assemblage has been recorded onto an Excel spreadsheet in accordance with the zoning system outlined by Serjeantson (1996). Wherever possible the fragments have been identified to species and the skeletal element represented. Elements that could not be confidently identified to species, such as long-bone and vertebrae fragments, have been recorded according to their size and identified as large, medium or small mammal.
- 5.11.3 In order to distinguish between the bones and teeth of sheep and goats a number of criteria were used including those outlined by Boessneck (1969), Boessneck et al (1964), Halstead et al (2002), Hillson (1995), Kratochvil (1969), Payne (1969; 1985), Prummel and Frisch (1986) and Schmid (1972). Tooth eruption and wear has been recorded in accordance with Grant (1982). Mammalian metrical data has been recorded in accordance with von den Driesch (1976). Withers heights were calculated following Fock (1966). The state of fusion has been noted and each fragment has then been studied for signs of butchery, burning, gnawing and pathology.

The Assemblage

- 5.11.4 The assemblage contains 1259 fragments weighing 7181g of which 671 fragments have been identified to taxa (Table 13). The assemblage has been hand-collected and retrieved from bulk samples, weighing 48g. The majority of the specimens are fragmented and in poor condition, with surface erosion evident.

| Period | No. Fragments | NISP | Preservation | | |
|--------------------------------------|---------------|------|--------------|----------|------|
| | | | Good | Moderate | Poor |
| 1- Late Neolithic – Early Bronze Age | 46 | 46 | - | - | 100% |
| 2- Middle – Late Bronze Age | 188 | 133 | 2% | 26% | 72% |
| 3- Middle Iron Age – Early Roman | 162 | 88 | 19% | 39% | 42% |
| 4- Roman | 17 | 11 | - | 9% | 91% |
| 5- Medieval | 842 | 391 | 2% | 22% | 76% |
| Total | 1259 | 671 | | | |

Table 13: The total number of fragments, NISP (Number of Identifiable Specimens) count and percentage preservation based on the NISP.

5.11.5 A range of mammalian taxa have been identified (Table 14) including cattle, red deer, sheep/goat and horse, as well as small mammals. The majority of the bone derives from large and medium mammal groups due to the high proportion of fragmented bones from this assemblage.

| Taxa | Period 1 | Period 2 | | Period 3 | Period 4 | Period 5 |
|---------------|----------|-----------|-----------|----------|----------|----------|
| | | Phase 2.1 | Phase 2.2 | | | |
| Cattle | | | 18 | 7 | 4 | 33 |
| Red Deer | 46 | | | | | |
| Sheep/Goat | | 1 | | 1 | | 17 |
| Horse | | | | 6 | | 3 |
| Large Mammal | | 14 | 64 | 66 | 7 | 141 |
| Medium Mammal | | 5 | 12 | 8 | | 197 |
| Small Mammal | | | 19 | | | |
| Total | 46 | 20 | 113 | 88 | 11 | 391 |

Table 14: NISP (Number of Identified Specimens) by Period

Late Neolithic – Early Bronze Age (Period 1)

5.11.6 The late Neolithic – Early Bronze Age assemblage contained 46 fragments from a single beam of red deer antler, recovered from pit fill context [343]. The pedicle is absent and due to severe fragmentation it is unclear whether any tines are present. No evidence of burning or working has survived that could suggest the antler was utilised as a pick. It is highly likely that the antler was deposited or discarded deliberately as antler was an important resource in the Neolithic period. The majority of antler picks discovered at sites across Britain are often recovered from the base of pits and numerous deposits have been recovered at Marden Henge (Worley and Serjeantson, 2014), Grimes Graves (Legge, 1992; Clutton-Brock 1984) and Durrington Walls (Serjeantson, 2011; Worley and Serjeantson, 2014).

Middle – Late Bronze Age (Period 2)

5.11.7 The Mid-Late Bronze Age assemblage contains two phases; Period 2.1 and Period 2.2. Period 2.1 contains 20 identifiable fragments recovered from four pit fill contexts [1343], [1344], [1395] and [1399]. This assemblage is

dominated by large mammal bone fragments, as well as medium mammal and sheep/goat remains. Small amounts of burnt bone; calcined large mammal long bone fragments were recovered from context [1344]. Evidence of butchery was observed in a large mammal mandible fragment from context [1399], small repetitive cut marks were recorded across the surface of the bone possibly to remove the skin.

- 5.11.8 Period 2.2 contained 113 bone fragments including large, medium and small mammals as well as cattle bone fragments, the majority of which were meat-bearing. Bones were retrieved from ten pit and ditch fill contexts; [615], [711], [907], [908], [922], [1204], [1392], [1393], [1394] and [1445], of which fifty-five fragments were recovered from four bulk sampled contexts [329] <105>, [420] <11>, 1393] <49> and [1394] <50>.
- 5.11.9 No ageable mandibles or measureable bones were recorded. Bone fusion data was limited and no gnawing or pathology was recorded.

Middle Iron Age – Early Roman (Period 3)

- 5.11.10 The Middle Iron Age – early Roman assemblage contains 88 identifiable fragments from ditch fills [394], [395], [831], [1116], [1259], [1362] and ditch cuts [814] and [816] consisting of both meat and non-meat bearing bones. The majority of the assemblage is dominated by large mammal fragments recovered from [394], [395], [816], [831] and [1362]. Small quantities of medium mammal fragments, cattle, horse and sheep/goat bone fragments were also present.
- 5.11.11 No butchery, burning, pathology or gnawing was present. Limited age-at-death bone fusion data was present although where observable adult remains dominate this phase. No recordable mandibles or measurable bones were present.

Roman (Period 4)

- 5.11.12 The Roman assemblage contained just 11 identifiable fragments recovered from two ditch fill contexts; [727] and [825]. Context [727] included large mammal skull fragments and loose cattle molar fragments. Large mammal long bone fragments, a vertebra and a fragment of humerus were recovered from context [825].
- 5.11.13 No ageable mandibles or measureable bones were recorded and bone fusion data was limited. No butchery, gnawing or pathology was recorded.

Medieval (Period 5)

- 5.11.14 The medieval assemblage contained 391 identifiable fragments recovered from four contexts, the majority of which derive from large and medium mammal fragments and included both meat and non-meat bearing bones. Semi-articulated remains of adult cattle and juvenile sheep/goat were recovered from pit fills [1144] and [1199], loose horse teeth were recovered from ditch fill [170] as well as a medium mammal rib fragment from ditch fill [1076].

- 5.11.15 Two ageable cattle mandibles from context [1199] were recorded with a tooth wear stage of 47; it is likely that the two jaw fragments are in fact from the same animal. Two measureable bones were also recorded from context [1199] and included a metacarpal and metatarsal, producing estimated withers heights of 1.28m and 1.33m respectively.
- 5.11.16 Fusion data where observable, indicated that the majority of the bones from [1199] were adult whilst the bones recovered from [1144] were juvenile. Four large mammal bones from context [1199] exhibited butchery marks; two long bone fragments, a humerus and a radius showed evidence of chop marks consistent with dismemberment. No butchery marks, gnawing or burning was observed in the semi-articulated sheep/goat remains from context [1144]. No gnawing or pathology was recorded. This assemblage likely represents domestic refuse and general waste from the site.

5.12 The Disarticulated Human Bone by Hayley Forsyth

- 5.12.1 The excavations at Oldlands Farm, West Sussex produced a small quantity of disarticulated human bone. 278 fragments from an adult human were recovered from Roman ditch fill context [429]. Identifiable fragments included 270 pieces of long bone, a radial midshaft, two fibula midshafts and a femoral midshaft. The bones were in poor condition with severe signs of surface erosion.

5.13 Burnt Bone by Lucy Sibun

Introduction

- 5.13.1 Burnt bone was recovered from eighteen contexts. Eight of these contexts produced identifiable human bone: Period 2.1 - urned cremations [1153], [1154], [1334], [1335]) and possible cremation deposit [1344]; Period 2.2 - un-urned cremation deposits [329], [894] and possible pyre deposit [1264]. A further context was associated with a cremation deposit listed above but only produced small quantities of unidentifiable bone: [895] (associated with [894]). The bone fragments recovered from the remaining contexts were either unidentifiable or animal in origin.

Methods

- 5.13.2 The urned cremations were removed from the field and subjected to careful recording and excavation in spits of approximately 20mm. Bone fragments were collected per spit and accurate plans drawn at each stage of the excavation. The excavated fill underwent flotation and all additional bone fragments recovered have been included in this assessment. The fill from the remaining contexts was processed as environmental samples. Sieve fractions of <4mm, 4-8mm and >8mm were presented for assessment.
- 5.13.3 The assessment of this material was undertaken according to standard guidelines (McKinley 2004). The total of weight of each cremation deposit was established. Each assemblage was then examined to record the degree of fragmentation and fragment colour. The presence and weight of fragments from all skeletal areas (skull, axial skeleton, upper limb and lower limb) was noted. The potential of each assemblage to yield demographic or

other information was then considered. The material was also scanned for the presence of possible staining on bone or for animal bone.

Results

- 5.13.4 The nine contexts that produced burnt bone of unidentifiable or animal origin are quantified below and not considered further in this assessment. They include possible cremations deposits [352], [807], [892], [999], [1343], pit fills [722], [786], [848], possible water sump [1392], all dating to the Middle/Late Bronze Age Periods 2.1 and 2.2.

| Sample | Context | Weight (g) |
|--------|---------|-----------------------------|
| 7 | 352 | 0.4 |
| 23 | 722 | 4.6 (inc. sheep metapodial) |
| 25 | 786 | <1 |
| 37 | 807 | <1 |
| 40 | 848 | <1 |
| 29 | 892 | 0.8 |
| 67 | 999 | 0.4 |
| 42 | 1343 | 0.2 |
| 48 | 1392 | <1 |

Table 15: Quantification of unidentified cremated bone

- 5.13.5 Cremated human bone was identified in eight contexts and the assessment results are summarised in the Appendix 3. It should be noted that the fragment size totals include both the identifiable and unidentifiable material.

Period 2.1

- 5.13.6 This phase included the urned cremations [1152] (vessel and fill [1153, 1154]), [1333] (vessel and fill [1334, 1335]) and possible cremation pit [1342] (fill [1344]). The largest assemblage of burnt bone, 791.5 grams, was recovered from vessel [1334], the smallest quantity, 3.3 grams, from backfill [1153].

- 5.13.7 From the initial assessment it would appear that each cremation deposit contained the remains of a single individual, with no repeated elements noted. However, a large percentage of both assemblages remain unidentified to skeletal element due to the nature of bone fragments. Additionally, the high level of fragmentation meant that fragments enabling age at death or sex to be confidently established were not identified. However, fragment size would suggest that they represent older juveniles or adults. No evidence of pathology was noted on any fragments. The cremation process was highly efficient in all cases and as a result, all bone was an off-white colour.

Period 2.2

- 5.13.8 This phase included possible un-urned cremations [328] (fill [329]), [893] (fills [984] [895]) and possible pyre deposit [1264]. The largest assemblage of burnt bone, 125.4 grams, was recovered from possible pyre deposit

[1264], the smallest quantity, 11.6 grams, from possible cremation deposit [894].

5.13.9 No repeated elements were noted in any of the assemblages. The small size of the assemblages and the degree of fragmentation has meant that neither age at death or sex can be confidently assessed. However, fragment size would suggest the individuals represent older juveniles or adults. No evidence of pathology was noted on any fragments. The cremation process was efficient with the exception of possible pyre deposit [1234], 25% of which was charred grey/black.

5.14 The Registered Finds by Trista Clifford

5.14.1 A total of 21 objects were assigned plotted find numbers on site; a further four were assigned registered find numbers post excavation (Table 16). Plotted finds were recorded three dimensionally however context information was not available for all finds at the time of assessment. The majority of objects are metal and are in variable condition. Iron objects are corroded, obscuring detail and form in some cases. A small number of copper alloy are also present; condition is extremely poor in these objects. All registered finds have been washed and dried or air dried. Each object has been packed according to CIFA guidelines and has been assigned a unique registered finds number (RF <00>). Metal objects have been boxed in airtight Stewart tubs with silica gel. Most objects require x-ray to aid identification and conservation in order to stabilise them. A complete archive will be produced once this has been carried out.

| RF | Context | Object | Material | Period |
|----|---------|--------|----------|---------------|
| 1 | 133 | BROO | COPP | ROM |
| 2 | | FITT | IRON | UNK |
| 3 | | COIN | COPP | ROM |
| 4 | | COIN | COPP | ROM |
| 5 | | COIN | COPP | ROM |
| 6 | | BROO | COPP | ROM |
| 7 | | NAIL | IRON | deaccessioned |
| 8 | | NAIL ? | IRON | deaccessioned |
| 9 | | UNK | IRON | |
| 10 | | UNK | IRON | |
| 11 | | TOOL | IRON | |
| 12 | 554 | SICK | IRON | |
| 13 | | COIN | COPP | |
| 14 | | UNK | IRON | deaccessioned |
| 15 | | FITT | COPP | |
| 16 | | NAIL ? | IRON | deaccessioned |
| 17 | | UNK | IRON | deaccessioned |
| 18 | | BUTT | COPP | |
| 19 | 323 | QUER | STON | |
| 20 | 100 | HOSH | IRON | |
| 21 | 1089 | BUCK ? | IRON | |
| 22 | 653 | LOOM | CERA | LIA/ER |

| RF | Context | Object | Material | Period |
|----|---------|--------|----------|--------|
| 23 | 517 | LOOM | CERA | LBA |
| 24 | 922 | LOOM | CERA | LIA/ER |
| 25 | 571 | AXE | STON | LBA |

Table 16: Overview of the Registered Finds

Dress accessories

- 5.14.2 Two brooch fragments were recovered. RF<1> is a large copper alloy spring from an early 1st century bow brooch. The spring is fragmentary but consists of at least four turns and has a diameter of c.10mm. A small fragment of straight wire with the spring could be part of an external chord or pin.
- 5.14.3 The second, RF<6>, is a small Aucissa hinged brooch (Hull type 51) in poor condition, consisting of the head and most of the bow (L30mm). The brooch appears to be made of iron however a fresh break at the foot indicates copper alloy. These brooches have a date range of the second half of the 1st century, although a few examples are thought to predate the Conquest (Bayley and Butcher 2004, 151).
- 5.14.4 Lastly, an undecorated copper alloy dandy button, RF<18>, was also recovered. The loop is missing. Buttons of large diameter such as this were fashionable during the 18th century.

Coins

- 5.14.5 RF<3>, <4> and <5> are Roman sestertii of 1st to mid-3rd century date. All are in extremely poor condition and completely illegible due to loss of surface through active corrosion. A post medieval half penny, RF<13> was also recovered. This coin is in good condition however both faces are extremely worn and thus illegible.

Tools

- 5.14.6 A fragmentary iron sickle, RF<12>, was recovered from phase 5 ditch fill [554] (SG244). The object is complete but appears to have been deliberately damaged so that the blade is bent out of shape. The form of such tools changes little over time, however Roman examples can have a serrated blade (Manning 1985, 51); x-radiography will determine if this is the case.
- 5.14.7 RF<11> is a square sectioned curved iron rod which tapers to a blunt point which could be a tine from a tool such as a pitchfork; again the date could be Roman or later.

Horse equipment

- 5.14.8 A copper alloy figure of eight spur terminal, RF<15>, and part of a small iron horseshoe with a slightly thickened calkin (RF<20>) were recovered ?unstratified. Both are of late medieval to post medieval date. An iron strap loop (RF<21>) came from period 5 ditch fill [1089] SG529. This is of late post medieval date.

Unidentified objects

- 5.14.9 Three objects remain unidentified. These are highly corroded iron objects which require x ray, RF<2>, <9> and <10>.

5.15 The Environmental Samples by Angela Vitolo and Lucy Allott

Introduction

- 5.15.1 During excavation work at the site, 68 environmental samples were taken to recover environmental material such as charred plant macrofossils, wood charcoal, fauna and mollusca as well as to assist finds recovery. The samples were taken from a variety of feature types, including pits, ditches, postholes, hearths, cremations and waterholes. Periods represented encompass the Late Neolithic to the Early/Middle/Late Bronze Age and Medieval periods. Previous evaluation work revealed few environmental and artefact remains (Allott 2014). The following report assesses the contents of the excavation samples and the potential of the environmental remains to provide information regarding the local vegetation environment, fuel use and selection and the agricultural economy or other plant use.

Methodology

- 5.15.2 The majority of samples were from dry or non-waterlogged deposits and were processed by flotation in their entirety. The flots and residues were captured on 250µm and 500µm meshes respectively and were air dried. Sample <57> provides an exception as uncharred organic remains were noted during processing and the flot was therefore kept wet and subsequently assessed and recorded as a waterlogged sample. A series of samples taken from waterhole [1391] were rich in organic material and/or were taken from waterlogged deposits and were therefore wet-sieved. These include bulk samples <59> and <60>, smaller samples extracted from column <47> and an auger taken at the base of the feature (samples <61> and <62>). Sub-samples of 2 litres (or whole samples, if they were small) were washed through a stack of geological sieves ranging from 4mm to 250µm, and each fraction was retained wet.
- 5.15.3 The dried residues from the flotation samples were passed through graded sieves of 8, 4 and 2mm and each fraction sorted for environmental and artefactual remains (Appendix 4). 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 dry and wet flots and the wet sieved fractions were scanned under a stereozoom microscope at 7-45x magnifications and their contents recorded (Appendices 4 and 5). Identifications of macrobotanical remains have been made through comparison with published reference

atlases (Cappers *et al.* 2006, Jacomet 2006, NIAB 2004), and nomenclature used follows Stace (1997). The larger flots were not assessed in their entirety, but samples of roughly 100ml were taken and their volume and weight recorded alongside those of the whole flots.

- 5.15.4 Identification work was also undertaken for samples containing moderate to large charcoal and waterlogged wood assemblages. Charcoal fragments were fractured and waterlogged wood was thin sectioned by hand along three planes (transverse, radial and tangential) according to standardised procedures (Gale & Cutler 2000, Hather 2000). Specimens were viewed under a stereozoom microscope for initial grouping, and an incident light microscope at magnifications up to 400x 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 (Hather 2000, Schoch *et al.* 2004, Schweingruber 1990). Identifications have been given to species where possible, however genera, family or group names have been given where anatomical differences between taxa are not significant enough to permit satisfactory identification. Taxonomic identifications of charcoal are recorded in Appendix 6, and nomenclature used follows Stace (1997).

Results

Period 1 – Late Neolithic to Early Bronze Age

- 5.15.5 This group of samples produced flots containing large amounts of rootlets and uncharred seeds, which suggest a degree of disturbance and the potential for infiltration of modern material. Charred plant remains were limited to a caryopsis of possible free-threshing bread type wheat (*Triticum cf aestivum*), although no rachis remains that would support the identification of this species were recorded.
- 5.15.6 Wood charcoal fragments were infrequent in samples dating to the Late Neolithic to Early Bronze Age occupation and only one sample, <36> [813] from the fill of possible cooking pit [811], was selected for further identification work. The deposit produced an array of different taxa including, oak (*Quercus* sp.), hazel (*Corylus avellana*), wild cherry/blackthorn (*Prunus* sp.) and Maloideae (a group of taxa which includes apple, whitebeam, rowan, hawthorn).

Period 2, Phase 1 Mid – Late Bronze Age

- 5.15.7 Samples dated to Period 2.1 include five cremations/possible cremation related features ([808], [805], [1342], [1333] and [1152]), ditch [571] sample <15> [572] and samples (including the column and auger samples) from the fill of waterhole feature [1391].
- 5.15.8 Flots from the funerary related feature samples contained large amounts of uncharred modern rootlets and other uncharred material suggesting a degree of post-depositional bioturbation and potential disturbance. Although no charred macro plant remains were present in these samples a few contained larger quantities of wood charcoal although on the whole these fragments were very small, measuring <2mm. Identification work undertaken on the largest of the assemblages, from sample <43>, a possible

cremation/cooking pit feature [1342] provides evidence for the use of hazel wood. Several fragments were identified as hazel/alder (*Corylus/Alnus* sp.) as details of the anatomical features required to refine the identification were not visible. A large number of burnt bones were also recovered from the residues of the majority of the cremations and these are considered separately (see Section 5.13).

- 5.15.9 The only charred plant macrofossil from middle-late Bronze Age features was a moderately preserved hulled barley (*Hordeum* sp) caryopsis which was recovered from ditch fill [572], <15>. Wood charcoal fragments were infrequent in this deposit and no further environmental remains were evident.
- 5.15.10 A timber log ladder was recorded from the same feature and is reported on elsewhere (see section 5.16). A small sample of possible sapwood from the log ladder has been submitted for dating (see section 5.18).

Period 2, Phase 2 Middle – Late Bronze Age

- 5.15.11 This group included bulk samples from a variety of features, including some cremations. The flots presented a large amount of uncharred material, including rootlets and seeds. Charred plant remains were present in slightly larger number than in flots from the other groups, but were still generally scarce. They included caryopses of barley (mostly hulled), of wheat (*Triticum* sp) and of an indeterminate cereal grain. Seeds of wild plants were infrequent but include; ivy leaved speedwell (*Veronica hederifolia*), knotgrass (*Polygonum* sp), a vetch (*Vicia/Lathyrus* sp), an indeterminate grass (Poaceae), dock (*Rumex* sp) and an indeterminate seed. Other charred plant remains included an indeterminate fruit stone, a pod of wild radish (*Raphanus raphanistrum*) and an onion couch grass (*Arrhenatherum elatius* var. *bulbosum*) tuber. The latter came from possible cremation [328].
- 5.15.12 Ten samples produced sufficiently large wood charcoal assemblages for identification work. They derive from pit features (including a cooking/furnace pit, a refuse pit and several cremation pits) and an external dump. Oak and Maloideae group taxa were relatively common across many of the features while ash (*Fraxinus excelsior*) and hazel were recorded more sporadically. A moderately large proportion of charcoal fragments in cremation features were poorly preserved and identifications were hampered by the presence of sediment deposits on the surface as well as sediment percolation. This is likely to be a result of fluctuations in ground water on this low-lying site. Although fragments of roundwood were noted in several of the assemblages they were not predominant in any of the samples and on the whole, they were insufficiently complete to facilitate growth ring counts.

Period 5 – Medieval

- 5.15.13 Two samples from this group were dominated by uncharred material, such as rootlets and seeds, with tiny fragments of charcoal. Only one charred seed of ivy leaved speedwell was recovered. A large number of land snail shells were recovered from the heavy residues of both samples.

Unphased

- 5.15.14 Samples <45> and <46> were taken from deposits which are as yet undated. They yielded flots with abundant uncharred material, some tiny fragments of charcoal and no charred macro plant remains.

5.16 The Worked Wood by Dawn Elise Mooney

Introduction & Methodology

- 5.16.1 During excavations at the site, a log ladder [T.1419] was discovered within the fills of waterhole [1391]. As the feature was not fully excavated, only the upper portion of the ladder could be recovered. The artefact was gently washed to remove as much adhering sediment as possible, and then recorded. A scale drawing (1:5) of the timber was conducted, and any visible working, tool marks or tool shadows were recorded. A sample of the timber was also taken for taxonomic identification. The sample was sectioned along three planes (transverse, radial and tangential) according to standardised procedures (Gale & Cutler 2000), and examined under a transmitted light microscope at 50x to 300x magnification in order to determine the type of wood used for the construction of the ladder. The taxonomic identification was assigned by comparing suites of anatomical characteristics visible with those documented in reference atlases (Hather 2000, Schoch *et al.* 2004, Schweingruber 1990), and by comparison with modern reference material held at the Institute of Archaeology, University College London. Nomenclature used follows Stace (1997).

Results

- 5.16.2 The ladder was constructed from a single large bough or small trunk of oak (*Quercus* sp.) wood. No bark was present, but the timber was substantially abraded and the bark is likely to have been lost post-depositionally rather than stripped. The timber was originally whole, but was broken into two sections during excavation. Although the two broken pieces do refit, the point of refit is unclear as the timber is much degraded. The poor condition of the timber is likely to relate to fluctuations in groundwater level. The timber tapers from a maximum diameter of 180 mm at the lower end, to 95 mm in the upper portion. This tapering is the natural form of the wood, rather than related to any working of the timber. The recovered portion of the ladder is 1825 mm in length (the upper portion 1150 mm, and the lower 675 mm). The ladder has three hewn notches, with evidence of a fourth at the broken basal end, each creating a step of up to 50 mm in depth. Possible tool shadows are visible in the lower two hewn notches, however these are too abraded to contribute to any discussion of the woodworking tools employed in the construction of the ladder. The uppermost step is significantly damaged – this may have occurred post-deposition, however it is more likely that this damage occurred during the use of the ladder, through the pressure of people standing on the narrow notch. The notch below this is cut into the wood above a side branch which has been broken or trimmed to leave a prominent stump.

5.17 Geoarchaeological assessment by Kristina Kraweic

5.17.1 The first phase of geoarchaeological work at the site comprised a watching brief to monitor test pits across the site (ASE 2014c). The results of this work informed on the location for a series of purposive geoarchaeological boreholes carried out in three transects across the south-eastern half of the site. A total of 15 boreholes were put down and 4 sleeved cores were retained for palaeoenvironmental assessment (BH1, 5, 7, 11), with BH1 and 7 selected for this work. In addition two grab samples recovered from cryoturbated chalk deposits from Test Pits 35 and 43 were also assessed for microfossil remains.

Lithology

5.17.2 The boreholes recorded a series of minerogenic deposits at the site which became deeper to the north east of the survey area. A maximum depth of 5.82m of sedimentation was recorded with deposits thinning out to the south-western corner of the survey area. A total of 5 main sedimentary units were recorded at the site with other non-continuous deposits also recorded.

- Unit 0 Cryoturbated chalk
- Unit 1 Grey mottled sand
- Unit 2 Laminated sand and silt
- Unit 3 Oxidised silt clay
- Unit 4 Topsoil

5.17.3 In addition to these main units occasional deposits of smooth silt, brown-black mottled silt clay and coarse black sand horizons were also recorded. These were not continuous deposits across the area and represent local changes in depositional environment. The presence of a deposit of cryoturbated chalk, Unit 0, was recorded within almost all the boreholes. This presented as a silty clay matrix with variously blocky and rolled chalk inclusions, which represented a reworked Pleistocene deposit.

5.17.4 This was overlain in the main by a grey mottled sand deposit, Unit 1, within transects 1 and 2. This was difficult to recover and frequently collapsed due to its non-cohesive structure. This trended into a laminated grey silt sand deposit, Unit 3, which contained occasional mussel shells and organic bands. In BH5-7 and BH11 a smooth grey brown mottled silt clay was recorded with frequent organic remains which indicates local differences in depositional environment within a large sediment complex. These deposits were overlain by an oxidised silt clay which indicates the upper part of the sequence has been affected by later patterns of drainage and land reclamation.

5.17.5 A total of three boreholes were selected for assessment (BH1, 5 and 7) for microfossil remains including pollen, ostracods and forams and diatoms. These were sampled at regular intervals throughout the deposits in order to better understand the depositional processes and landscape context of the site. The results are described by each proxy below and presented together in an integrated discussion.

Ostracods and Forams

5.17.6 A total of 20 samples assessed from BH1 (12 samples) and BH7 (5 samples) and Test Pits 35 (1 sample) and 43 (2 samples). The samples were first put in ceramic bowls and thoroughly dried in an oven. Then a small amount of sodium carbonate was added to each (to help remove the clay fraction) and hot water poured over them. They were left to soak. Good breakdown was rapidly achieved by washing through a 75 micron sieve with hand-hot water. Each residue was then decanted back into a bowl and returned to the oven to dry. Samples were stored in labelled plastic bags and analysed by placing each sample into a nest of sieves and examining each of the fractions on a tray under a binocular microscope. The faunas were noted and representative microfossils picked out and put into 3"x1" slides for archive purposes. The results of the semi-quantitative analysis are shown in Appendices 10-12.

BH 1

5.17.7 The sediments retrieved from Borehole 1 cover the interval 0.96 down to 4.83m below ground level – some 3.87m of homogenous fine silt (most of the residue being of 150micron grade or finer). The “organic remains” found in the residues are shown in the uppermost column in Appendix 10. All 12 samples contained plant debris and seeds; 8 contained insect remains; 6 contained brackish molluscs but most were fragmentary and uncommon, those recognisable being hydrobids, and juvenile cockles and *Sorbicularia*; 2 contained fish vertebra (eel).

5.17.8 The foraminifera and ostracods were plentiful and enabled an accurate palaeoenvironmental reconstruction of the sequence. The detailed results of the assessment are shown in Appendix 10. All 12 samples contained brackish foraminifera, generally in very great numbers; 10 contained brackish ostracods (often common to abundant); 9 and 8 samples respectively, contained outer estuarine/marine foraminifera and ostracods; and 3 contained freshwater ostracods, but only extremely rare, in ones and twos. Each of these groupings are separately colour-coded in Appendix 10, with more information provided on their ecological preferences. This information is garnered from Murray (2006) for the foraminifera, and Athersuch, Horne & Whittaker (1989) for the ostracods.

5.17.9 Essentially marine foraminifera and ostracods which can penetrate outer estuaries (colour coded shades of blue) occur from the base of the sediments provided (at 4.83m below ground level), but this may not be the limit of Holocene sedimentation, only what was retrievable in the borehole. They extend up the profile to 1.92m below ground level. In association with these species are large numbers of calcareous foraminifera of low-mid saltmarsh and tidal flats (colour-coded grey) and agglutinating foraminifera of mid-high saltmarsh (colour coded turquoise); these are accompanied by up to seven species of brackish ostracods that occur in tidal mudflats and creeks (colour-coded lime green). The ecology of this 1.92-4.83m interval, in the lower part of the borehole, is summarised as tidal mudflats and saltmarsh of a wide estuary or embayment with a marine component (latterly decreasing). The upper part of the borehole contains one species of ostracod, dying out, and foraminifera of tidal flats and saltmarsh, the latter also dying out, just to leave one species of foraminifera of tidal flats in the

uppermost sample. This upper interval is characterised environmentally as tidal flats and saltmarsh with the estuary finally silting up. The reconstruction of Borehole 1 is thus ecologically quite precise.

BH 7

- 5.17.10 In BH7, 5 samples cover the interval 0.90m down to 3.74m below ground level, some 2.84m of sediment. The result of the assessment is given in Appendix 11. The interval 0.90-2.85m exhibits the fine silt ubiquitous throughout BH 1. The sample below, at 2.95-2.99m is a silty clay and marks the onset of tidal access for certain.
- 5.17.11 The basal sample, Unit 0, on the other hand is problematic. It contains iron mineral and fragments of a hard sandstone, perhaps an ironpan or weathered surface. It is otherwise totally barren and contains no reworked material indicating proximity to bedrock or Pleistocene solifluction deposits. It may even be freshwater or semi-terrestrial, before the onset of the widespread transgression that filled the area in the Holocene. Definite Holocene sedimentation begins with mid-high saltmarsh (Appendix 12), characterised by agglutinating foraminifera (colour-coded turquoise). Above that, saltmarsh conditions continue, this time with associated tidal mudflats, but with only a very minor marine influence (compared to BH 1). The sedimentation ends with only tidal flats remaining. In the sample from 2.81-2.85m (Unit 2) there are some large ornate *Ammonia batavus* and large miliolids, both coloured brown. They appear to be derived from a Pleistocene warm interglacial deposit (there are many raised beaches in the area), which could have been reworked during the initial part of the Holocene transgression.

Test Pits 35 & 43

- 5.17.12 The two test pits to the south-west of the site, and apparently on the edge of the "Lidsey embayment", produced some interesting results (Appendix 12). The sediments are clays incorporating flint and a great deal of chalk debris (including late Cretaceous foraminifera and ostracods). The sample at 3.30m, Unit 0, below ground level in TP 35 and the lower of the two samples in TP 43 (at 2.90m) contained a great many earthworm granules and some Pleistocene foraminifera and ostracods (albeit both quite rare). This was curious mix of brackish-estuarine foraminifera (reworked from a Pleistocene raised beach in the near vicinity; either MIS 7 or 5e in age) and freshwater ostracods, containing two species of cold/cool climate ostracods, one of which, *Leucocythere batesi*, became extinct in MIS2 (Whittaker & Horne, 2009). These cold-climate freshwater ostracods, are widespread on the Hampshire-Sussex coastal plain from Warblington in the west to Middle-on-Sea in the east, and incorporate several sites in the Bognor area. In the Devensian this area was tundra steppe with small pools forming in the spring melt (in which the ostracods lived). The melt would also see periglacial features forming including extensive solifluction deposits accumulating even on very low slope gradients.

Diatoms

- 5.17.13 Samples were submitted for diatom assessment from three borehole sequences, BH1 (10 samples), BH7 (6 Samples), and samples from silty

deposit in BH5 (4 samples). 0.5g of sediment was required for the diatom assessment preparation. Due to the relative silt and clay content of most samples, all samples chosen for assessment were first treated with sodium hexametaphosphate and left overnight, to assist in minerogenic deflocculation. Samples were then treated with hydrogen peroxide (30% solution) and/or weak ammonia (1% solution) depending on organic and/or calcium carbonate content, respectively. Samples were finally sieved using a 10µm mesh to remove fine minerogenic sediments. The residue was transferred to a plastic vial, from which a slide was prepared for subsequent assessment.

- 5.17.14 During preparation, visible inspections indicated that whilst most borehole spot samples were silt-clay rich, organic content and sand content varied throughout. In particular, organic content was high in BH 1 4.75m and 4.94m. Sand content was high throughout BH1, particularly the 5 samples between 1.31-2.69m 1.49m. In BH7, sand content was high in samples 1.66m and 1.77m. Finally, a number of the residues displayed a strong orange-brown colouration during sodium hexametaphosphate deflocculation, which is often indicative of oxidation and subsequent iron staining within the sediment from which the sample was derived. Samples affected included BH1 0.76m and 1.49m, BH5 2.71 and 3.81 and BH7 3.75m. The presence of organic remains, sand and iron mottling can often impact on the abundance and diversity of diatoms encountered, explained further below.
- 5.17.15 Where possible, a minimum of 100 diatoms were identified for each sample depth. Diatom species were identified with reference to van der Werff and Huls (1958-74), Hendy (1964) and Krammer & Lange-Bertalot (1986-1991). Ecological classifications for the observed taxa were then achieved with reference to Vos and deWolf (1988; 1993), Van Dam *et al.*, (1994), Denys (1991-92; 1994) and Round *et al.* (2007). In some cases, preservation was found to be too poor to enable complete counts to be achieved. In these instances, a complete slide would be traversed in an attempt to extract the diatom data available from the sample under assessment.

BH1

- 5.17.16 Of the ten samples under assessment, only three contained diatoms. These were samples 4.65m, 4.75m and 4.94m. However, the diatom assemblages encountered were found to be of low abundance and diversity. In all cases, counts of 100 diatoms could not be achieved from the slide assessment. A summary of the key taxa encountered can be found in Appendix 13. Planktonic taxa dominated, with *Paralia sulcata* and *Thalassiosira eccentrica* the most common. Benthic diatoms including *Delphineis amphiceros*, *Delphineis surirella* and *Caloneis* sp. were also encountered. The majority of these taxa are either marine or marine-brackish in origin, inferring a clear marine influence on the depositional setting, with tidal influences likely to be strong. Further palaeoenvironmental interpretations are not possible due to the low diatom counts and likely influence of preferential preservation on the assemblage encountered. Poor preservation within the overlying sediments (0.76-2.69m) is likely to be due to a combination of factors, such as frustule destruction (high energy environment, leading to physical stress, reworking) and biogenic silica dissolution (Mayer *et al.*, 1991). Both these factors can be explained by the high sand content and presence of iron mottling respectively.

BH5

5.17.17 Diatom preservation in the 4 samples from BH 5 yielded varying results. Diatoms were not encountered in the two basal samples, but were present in relative abundance in the upper samples (2.27m and 2.71m). Overall, the range of taxa encountered within these two samples were broadly similar. The only distinct difference encountered was the higher abundance and diversity of taxa present in the uppermost sample (2.27m). It can therefore be assumed that these two samples formed in a broadly similar depositional environment. The dominance of brackish and brackish marine benthic taxa such as *Nitzschia navicularis*, *Diploneis didyma* and *Scoliopleura tumida*, supported by the marine planktic species *Paralia sulcata* and *Thalassiosira eccentrica*, infers that estuarine conditions prevailed during this period of deposition, with tidal flat conditions the most likely depositional setting. The relative abundance of the marine tycho planktonic species *Delphineis surirella*, especially in sample 2.27m, infers a potential tidal inlet or tidal channel depositional setting.

BH7

5.17.18 Diatom preservation was once again variable, with diatoms only present in the upper two samples (1.66 and 1.77m). However, in these samples diatoms were found in their highest abundance and diversity of the three boreholes. The dominant species and a number of the subordinate species were found to be the same in both samples, suggesting once again that similar environmental conditions prevailed during deposition (which is unsurprising due to the stratigraphic proximity of the two samples). There is a dominance of *Diploneis* species, specifically *D. interrupta*, *D. didyma* and occasionally *D. weisflogii*, whilst *Delphineis surirella* is also present in relative abundance. *Diploneis didyma* and *D. weisflogii* are epipelagic species, thriving on muddy substrates, whilst *Diploneis interrupta* is an aerophilous taxa, requiring repeated cycles of tidal submergence and emergence to survive. This would therefore suggest the depositional setting is an upper tidal flat or lower salt marsh environment. The continued presence of *Delphineis surirella* infers the site may be proximal to a tidal inlet or tidal channel.

Pollen

5.17.19 A total of 20 samples were submitted for palynological assessment, 10 samples from BH1, 4 samples from BH5 and 6 samples from BH7. The pollen within these samples was extremely poorly preserved and in low abundance which prevented the generation of a pollen diagram.

Dating

5.17.20 In order to contextualise the above data a programme of radiocarbon dating was undertaken. Samples were recovered from organic horizons within the boreholes and submitted to Beta Analytic Inc, Miami Florida. The results are presented in Table 17 below. The problems with the dating are evident when comparing the vertical eight with the age of the deposits. It is clear that Beta-392053 and Beta-392055 provide ages that are too old and probably represent reworked organics, possibly from offshore peat deposits. The date

recovered from the base of BH1 (Beta-392054 1365 to 1215 Cal BC, 3345 to 3165 Cal BP) may be a more realistic reflection of the age of the sediments although again this date should be viewed with caution.

| Lab number | Sample ID | Material | 13C/12C ratio | Conventional radiocarbon age Cal BP | Calibrated date (2 sigma) Cal BC |
|-------------|--------------------------|--|---------------|-------------------------------------|---|
| Beta-392053 | ASE_00275-BH1_1.96-1.98m | Bulk organic sediment | -23.3‰ | 10580±40 | 10705 to 10570 Cal BC and 10520 to 10480 Cal BC |
| Beta-392054 | ASE_00275-BH1_4.76-4.78m | Bulk organic sediment | -29.7‰ | 3040±30 | 1365 to 1215 Cal BC |
| Beta-392055 | ASE_00275-BH7_2.88-2.90m | Bulk organic sediment (plant material) | -24.2‰ | 6400±30 | 5470 to 5315 Cal BC |

Table 17: Radiocarbon results

Discussion of boreholes

- 5.17.21 The borehole survey has demonstrated that accumulation was occurring proximal to the site from at least the Bronze Age. Difficulties establishing a reliable chronology have meant that the exact timing of deposition at the site cannot be further refined using the available data. The basal date recovered from BH1 (Beta-392054) is considered to be a more realistic estimate of the age of the sediments although this too should be approached with caution. The presence of older sediments within the upper deposits infilling the system demonstrate the reworking of possible off or near-shore peat deposits with material being deposited at the site under tidal conditions. The sequence of deposits was shown to deepen to the east towards the present course of Lydsey rife.
- 5.17.22 The lithology recorded in the boreholes as well as the microfossils preserved within the sediments suggests accumulation under tidal conditions. It is clear that a large open estuary with areas of saltmarsh and tidal mudflats was present at the location now defined by the mostly infilled Lydsey rife during the prehistoric period. The ostracods and forams, and to some extent the diatoms, have provided an accurate characterisation of the evolution of this system. This has demonstrated that the Lydsey rife was once a large embayment or open estuary. The survey carried out at this location is comparable to work undertaken further to the east at the Bognor Regis golf course, Felpham (Whittaker pers. comm.). This work also demonstrated estuarine sediments with brackish intertidal mudflats which gave rise to saltmarsh. The assemblages recovered during this work were virtually identical to those recorded from BH1 of the present study.
- 5.17.23 The diatom preservation varies across the three boreholes examined demonstrating that within this large system local variations within the depositional environment have affected the palaeoenvironmental record. This is also demonstrated by the poor pollen preservation at the site.

However sufficient identification of the diatoms was made to enable further detail to be added to the environmental conditions at the site. The diatoms all suggest deposition under estuarine conditions as the assemblage was dominated by marine and brackish species. There is also a total absence of any freshwater taxa, which has been seen at other sites along the south coast with large bodies of brackish water (i.e Medmerry, Selsey Peninsula). The abundance of marine planktonic taxa infers a clear influence of tidal inundation during the period in which diatoms were deposited suggesting open estuarine conditions.

- 5.17.24 In the assemblages recovered from BH5 tidal channel conditions are suggested while BH7 indicates a more elevated position relative to sea level with depositional conditions suggesting an upper tidal flat-saltmarsh transition. This large embayment would have been susceptible to variations in sea level rise and fall as well as changes to local geographic conditions such as the reconfiguration of the coastal shingle barriers that characterise the south coast. This has been demonstrated at the Felpham site which demonstrated both marine transgression and regression in the deeper parts of the sequence (Whittaker pers.comm).

Waterhole

- 5.17.25 In addition to the borehole survey, a deep waterlogged archaeological feature [1391] which contained the remains of a log ladder at its base, was also sampled for palaeoenvironmental assessment. The depth of this feature was such that a full open section was not able to be accessed and therefore the lower deposits were sampled using a Russian auger to achieve a full sequence, with bulk samples recovered from a small shovel dug pit against the section. Smaller bulk samples were also recovered from the Russian auger and have also been assessed.
- 5.17.26 The primary deposit infilling the feature, which has been interpreted as a waterhole was a laminated organic brown silt [1465] suggesting accumulation under still water conditions with a significant organic component. This was overlain by a pale grey organic silt with woody fragments and molluscs throughout [1466]. This in turn was sealed by a darker brown organic silt [1467] also with woody fragments. Overlying this deposit was a pale grey organic silt [1467] and a well humified peaty silt with visible plant remains throughout [1469].
- 5.17.27 The upper deposits of this feature [1399] to [1392] were extremely oxidised and small amounts of pottery, animal bone and charcoal were recovered. The area in which this feature was recorded was masked by a large amorphous silt clay deposit [537] from which a sample was recovered for micromorphological analysis. The waterhole feature was sampled using kubiena tins which were further sub-sampled at ASE for pollen and diatom assessment. The presence of a log ladder and the cultural material recovered from the upper deposits was used to provide the dating framework for the deposits.

Pollen

- 5.17.28 A total of 11 pollen samples were selected for assessment. Standard techniques for the extraction of the sub-fossil pollen and spores were used

on these sub-samples of 2ml. volume (Moore and Webb 1978; Moore *et al.* 1992). Micromesh sieving (10 micron) was also used to assist with removal of fine silica in these predominantly minerogenic samples. Counts of up to 200 total pollen were made. The pollen data obtained are given in a basic pollen diagram (Figure 16). The pollen data have been calculated as a percentage of dry-land pollen (the sum) and for marsh taxa as a % Sum + Marsh and ferns as a % Sum + Fern spores. Numbers of reworked geological (pre-Quaternary) palynomorphs were also present and are given as a percentage of the sum + these miscellaneous palynomorphs.

- 5.17.29 Taxonomy in general follows that of Moore and Webb (1978) modified according to Bennett *et al.* (1994). These procedures were carried out in the Palaeoecology Laboratory of the School of Geography, University of Southampton. The pollen data can be considered in relation to the on-site vegetation and changes in the fen mire and to pollen derived from airborne and possibly some fluvial transport from the drier soils of the interfluvies and from more regional sources. These two aspects are discussed separately below. The pollen diagram is divided into two pollen zones denoted by the prefix l.p.a.z. (Figure 16; Appendix 14).

The on-site vegetation and environment

- 5.17.30 For a possible waterhole, there are only small numbers of aquatic and wetland fen taxa present. Preservation is poor in the upper levels above the stratigraphical change to more oxidised at 1.23m, context [1398], (l.p.a.z.2) and may have destroyed much of the typically fragile aquatic pollen. This is not the case for the lower l.p.a.z. where, pondweed and /or arrow grass, (*Potamogeton* type) is present with occasional marginal aquatic sedge and reed mace and/or bur reed (*Typha angustifolia* type). It is possible that the feature was cleaned out or was disturbed or polluted.

The dry-land-terrestrial flora

- 5.17.31 There is a major contrast in pollen preservation between less oxidised humic grey-brown sediment in l.p.a.z. (2.38m to 1.24m, contexts [1465] and [1399]) and overlying l.p.a.z. 2 comprising oxidised (grey/orange) silt. Better preservation in l.p.a.z. 1 is accompanied by a greater taxonomic diversity. There is a marked paucity of tree and shrub pollen with only sporadic occurrences of birch (*Betula*), oak (*Quercus*), alder (*Alnus*) and hazel (*Corylus*). These are all anemophilous trees which produce substantial numbers of pollen which may be disseminated over great distances. As such, these are not regarded as significant here.
- 5.17.32 Herbs are dominant with grasses (Poaceae) attaining especially high values. These along with ribwort plantain (*Plantago lanceolata*), medick (*Medicago*) and clover (*Trifolium*) and Asteraceae types are all highly indicative of a strongly pastoral environment at least in proximity to the site which was consistent throughout the profile. Cereal pollen is also present throughout. Arable activity tends to be less well represented in pollen spectra and as such, the importance of arable may be underestimated. Whilst there is the strong possibility that cultivation was taking place in proximity to the sample site, it is also possible that the cereal pollen may derive from secondary sources. As this is a waterhole and may have been used by animals, it is also highly likely that the pollen of cereals and any associated arable weed

may have local crop processing, from animal (or human) faecal material or even other domestic waste which was deposited in the waterhole. Pollen becomes trapped in the cereal inflorescence and may be liberated during crop processing or remain in animal feed. The pollen is readily preserved in human or other animal stomach and intestines and as a result is frequently found in archaeological features where domestic waste was dumped.

- 5.17.33 Overall, during this phase (l.p.a.z.1) where pollen preservation is relatively good, the local environment was open, treeless agricultural land. It appears that this was primarily grassland/pasture but with the possibility of some local arable cropping or crop processing.
- 5.17.34 At 1.23m there is a stratigraphical change from grey-brown humic silt to an orange-grey silt [1398] which is clearly more oxidised. The reason for this change in stratigraphy is unclear. There are two possibilities. First is probably due to the position of the water table in this feature over a considerable time period with the sediment above 1.23m becoming gleyed in a fluctuating water table. Second, it is possible that there were changes in the depositional environment with a change to a less stable environment, for example through agricultural change, on the interfluvies causing in-wash of sediment.
- 5.17.35 The palynological consequence of either factor is much poorer pollen preservation. This is manifested by the reduction in taphonomic diversity with less robust pollen types having been destroyed and the more robust types being differentially preserved. This is especially clear with the sharp rise in numbers of very resilient dandelion type (Lactucoideae) pollen. There is also an over representation of reworked geological palynomorphs which may also indicate inwash of soil from the surrounding area.
- 5.17.36 In l.p.a.z.2 the pollen data are, therefore, badly skewed in favour of the Lactucoideae and is typical of poor preserving conditions, especially in alluvial sediment (Dimbleby 1985). In spite of the differential preservation, it is probable that the Lactucoideae types, although over represented, also suggest, as for l.p.a.z. 1, that the local environment was pastoral and certainly open. Cereal pollen (large and robust) is present throughout also showing continuation of arable activity.

Marine influences

- 5.17.37 Small numbers of Chenopodiaceae (goosefoot, orache and samphire) and of sea plantain (*Plantago maritima*) suggest that there was saltmarsh in the vicinity. The pollen evidence is sparse and it is possible that the taxa noted may have been aerially transported some distance or from ephemeral marine incursions. The proximity of the estuary recorded in the boreholes is a likely source for this component of the pollen assemblage.

Diatoms

- 5.17.38 Diatom preservation was found to be very poor, with only occasional fragments encountered in the sample from 2.23m, [1465]. All other slides (0.18m, 1.23m and 2.23m) yielded no diatom flora during the assessment. The diatoms encountered were found to be of very low abundance and diversity and a count of 100 diatoms could not be achieved from the slide

assessment. Occasional fragments of the genera *Pinnularia*, *Synedra* and *Navicula* were encountered. The fragmentary nature of the diatoms restricted the ability to identify to species level.

- 5.17.39 Whilst species of the genera *Pinnularia*, *Navicula* and *Synedra* can be encountered within coastal settings, many of the species within these genera are more often present in low salinity environments, particularly *Pinnularia* and *Synedra* taxa. Any estuarine influence would normally be inferred through the presence of planktonic centric taxa (*Paralia* sp., *Thalassiosira* sp.) or pennate benthic taxa (*Diploneis* sp., *Nitzschia* sp., *Scoliopleura* sp.). However as stated, this is based on a single sample in which diatom presence is very low.

Plant macrofossils

- 5.17.40 A wide variety of plant remains were recorded from the bulk samples (recovered from 1.20-1.60m below ground level, and from within the column 47; Appendix 15), including macrofossils from blackthorn (*Prunus cf spinosa*), hawthorn (*Crataegus monogyna*), dogwood (*Cornus sanguinea*), bittersweet (*Solanum dulcamara*), common chickweed (*Stellaria media*), docks (*Rumex* sp), brambles (*Rubus* sp), elders (*Sambucus* sp), stinging nettle (*Urtica dioica*), goosefoots/oraches (*Chenopodium/Atriplex* sp), bracken (*Pteridium aquilinum*), thistles (*Cirsium/ Carduus* spp), nipplewort (*Lapsana communis*), red shank/amphibious/pale persicaria (*Persicaria maculosa/amphibia/lapathifolia* type), meadow/creeping/bulbous buttercups (*Ranunculus acris/repens/bulbosus*), possible mallows (cf *Malva* sp), carrot family (Apiaceae) and a possible sedge (*Carex* sp).
- 5.17.41 The samples also contained small fragments of waterlogged roundwood (primarily measuring <4mm in size) that were generally well preserved retaining bark, external morphological features and a firm texture. In addition several samples contained thin flakes of wood from pieces of unknown diameter. Insect remains were present in the small fractions and included shell fragments as well as water flea (*Daphnia* sp.) ephippium (egg cases).

Micromorphology

- 5.17.42 A sample was recovered from a large amorphous spread of fine grained silty clay deposit [537] which masked the waterhole feature. A full breakdown of the assessment of the sediments can be found in Appendix 16. Micromorphological analysis has separated [537], which was identified during excavation, into two microstratigraphic units, units 1 and 2. Both these units share the same fine-grained, silt loam, particle size, have bimodal sorting (well sorted silt, and moderately sorted sand), have an embedded and coated related distribution, and locally oriented and clustered quartz silt grains with other particles that are unoriented, unrelated, random and unpreferred in distribution (Appendix 16; Table 2). The units differ from each other in their groundmass, which is predominantly a mosaic speckled b-fabric in unit 2, due to increased clay translocation, and more stippled-speckled in unit 1, and in colour as unit 1 is light orange brown (PPL) and grey with yellow and orange mottles (XPL); whereas unit 2 is dark orange brown and yellow (PPL) and orange/grey (XPL) (Appendix 16; Table 3). Both units have a narrow range of mineral and anthropogenic inclusions, and the mineral component predominantly consists of quartz silt (all

shapes), 60-70% (Table 18). There are some flint fragments, 5%, charred wood (unit 1 only), 5%, (Table 18).

| Slide number | Microstrat unit number | Thickness on slide (cm) | Bedding | Minerals | | | | | Micro-artefact s | Organic/Plant remains | | |
|--------------|------------------------|-------------------------|---------|----------|-----------|------------|-----------|------|------------------|-----------------------|--------------------------|-------------------------------|
| | | | | Quartz | Muscovite | Glauconite | Manganese | Iron | Flint | Charred wood | Plant tissue ferruginous | Plant tissue (with cellulose) |
| 647 | 1 | 7.9-8.6 | Massive | ***** | * | * | * | ** | * | * | * | * |
| 647 | 2 | 0.9-2.3 | Massive | ***** | * | * | ** | * | * | | * | |

Table 18: Table showing the frequency and types of inclusions present. Key: ***** = >70%; ***** = 50-70%; **** = 30-50%; *** = 15-30%; ** = 5-15 %; * = <5%

5.17.43 Both units have a narrow range of mineral and anthropogenic inclusions, and the mineral component predominantly consists of quartz silt (all shapes), 60-70% (Table 18). There are some flint fragments, 5%, charred wood (unit 1 only), 5%, (Table 18). Clay translocation occurs in both units 1 and 2, but it is most abundant in unit 2, particularly the greater frequency of microlaminated clay coatings, 10-20%, and 5-10% in unit 1, which is one of the key attributes that distinguish the two units (Appendix 16; Fig. 2). The translocation of clay and silty clay particles is influenced by factors related to water flow, chemical conditions and energy and gravity. Movement can occur under any kind of climate, although temperate environments provide the best evidence (Courty et al 1989). The formation of microlaminated clay coatings is indicative of repeated washing of clay through the profile (Courty et al 1989). Clay coatings that have a different colour from the surrounding sediment matrix suggest that the fine clay material has translocated from elsewhere (Brammer 1971; French 2003), and so as the clay coatings are similar in colour to the sediment matrix, this suggests in situ weathering of Units 1 and 2. The clay coatings themselves do not show characteristics of fragmentation by the movement of sediment, which may have occurred through repeated disturbance if poaching had occurred; although, clay translocation can be problematic to attribute to specific times in the formation of the archaeological record.

5.17.44 Both units show the translocation of iron, which coats inclusions, has impregnated clay coatings, and has formed nodules, and the neoformation of manganese (Appendix 16; Table 3). Both these chemical alterations indicate that redox processes fluctuated in this sequence as a result of wetting and drying. Free iron is highly mobile only when present in the ferrous state which occurs under anaerobic conditions (Courty et al 1989). Manganese neomineral formation, including nodule formation, occurs in all units, (Appendix 16). Manganese may accumulate at the top of either the

water table or the capillary fringe (Bartlett 1988; Rapp & Hill 1998). Fluctuating water tables lead to alterations of reducing and oxidising conditions (Brammer 1971; Brown 1997; French 2003; Lindbo et al 2010). Manganese neomineral formation has a strong association with the decaying organic matter. Organic matter becomes oxidised as Mn(III) accepts electrons to become Mn(II). The pH rises and the rate of redox is slowed. As organic matter is lost by oxidation, black precipitated MnO₂ will become evident. Most critical redox happenings occur in areas where the O₂ supply is partially restricted either by limited aeration or a predominating electron supply. Most of these regions are redox interfaces such as: meeting points between roots or microbial surfaces and the soil surface; aggregates and soil pores; sediments and free water; the boundary between organic and a mineral horizon (Bartlett 1988).

- 5.17.45 Units 1 and 2 show evidence of oxidation in the colour; the sediment is not gleyed and shows some biological activity, which may not be expected in an anaerobic poaching soil (Tripney 2014). Units 1 and 2 share more similarities with the characteristics of pond sediment. Pond sediment tends to be fine textured, with at least 20-30% clay content, and contain a higher proportion of organic matter than terrestrial soils (Boyd 1995: 4-5). There is substantial clay translocation, which includes micro-laminated clay coatings indicative of repeated washing of clay through the profile. The translocation of iron, which coats inclusions, has impregnated clay coatings, and has formed nodules, and the neo-formation of manganese indicate that redox processes fluctuated in this sequence as a result of wetting and drying, which can be caused by fluctuating water tables. Both these units share the same fine-grained, silt loam and the silt component is well sorted. However, there is not a high frequency of organic matter within units 1 and 2, but this may have been decayed as a result of repeated wetting and drying processes as a result of fluctuating water tables.

Discussion

- 5.17.46 The initial infilling of the waterhole feature was through stagnation and the accumulation of organic silts. The preservation of these deposits is due to the presence of the stability of the watertable at 1.20m below ground level. The pollen and plant macrofossil assemblage recovered from this feature has presented the character of the Bronze Age landscape which is contemporaneous with the excavated evidence. The assessment has shown the area to be largely cleared with any woodland at some distance from the site. Although grassland pasture is the dominant environment, arable cultivation is also suggested by the presence of cereal pollen. However the taphonomic processes of the introduction of pollen into the waterhole may also include through the faeces of animals or through the deposition of other domestic waste into the feature. The plant macrofossils also suggest the presence of hedgerow species and other grassland plants further enhancing the characterisation of the landscape.
- 5.17.47 The aquatic component of the deposits is relatively sparse with instances of arrowgrass and pondweed pollen and possible reeds fringing the feature. This is likely to do with periodically clearing out of the feature to prevent it becoming choked with vegetation. Also recorded within the deposits were insect remains, identification of which may provide further information

regarding the possibility suggested by the pollen for the deposition of waste material into the feature.

- 5.17.48 The oxidation of the upper deposits of the waterhole has been detrimental to the preservation of environmental remains. They do suggest that as the feature gradually infilled it may have been only seasonally water-filled as indicated by the micromorphological assessment of the overlying deposits. This suggests that once the main waterhole had infilled the area surrounding it was still a topographic low point in the landscape that would have held water during the wetter months. A similar deposit was located to the west [353] which would benefit from similar assessment to determine if it is a similar pond type deposit.

5.18 The Scientific Dating Programme by Andrew Margetts

Introduction

- 5.18.1 In order to better understand the stratigraphic sequence of the site and the geoarchaeological and paleoenvironmental context (see section 5.17), a programme of scientific dating will be implemented. This will principally comprise the selection of suitable samples for radiocarbon (^{14}C) dating. ^{14}C dating uses the decay of the radioactive isotope carbon-14 to estimate the age of organic materials, and is often employed in archaeological research to provide absolute dates for features or contexts where relative dating through stratigraphic or artefactual evidence is impossible or insufficiently accurate.
- 5.18.2 As part of the geoarchaeological assessment, three samples were submitted for ^{14}C from *Borehole 1* and *Borehole 7* in order to better contextualise the results of the test pit and borehole survey. These results have previously been dealt with above (see section 5.17). In addition a small sample of sapwood from log ladder [T.1419] from waterhole [1391] was also submitted for radiocarbon dating. This was carried out by Beta Analytic Inc., Miami, Florida in April 2015, with results delivered on 21st April 2015. The laboratory maintains a continual programme of quality assurance procedures, in addition to participation in international inter-comparisons (Scott 2003). These tests indicate no laboratory offsets and demonstrate the validity of the measurement quoted.
- 5.18.3 In addition to the samples already submitted for dating, further samples for submission have been selected on the basis of the stratigraphic, finds, geoarchaeological and environmental data produced in the course of this assessment report. These recommendations are detailed below.

Results

- 5.18.4 The radiocarbon results from the column log ladder sample ASE_DS_00294 are given in Table 19, and are quoted in accordance with the international standard known as the Trondheim convention (Stuiver & Kra 1986). They are conventional radiocarbon ages (Stuiver & Polach 1977). 2 Sigma calibrated dates, obtained using IntCal04 (Reimer *et al.* 2004), are also given at the 95% confidence level.

| Laboratory code | Sample ID | Material | Context | Radiocarbon age (BP) | $\delta^{13}\text{C}$ (‰) | 2 sigma Calibrated date 95% confidence |
|------------------|--------------|------------------------------|---------|----------------------|---------------------------|--|
| BETA - 409063 | ASE_DS_00294 | <i>Quercus</i> <i>sp.</i> | [T1419] | 2870 +/- 20 BP | - 25.0 | Cal BC 1110 to 1000 |

Table 19: Results of radiocarbon dating of log ladder [T1419]

6 POTENTIAL AND SIGNIFICANCE OF DATA

6.1 Realisation of the original research aims

- 6.1.1 In this section relevant original research aims have been combined and reframed as numbered questions (OR's) and the potential of the site archive to address them is discussed.
- 6.1.2 **OR1:** To study the evolution of settlement in the Later Bronze Age and early Iron Age.
- 6.1.3 The archaeological results certainly points towards settlement and organised agricultural land-use during the Mid-Late Bronze Age with increasing evidence as Period 2 progresses. Earlier Bronze Age activity (Late Neolithic/Early Bronze Age) is perhaps transitory in nature or existed beyond the confines of the excavation area. Activity of this date left limited but important archaeological remains at the site. The Early Iron Age possibly represents a hiatus of activity at the site before evidence of land-use recommences in the Middle Iron Age. This lack of Early Iron Age activity may be the result of a postulated sea-level rise on the coastal plain and/or the recognised general under representation of this period within the archaeological record.
- 6.1.4 Period 2.1 activity began with the foundation of a co-axial field system and associated enclosures. Settlement on or near the site was indicated by the presence of a waterhole with associated log-ladder as well as a small cremation cemetery. Period 2.2 was represented by far more concrete evidence for settlement at the site, with roundhouses and domestic or industrial related features becoming apparent. While some elements of the Period 2.1 landscape continued in use (with some elaboration) during Period 2.2 some elements, such as the field system, showed significant signs of change.
- 6.1.5 **OR2:** To study the long term history of land divisions laid out in the mid Bronze Age and early Iron Age;
- 6.1.6 Land divisions were well represented in both the Bronze Age and Iron Age periods of activity at the site. Two distinctive phases of co-axial land division of Mid-late Bronze Age origin were encountered, while the broad Middle Iron Age-Early Romano-British Period 3 activity was largely characterised by the continuity of a set of drainage ditches/field boundaries which were probably related to a watercourse.
- 6.1.7 The land divisions encountered at the site provide a good opportunity to study the evolution of field systems and other boundaries during prehistoric, Roman and the historic periods. The size of the site helps make comparisons with other excavated coastal plain field systems possible and it is thought that the encountered phases of land division at this site maybe indicative of patterns within the area as a whole.
- 6.1.8 **OR3:** To ascertain whether the Roman features noted to the south of the relief road extend into the Flood Compensation Area, and if so, to determine their date and character;

- 6.1.9 The Roman features encountered to the south of the relief road were not encountered within the Flood Compensation Area. Alluvium found extending beyond the southern limit of excavation probably represent the presence of a watercourse that would have served to divide these two areas in antiquity. This said, it is probable that the remains found to both the north and south of the relief road represent a more extensive settlement and field-scape pattern, one which extended beyond the local area into the wider Sussex Coastal Plain.

6.2 Significance and potential of the individual datasets

Stratigraphic

- 6.2.1 The Mesolithic/Early Neolithic residual flintwork adds to the growing corpus of such material from the Coastal Plain. The occurrence of flint of this period(s) amongst an assemblage dominated by later finds is typical of the area (Butler 2008). The close proximity of watercourses may have encouraged activity of this date at the site. The results are of local significance.
- 6.2.2 The Late Neolithic/Early Bronze Age activity represents an uncommon find on the Coastal Plain in general. The large pits may represent attempts to discover fresh water but may also have had other purposes in the wider landscape, such as marking out early land plots which have left little other archaeological trace. They probably represent occupation or at least transient activity of this date. The depositional pit, [811], may have alternative, perhaps ritual associations and the occurrence of Grooved ware in this and other features is an extremely rare occurrence in Sussex (see section 6.2.20). It may be that Late Neolithic/Early Bronze Age activity has suffered to a greater degree from ploughing than the other periods of activity at the site and the occurrence of pottery deposits within the base of the ploughsoil may be indicative that further, shallower, features once existed in the area. Also suffering from plough denudation were the currently unphased ring ditches or partial ring ditches encountered in the northern half of the excavation area, including a probable segmented example. It has been noted that these features may represent round barrows or other related monuments. Finds such as the quartzite battle axe as well as beaker and grooved ware pottery are often associated with burials and the possibly re-deposited human remains encountered within context [429] may tentatively represent Roman disturbance of such a feature. The discovery of two ring-ditches at Westhampnett (Fitzpatrick *et al.* 2008) and the known site of the (now destroyed) Hove Barrow are currently the only other similar features known from the Coastal Plain, however, more examples should be expected (Dunkin and Yates 2008, 37). It is of course possible that these features relate to buildings or other such activity and more work at analysis stage should help clarify whether the ring ditches do in fact represent the plough truncated remains of barrows. The Late Neolithic/Early Bronze Age activity is of regional importance.
- 6.2.3 The Mid-Late Bronze Age activity represents the most intensive land-use at the site for any period. The geoarchaeological and environmental evidence has demonstrated that the site occupied a highly favourable estuarine location during this time, with all the potential benefits of salt marsh pasture, coastal resources and sea borne trade. One drawback of such environments

is a lack of fresh water and waterhole [1391] clearly relates to an attempt to secure a supply. The other contemporary archaeological features, across what are currently two archaeological phases, represent co-axial land division and enclosure, probably related to livestock control, replaced by a more strongly defined system of land division with certain settlement and funerary activity as well as an elaborate enclosure. The archaeological remains are consistent with the fairly intensive Bronze Age activity known from the wider Sussex Coastal Plain. Nearby excavations which also produced evidence of Bronze Age activity (e.g. North Bersted; Taylor *et al.* 2015) may help to further clarify the true nature and extent of settlement and land division encountered at Oldlands Farm.

- 6.2.4 Of the encountered remains perhaps the most striking is the elaborate Period 2.2 enclosure (Enclosure 1). This feature is somewhat reminiscent of so called Banjo Enclosures, however, this class of feature is thought to belong to the Iron Age and early Romano-British periods rather than the Bronze Age (English Heritage 2011a). The feature is also thought to be too small to represent a true banjo enclosure. This said, one of the few examples of such sites to be investigated in Sussex, at Carne's Seat, Goodwood, may have had Late Bronze Age origins of at least some elements of the enclosure complex (Holgate 1986, 48). It is possible that the enclosure encountered at Oldlands Farm may show similarities to this class of later enclosure due to shared functionality rather than specifically belonging to this type of site.
- 6.2.5 The mid-Late Bronze Age activity at the site is thought to be of regional importance.
- 6.2.6 The Middle Iron Age – early Roman activity (Period 3) comprised drainage and land division as well as limited evidence for settlement type activity that was probably located in proximity to, but not within, the bounds of the site. Iron Age remains are well attested in the local area (e.g. North Bersted; Taylor *et al.* 2015) and the features of this date encountered at Oldlands Farm probably comprise an extension of this activity. The results are therefore of local significance.
- 6.2.7 The Romano-British activity (Period 4) largely relates to agricultural land-use, however, the circular and rectangular enclosures that extend beyond the western limit of excavation probably relate to settlement. Roman period remains are very well attested on the Sussex Coastal Plain and the activity at Oldlands Farm adds to this growing corpus. The results are of local significance.
- 6.2.8 Medieval activity largely relates to enclosed strip field land division surrounding the medieval hamlet and manor of Shripney. These remains associated with open fields would have been the dominant agricultural system on this part of the Coastal Plain until enclosure of the fields in the later post-medieval period. The origins of such systems is less well understood than their decommission and evidence from Oldlands Farm perhaps suggests a later Roman heritage played at least some role in this particular system; a phenomenon known elsewhere in the country (e.g. The Bourn Valley, Cambridgeshire; Oosthuizen 2006). Further analysis may help prove whether or not the open fields in this part of the Sussex Coastal Plain had origins earlier than the medieval period and whether or not the strips

originated as bounded fields (as seems to be the case) or that this was a later medieval or early post-medieval modification (through enclosure) of a true open field system.

- 6.2.9 Few, or no, other strip fields have been investigated on such a large scale in this part of Sussex and the investigation of how the medieval field systems of the Coastal Plain developed are key to our understanding of the medieval period of the county as a whole (Barber 2008, 107). Open field systems are an atypical element of the historic landscape of the South-East; an area which is dominated by a dispersed settlement pattern with enclosed fields rather than nucleated villages more often associated with open field farming. Such systems are therefore an under researched element of the historic landscape of the region. Further analysis of the spatial distribution of finds in relation to stratigraphy may further clarify the origins and longevity of this system of land division and cultivation. A literature review should also be conducted to determine parallels for such field-systems on both a regional and a national basis. Further investigation should focus on whether other, similar remains have been encountered on the West Sussex Coastal Plain and the dating, chronology and nature of division, land-holding, crops grown etc. There have been earlier studies of the size of open field strips in Sussex (Nash 1985) and the results of this investigation should be compared with earlier work in order to judge how typical of open field farming in Sussex the Oldlands Farm evidence is. Such work should be combined with cartographic and documentary investigation in order to illuminate what factors governed strip size and cultivation methods at this site and beyond. The results are of regional importance.
- 6.2.10 The post-medieval land drainage at the site is representative of later post-medieval agricultural improvement which is well attested on the Coastal Plain. The results are therefore of limited local importance.
- 6.2.11 The archaeological investigations at Oldlands Farm provide a large enough area to allow analysis of the results on a landscape scale. As such they join newly excavated sites such as Medmerry (Stephenson forthcoming) and North Bersted (Taylor *et al.* 2015). The archaeological activity can be analysed together with nearby sites in both the immediate and wider vicinity in order to provide a landscape scale investigation. This potential is enhanced by the fact that the archaeological remains are probably fairly representative of the Coastal Plain in general. The results in this respect are of regional importance.

The Flintwork

- 6.2.12 The flint assemblage from the Land at Oldlands Farm provides evidence for a prehistoric presence at and around the site spanning from the Mesolithic to the Late Bronze Age. Evidence for Mesolithic or Early Neolithic activity was scarce, represented only by residual material. No actual diagnostic pieces of this period were recovered, but a few blades, bladelets and two cores, all products of a blade-based industry, indicate that the area was subject to low-level visitations during that period.
- 6.2.13 Overall, with the exception of a few stratified sites, evidence for Mesolithic presence on the Coastal Plain remains scarce, limited mainly to surface finds. In the vicinity of Oldlands Farms, excavation north of Hazel Road,

North Bersted (to the west of the site) in 1975 produced 21 pieces dated to the Mesolithic period, seven of which came from a small hollow (Pitts 1980, 155-158). Wymer (1977) in his *Gazeteer of Mesolithic sites* records 30 blades and flakes uncovered by coastal erosion just south of the site. Although small, the assemblage from Oldlands Farm contributes to the broader picture of Mesolithic/Early Neolithic activity in the area.

- 6.2.14 A total of 272 pieces of flint were recovered from four pits ([258], [283], [342] and [811]) dated to the Late Neolithic/Early Bronze flintwork through the presence of ceramic. The flintwork consists principally of waste *débitage*, and modified artefacts occurred only sporadically. No diagnostic pieces were present, but based on technological and morphological grounds, the majority are likely to be contemporary with the ceramic and the features. The fine retouches on three scrapers from pit/sump [342] is certainly consistent with a Neolithic or Early Bronze Age date. The most coherent assemblage out of these four pits came from context [811]. This group could represent waste from a single knapping event carried out in or around the feature. However, if it represents a cooking/fire pit, the 121 pieces of unburnt worked flint would have become incorporated into the feature after the pit was used as a cooking/fire pit. Further work might find some refits, however, this attempt might be hindered by the fact that only the secondary fill was sampled. The other pits contain occasional pieces of earlier or later date.
- 6.2.15 Although no diagnostic artefacts were recorded in these four features, un-phased poaching deposit or shallow "dew pond" [353] and subsoil deposit [8/002] produced two knives that are typical of the Late Neolithic - Early Bronze Age. Both are finely made. Scale-flaked knives are sometimes found in connection with burials. In addition, un-phased channel fill context [595] produced a fragmented polished axe, re-used as a core. The presence of a Neolithic polished axe fragment is significant because evidence of the Neolithic in the local area remains limited. A ditch excavated during the large-scaled evaluation on the north-western edge of Bognor Regis in 2009 (Costwold Archaeology 2009) produced a large quantity of Early Neolithic flints. These were recovered in association with ceramic. The re-used Neolithic polished axe fragment from channel fill context [595] could represent a curated object. It could have been selected for deposition during the Bronze Age period.
- 6.2.16 Early Bronze Age activity in the adjacent area appears to have also been small. An Early Bronze Age flint assemblage has been recovered, in association with ceramic, to the west of the site, north of Hazel Road, North Bersted (Bedwin and Pitts 1978). At Oldlands Farms, the large well-stratified group from context [811], the assemblages from the other three pits ([258], [283] and [342]) and the flints found either in later contexts or in un-phased contexts confirm late Neolithic - Early Bronze Age activity in the area, although this activity might have been small and localised. The assemblage provides evidence for flint knapping and the use of tools.
- 6.2.17 The flintwork indicates a more sustained phase of flintworking during the Mid-Late Bronze Age. Again, the assemblage indicates knapping and use of flint tools (mostly scrapers but also notched pieces). The assemblage is in keeping with the results from previous interventions in the close vicinity of the site (Wessex 2007 and Cotswolds Archaeology 2008), and it reflects the well-recorded pattern of exploitation of the Sussex Coastal Plain during that

period. However, no large groups were found, and admixtures with earlier (Late Neolithic - Early Neolithic) artefacts were evident.

- 6.2.18 Work at the site produced large quantities of burnt unworked flint the majority of which are associated with Middle-Late Bronze Age features. Burnt unworked flints are normally associated with prehistoric activity, and more particularly with Mid to Late Bronze Age burnt mounds. They are commonly recorded on sites from the coastal plain. Their function remains unclear. They may represent remnants of activities involving the immersion of heated pieces of flint to heat or boil water, activities such as cooking, brewing, leather working, dying, salt producing and bathing (English Heritage 2011b, Barfield & Hodder 1987, O' Drisceoil, 1988). Alternative uses could have been to dry corn (Cunliffe 2002, 410-11) or to obtain tempering material for ceramics. At Oldlands Farms burnt unworked flints were recovered from a variety of features including a burnt mound, cooking/fire pits, refuse pits and ditches suggesting that they may have been used for different activities.
- 6.2.19 The sheer quantity of burnt material recovered from the site, the intense degree of its burning and the absence of other stones imply that the material was deliberately selected for its properties and that it was intentionally heated. Whatever its function, the material relates to a significant activity (or activities) carried out at the site. However, as noted above the precise function of this type of material is unclear, and the interpretation of large amounts of burnt unworked flint remains problematic. Nonetheless, the assemblage of burnt unworked flint may provide evidence for the location and the extent of burnt flint related activities performed at the site.

The Prehistoric and Roman Pottery

- 6.2.20 Grooved Ware is extremely rare in Sussex: a gazetteer published in the 1990's noted only two find-spots and excavation in the developer-funded era has only added one other small assemblage from Westhampnett (Longworth & Cleal 1999; Mephams 2008). As a result, the current assemblage has some regional significance, especially if radiocarbon dating of the pottery residue is successful. It is therefore recommended that a short specialist report is included in the publication; however, the assemblage is small and lacks any diagnostic form elements meaning that there is limited scope for further analysis.
- 6.2.21 The Middle/Late Bronze assemblage is slightly larger but this is set against the fact that Deverel-Rimbury and Post Deverel-Rimbury pottery is very common on the coastal plain and more than one assemblage is known from the vicinity of Bognor Regis (Seager Thomas in prep). Given the fairly undiagnostic nature of the non-funerary assemblage, it can probably only be classed as of local significance. However, relatively few cemeteries from the coastal plain have produced multiple vessels, so this aspect of the assemblage perhaps has some wider regional importance, particularly if radiocarbon dates are obtained on associated human remains. This may allow for some comparison with other larger funerary assemblages like that from Westhampnett (Every & Mephams 2006); however, since the vessels are heavily truncated this would probably be limited to a comparison of fabric and vessel size/base diameter.

- 6.2.22 The Middle/Late Iron Age pottery has some local significance because ceramics of this period are less common on the coastal plain. However, there is probably no scope for further analysis, given the small size of the assemblage. The Roman pottery is also of fairly limited local significance because larger assemblages have previously been analysed from the area of Bognor Regis. These two assemblages should probably be reported on brief summary paragraphs with illustrations of the more complete vessels. It may also be useful to prepare a short text on the continuing trend for the deposition of whole vessels in ditches during Periods 3 and 4.

The Post-Roman Pottery

- 6.2.23 Overall the assemblage suggests relatively low levels of manuring in the 13th and particularly 14th centuries, with a rapid drop-off in the 15th century and nothing thereafter.

Ceramic Building Material

- 6.2.24 The ceramic building assemblage is of limited significance. Although the presence of Roman forms suggests a building in the vicinity, the condition of the assemblage is indicative of a high level of reworking; likewise the post Roman assemblage.
- 6.2.25 Although the assemblage provides some broad dating for a number of undated contexts it has very little further potential.

Fired Clay

- 6.2.26 The assemblage suggests extensive use of brickearth as a lining material for pits. The small group of possible casting mould fragments is of local significance since evidence for metal working during the Bronze Age is fairly sparse; likewise, the bronze age weight fragment is a significant find since Bronze Age decorated weights are not particularly common, particularly in Sussex. Unfortunately the lack of diagnostic features on the remaining assemblage fails to shed light on the ambiguity of the pit features. Further work is suggested on the fired clay from pit [833]; no further work is required on the remaining assemblage, most of which can be discarded.

Glass

- 6.2.27 Given the piece represents an isolated find, its only significance lies in the contribution of dating evidence to this particular context.

Metallurgical Remains

- 6.2.28 The slag assemblage from the site is tiny and very much in keeping with a site that has seen mainly Bronze Age or earlier activity. The few pieces of slag present probably represent a background scatter of intrusive Roman to post-medieval activity.

Geological Material

- 6.2.29 The stone assemblage from the site is small and somewhat limited in range of types. The majority consists of stone naturally available to the site and its immediate environs. None of this material shows any signs of human modification. The quern fragments are small and thus lacking in form. Although they demonstrate a clear dependence on the Lower greensand for querns at least two different outcrops were clearly be exploited (Lodsworth and, more extensively, another unknown location). However, Lower Greensand is already known to be the main type used in querns in West Sussex, even at this early date. Unfortunately the small size of the pieces precludes the current material from adding information regarding form. The perforated tool head is of more interest, as these pieces are much rarer, though the current find is unfortunately isolated.

Marine Mollusc

- 6.2.30 The mollusc has no potential for further work

Animal Bone

- 6.2.31 The assemblage is of local significance. The amount of identifiable remains is relatively small with the majority identified as large and medium mammal fragments, the remains from all phases are highly fragmented and in poor condition therefore no further work is recommend. The red deer antler fragments recovered from the late Neolithic – early Bronze Age deposit maybe a significant discovery, therefore further analysis of the associated flint and pottery as well as site comparisons are required.

Human Bone

- 6.2.32 Due to the human remains being disarticulated, significance and potential is limited. However the disarticulation of these remains suggests that they may have been re-deposited.

Burnt Bone

- 6.2.33 The limited size of the phase 2.2 assemblages does decrease the value of any further analysis. However, further study of the Phase 2.1 cremation deposits [1153], [1154], [1334], [1335] and [1344] will enable the degree of fragmentation to be established and the percentage by weight of the fragments from each skeletal area to be calculated. The drawn plans will also be examined to see whether any patterns of deposition within the vessels can be identified. A report will be produced summarising and tabulating these results. This will include a summary of the assessments on the Period 2.1 assemblages and comparisons with the other contemporary cremation burials.

Registered Finds

- 6.2.34 The assemblage is small and disparate in nature, with evidence of activity from the Bronze Age to the 18-19th century. A number of the objects have no accompanying contextual information at the time of assessment therefore

an assessment of their significance is difficult. The earlier objects are potentially of most significance to the site narrative, whereas the post medieval objects are more likely to be casual losses rather than a reflection of sustained activity. The group of Roman objects indicates activity around the mid -1st century; if the sickle is Roman then its manner of deposition may be significant.

Environmental material

- 6.2.35 Samples taken during the excavation have produced very similar assemblages to those recovered during the evaluation. Excavation samples confirm the presence of infrequent charred plant macrofossils, wood charcoal and in some instances waterlogged plant remains. All the flots (from dry deposits) from the site also contained modern uncharred vegetation (mostly roots and seeds of elder and goosefoot) suggesting low level disturbances across the site and possible intrusion of modern material.
- 6.2.36 Overall, charred plant macrofossils were infrequent and the remains present cannot contribute significant information regarding diet, environment and economy at the site. Charred crop remains were recorded in very low amounts and, given the lack of glume and rachis remains, no definite species identification was possible. One caryopsis of possible free threshing wheat was found in context [284], although identification of wheat down to the species is more reliable when based on glume or rachis remains, therefore this identification has to be considered tentative. Seeds of wild plants were also present in low amounts and species level identification was possible for the case of ivy leaved speedwell only. Normally seeds of wild plants can provide information regarding the environment that surrounded the site and, if they are crop weeds, they can reveal the conditions the crops were grown in. For example, ivy leaved speedwell can grow on arable and waste ground. However in the case of Oldlands Farm the number of wild seeds present and identifiable is too small to provide information of any significance. An onion couch grass tuber was recorded from feature [328], which is recorded as a possible cremation. Onion couch grass finds are frequent in Bronze Age sites across south-east England, often associated with other tubers. At Mile Oak Farm onion couch grass, pignut and maybe lesser celandine tubers were identified (Hinton 2002). Findings of these tubers occur often in cremations (Le Hegarat forthcoming, Stevens 2009), and their presence in this sort of feature has been explained either with their use for kindling (Robinson 1988), or to create fire breaks (Stevens 2008) or as food offerings, given the relatively high importance of gathered food plants in prehistoric diets in Britain (Moffett 1991). The presence of only one such item however is not enough to allow for speculation on what part onion couch grass as well as other tubers might have played in the diet and ritual at Oldlands Farm.
- 6.2.37 Wood charcoal assemblages were comparatively small and many of the fragments displayed some degree of sediment encrustation and percolation that has led to poor preservation and/or limited the potential to obtain identifications. This is particularly notable in cremation features [981], [893] and [998]. This type of preservation is, however, fairly typical of sites on the West Sussex Coastal Plain and since charcoal assemblages of any size or with good stratigraphic integrity are relatively rare on the Sussex Coastal Plain these assemblages are therefore of some significance and hold some

potential to provide information regarding fuel use and selection as well as contributing information regarding the woody vegetation of the area. Of particular significance are the assemblages from funerary related features as they can be linked to specific fuel using activities and provide the opportunity to examine the range of fuel used in funerary activities during the Bronze Age. While there is data regarding fuel wood in Bronze Age cremations elsewhere in the South-East (Alldritt 2006a, 2006b, 2006c, Challinor 2006) the data for West Sussex (Gale 2008, Mooney 2014) is more limited. Initial indications from the Oldlands Farm samples are that a range of fuel types were used. Although wood from large trees such as oak and ash were recorded in some of the funerary related features (those in which burnt bone was also present) they were not the predominant taxa. Hazel/alder and taxa from the Maloideae family were far more commonly noted across the samples. At many sites oak and/or ash dominate charcoal assemblages in funerary deposits and may have been used as the main structural and fuel component of pyres with smaller, shrubby taxa deriving from brushwood or perhaps artefact inclusions. The current data from Oldland Farm suggests a slightly different pattern which may be influenced by the availability or abundance of oak in the local environment. Recent excavations at Medmerry revealed oak dominated assemblages in Bronze Age cremation burials (Mooney 2014) and these, together with material from Westhampnett (Gale 2008) present an opportunity for comparison following further analysis of selected samples from Oldlands Farm.

Worked Wood

- 6.2.38 The log ladder, comprising a notched small trunk or large bough of oak which would have been used to access the waterhole, is an unusual find in the region, and no other published examples from Sussex were identified during literature consultation. However, numerous examples have been found in other areas of southern England and East Anglia, dating to the Bronze Age and Iron Age periods. Excavations at Heathrow Terminal 5 produced four examples, one of which utilised stumps as steps as in the present timber (Allen 2010). Other Bronze Age log ladders are known from Longstanton, Cambridgeshire (Taylor 2007), Langtoft, Lincolnshire (Hutton 2008) and Yarnton, Oxfordshire (Hey 1994), while later Iron Age examples have been found at Trumpington (Armour 2007) and Milton (Bamforth 2013) in Cambridgeshire, and at Calverton in Milton Keynes (Wardell Armstrong Archaeology 2012). In the east Midlands and East Anglia, a significant corpus of prehistoric log ladders is beginning to build up (Bamforth 2013), and it seems likely that this simple piece of technology was a fairly ubiquitous component of prehistoric life. The clustering of such finds in this area, and their relative absence in the south east of England, may be due to a number of factors, including preservation bias and excavation methodology. Further literature consultation, including examination of ethnographic parallels, should be conducted to examine this find in its broader context.

Geoarchaeological samples

Significance and potential-boreholes

- 6.2.39 The sediments recovered from the estuary presented variable preservation of environmental remains. The poor pollen preservation means that no

further work is recommended on this component. With regard to the diatom assemblages it would be possible to identify all taxa to species level and obtain additional palaeoenvironmental information. Full analysis would enable the confirmation of the depositional positions within the tidal frame at the time of sedimentation. This would be achieved using the classification scheme of Vos and de Wolf (1993). This semi-quantitative approach enables assemblages to be associated with specific palaeo-shoreline elevations such as deposition within tidal channel, mudflat, salt marsh below/at/above mean high waters etc. This technique utilises those diatom species that are often present, but in much lower abundances (1-5%TDV). Such taxa can often dictate the reconstructed palaeo-elevations that are applied to a diatom assemblage, but due to their relative abundance, don't always appear to be statistically significant during assessment level studies.

- 6.2.40 However, the study has found a relatively small number of samples present that contained diatoms in sufficient abundance and diversity to warrant further analysis. Therefore, unless there are specific archaeological and/or palaeoenvironmental questions that arise from the overall study that are associated with the depths at which diatoms have been encountered; it is recommended that no further work is undertaken on the diatoms from Oldlands Farm
- 6.2.41 The ostracods and forams have been studied to full analysis counts and therefore no further work is required on these assemblages. The lack of a reliable chronology and the lack of material with which to address this issue has led to the recommendation that no further dating be carried out on the available deposits. It may be possible to relate the sequences examined here to those studied at Felpham should the data be made available.

Significance and potential-waterhole

- 6.2.42 The waterhole feature has recorded good preservation for several environmental proxies within the lower organic deposits. This is clearly an interesting profile which adds to our knowledge of late prehistoric Sussex. The pollen warrants further investigation and standard (full) counts of 400-500 pollen grains per sample should be obtained where preservation permits. This should add greater taxonomic detail and statistical validity. Some additional pollen samples may be considered to give extra stratigraphical detail. The poor preservation of the diatom component of the assemblage prevents its use to determine levels of salinity and therefore no further work is recommended.
- 6.2.43 The waterlogged samples contained a much richer variety of environmental remains, ranging from wood to insects and seeds. Species represented in the waterlogged plant remains assemblages displayed a certain consistency throughout the samples providing us with interesting information on the vegetation surrounding the site. Woodland and scrub species are represented alongside those that are indicative of a damp environment, as well as cultivated and waste ground. Their preservation is generally good which will allow for secure identifications to be made during further analytic work. Comparison with other sites on the coastal plain where plant remains were preserved in anoxic conditions, such as at Medmerry (Le Hégarat and Allott 2014), can also be drawn.

The Scientific Dating Programme

- 6.2.44 The date (BETA -409063) obtained from the log ladder [T1419] aids the phasing of waterhole [1391] as well as the wider Mid-Late Bronze Age activity at the site. The feature in which this timber was found also contained important paleoenvironmental evidence for the period. The pollen and plant macrofossil assemblages encountered within this feature were sufficiently well preserved to characterise the onsite vegetation contemporaneous with the occupation of the site. Further radiocarbon dating related to these sediments therefore has the potential to greatly enhance understanding of the Mid-Late Bronze Age environment of both the site and the wider Sussex Coastal Plain.
- 6.2.45 A thick internal sooted residue was noted on one sherd from environmental sample <36>, fill [813] of pit [811], representing one of the largest groups containing diagnostic Grooved Ware. It has been recommended that this should be submitted for radiocarbon dating in order to better understand the dating of this pottery group and of the Late Neolithic/Bronze Age activity on the site (see section 6.2.20).
- 6.2.46 Other pottery sherds with associated residues, specifically contexts [508], [732], [838] and [1431] may aid understanding of the chronology of the site through a programme of radiocarbon dating. These should also be further considered at analysis stage.
- 6.2.47 A single rimsherd, found in the backfill associated with cremation [998] appears to be of significantly later date than the primary cremation vessel with which it is associated. It is possible that either the urn was old at its time of burial, or that this sherd is intrusive. Radiocarbon dating of the associated human remains may help to resolve this point. Radiocarbon of the other funerary related deposits should also be considered at analysis stage in order to aid comparison with other similarly dated sites from the wider area/region.
- 6.2.48 The possibly re-deposited human remains from context [429] should be considered for radiocarbon dating at analysis stage. This may further clarify whether these remains date to the infilling of the Romano-British ditch, with which they are associated, or whether they represent a disturbed earlier burial or alternatively a later intrusive deposition. Of particular relevance is the presence of possible funerary monuments or barrows on the site.
- 6.2.49 The assemblage of plant macrofossil and charcoal remains recovered from the bulk environmental samples also have a limited potential to contribute to the scientific dating programme for the site. Deposits from features of uncertain date or features that are considered key to the stratigraphic and chronological narrative should be considered for radiocarbon dating in the light of their associated charcoal assemblages at analysis stage. Particular attention should be paid to those deposits that show potential for answering the revised research aims outlined in section 7.1 of this report. In addition material from features related to cooking or funerary activities should also be considered. If suitable taxa with shorted life-spans are available they may be considered for submission for radiocarbon dating.

7 PUBLICATION PROJECT

7.1 Revised research agenda: Aims and Objectives

7.1.1 This section combines those original research aims that the site archive has the potential to address with any new research aims identified in the assessment process by stratigraphic, finds and environmental specialists to produce a set of revised research aims that will form the basis of any future research agenda. Original research aims (OR's) are referred to where there is any synthesis of subject matter to form a new set of revised research aims (RRA's) posed as questions below.

RRA 1 Can specialist geoarchaeological and paleoenvironmental analysis aid our understanding of the archaeological activity encountered at the site for all periods? How can this work further our understanding of past human activity on the Coastal Plain on a landscape scale?

RRA 2 (OR1) How do the Late Neolithic/Early Bronze Age remains relate to other activity of this date from the surrounding area? What do the archaeological features and the associated artefact remains tell us about contemporary exploitation of this part of the Coastal Plain? Comparisons with other sites/findspots should be sought.

RRA 3 (OR1) Are the large Late Neolithic/Early Bronze Age pits characteristic of remains of this date found elsewhere on the Sussex Coastal Plain and neighbouring areas of downland? Is pit [811] of 'ritual' significance (i.e. representative of deliberate or structured deposition) and are there any other known parallels in the vicinity? What was the purpose(s) of the large pits? Does the fragment of antler as well as the other associated finds represent deliberate/structured deposition within these features?

RRA 4 (OR1) Do the as yet unphased ring ditches at the site represent monuments of Late Neolithic/Early Bronze Age (or later) date? Is the presence of Grooved Ware and Beaker sherds as well as some of the other artefactual evidence such as the fragment of quartzite battle axe important in this context?

RRA 5 (OR1) To fully phase and investigate the Late Neolithic/Early Bronze Age on a landscape scale (its economy, settlement pattern, social organisation, environment, resources, industry, trade links, funerary monuments *etc*). What inferences can be made on the basis of this work?

RRA 6 (OR1) Does analysis of the Late Neolithic/Early Bronze Age flintwork assemblage enhance our understanding of contemporary activity at the site? An attempt at refitting the Late Neolithic/Early Bronze Age flints from pit [811] should be carried out.

RRA 7 (OR1) How do the Mid-Late Bronze Age remains relate to other activity of this date from the surrounding area? What do the archaeological features and the associated artefact remains tell us about contemporary exploitation of this part of the Sussex Coastal Plain? Comparisons with other sites/findspots should be sought.

- RRA 8 (OR2) Do the Mid-Late Bronze Age co-axial field systems extend beyond this site as part of coherent landscape division? Can this 'organised' land division be found to extend into other contemporary sites in the vicinity? What bearing do these systems have on the land division of the coastal plain in other, later, periods? Why is there a break between the two phases of Mid-Late Bronze Age co-axial land division at the site? Is this a potential hiatus of activity or does this mark a change in agricultural practice?
- RRA 9 (OR1) To fully phase and investigate the Mid-Late Bronze Age activity on a landscape scale (its economy, settlement pattern, social organisation, environment, resources, industry, trade links, funerary monuments and deposits, potential hiatuses *etc*). What inferences can be made on the basis of this work?
- RRA 10 (OR1) Are there any parallels for Enclosure 1? Does this relate to livestock control or settlement or a combination of the two? Does this have parallels with so called Banjo Enclosures and does this relate to a shared functionality or a longer period of development of such features over time?
- RRA 11 (OR1) Does analysis of the Mid-Late Bronze Age flintwork assemblage enhance our understanding of contemporary activity at the site? Do comparisons of the flint assemblage (unburnt and burnt) with assemblages recovered from similar settlement/industrial sites in the area shed any light on the nature of this activity both on the site and the wider coastal plain?
- RRA 12 (OR1) Does further work on the Mid-Late Bronze Age artefactual evidence enhance our understanding of contemporary activity at the site, the wider Coastal Plain and the South-East in general? In particular does ceramic evidence tell us more about contemporary funerary and ritualised activity?
- RRA 13 Do the fragments of fired clay from context [833] represent possible mould fragments and if so what does this tell us about the nature of Mid-Late Bronze Age industrial activity at the site, potential trade links *et cetera*?
- RRA 14 (OR1) How does the Mid-Late Bronze Age environmental evidence and in particular the samples from waterhole [1391] enhance our understanding of the contemporary landscape of the Coastal Plain?
- RRA 15 The log ladder from waterhole [1391] represents a rare or unique example from Sussex. Can further analysis including comparisons with other published examples as well as ethnographic parallels help enhance our understanding of the Mid-Late Bronze Age evidence at the site?
- RRA 16 How do the Middle Iron Age-early Roman remains relate to other activity of this date from the surrounding area? What do the archaeological features and the associated artefact remains tell us about contemporary exploitation of this part of the Sussex Coastal Plain? Comparisons with other sites/findspots should be sought.
- RRA 17 To fully phase and investigate the Middle Iron Age-early Roman activity on a landscape scale. In particular attempts should be made to better define sub-phases within this broad period of activity. What inferences can be made on the basis of this work?

- RRA 18 (OR2) Do the Middle Iron Age-early Roman drainage ditches and boundaries extend beyond the site into other investigated areas nearby (e.g. North Bersted; Taylor 2015)? If so what inferences can be made about the nature of land division on this part of the Coastal Plain?
- RRA 19 How do the Romano-British remains relate to other activity of this date from the surrounding area? What do the archaeological features and the associated artefact remains tell us about contemporary exploitation of this part of the coastal plain? Comparisons with other sites/findspots should be sought.
- RRA 20 To fully phase and investigate the Romano-British activity on a landscape scale. What inferences can be made on the basis of this work?
- RRA 21 Can the possibly re-deposited human remains from context [429] be dated through a programme of radiocarbon dating? Do these remains originate in the Romano-British period or do they represent a re-deposited burial from an earlier period? Are these remains intrusive from a later period?
- RRA 22 How do the postulated medieval remains relate to other activity of this date from the surrounding area? What do the archaeological features and the associated artefact remains tell us about contemporary exploitation of this part of the coastal plain? Comparisons with other sites/findspots should be sought.
- RRA 23 To fully phase and investigate the Romano-British activity on a landscape scale. What inferences can be made on the basis of this work?
- RRA 24 What are the origins of the postulated medieval strip field system? Do these remains relate to continued development of a later Roman field system? Did the medieval open field systems of the coastal plain originate as bounded strips or is this a later development? Does the postulated medieval field system relate to demesne or common strips? What was the date of decommission for the field system and when precisely did it originate? Can any inferences be made about furlong length in this part of Sussex? What does this system tell us about field division in the immediate and wider area? Can the system be linked to the medieval settlement and manor at Shripney? The open field system at the site should be fully investigated to elucidate what it tells us about this method of land division and cultivation both at the site and beyond.
- RRA 25 What is the date of the Roman or later sickle from the medieval field system? Does its method of deposition indicate Roman or later ritualised activity? If so what was the purpose of this activity?

7.2 Preliminary publication synopsis

- 7.2.1 It is suggested that the results of the excavation should be published in the county archaeological journal Sussex Archaeological Collections, with the full archive published online on the Archaeology Data Service website. In order to fully address the aims of the revised research agenda outlined above it is recommended that the salient aspects of the excavation results will be better presented as two related papers, with one discussing the prehistoric periods and the other the medieval landscape. Dating and finds reports will be integrated as required and each paper will include a thematic discussion that will address the revised research agenda.

7.3 Publication project: task sequence

Stratigraphic method statement

7.3.1 The major tasks to be completed by the principal stratigraphic author at the next stage of analysis and to complete the publication are shown in Table 20.

Flintwork

7.3.2 Overall the flint assemblage from Oldlands Farm points to a multi-period and multi-activity site, with the evidence in terms of quantity of flints increasing through time. Flintwork associated with general Later prehistoric (Mid-Late Bronze Age) settlement-type activities is already well represented from sites located on the coastal plain. Nonetheless, the Mesolithic/Early Neolithic and the Late Neolithic/Early Bronze Age presence remains less well understood. And, although in the wider landscape, sites from the late prehistoric period are well represented, the overall prehistoric occupation of the Sussex Coastal Plain is still poorly understood and documented.

7.3.3 Therefore, publication of the material as a summary of the assemblage with a few illustrations is proposed. While the assemblage is not considered to have any potential for further analysis such as detailed attribute analysis, an attempt at refitting the Late Neolithic/Early Bronze Age flints from pit [811] should be carried out. Further work should include:

Refitting work on the material from pit [811] 0.75 day

Comparing the flint assemblage (unburnt and burnt) with assemblages recovered from similar settlement/industrial sites in the area 0.5 day

Producing a publication text based on the above data as well as additional information obtained from the refitting work, the flint assemblages from the adjacent interventions by CA and WA and new contextual information 2.5 days

Producing an illustration catalogue 0.5 day

Total 4.25 days

Prehistoric and Roman pottery

7.3.4 It is recommended that a specialist analysis report should be prepared focusing on the Late Neolithic/Early Bronze Age and Middle/Late Bronze Age funerary/placed pottery. Other aspects of the prehistoric and Roman pottery can be reported on in more summary style with illustrations of the more complete or diagnostic pieces. The following tasks have been identified:

Review of spot-dating and liaison with stratigraphic author once group and landuse data is compiled 1 day

Consideration of C14 results and preparation of text on ceramic chronology 0.5 days

Background research and comparison with other Middle/Late Bronze Age funerary assemblages 0.5 days

Prepare publication text 1 day

Extract/reintegrate illustrated sherds; check illustrations; prepare catalogue 1 day

Total 4 days

Post-Roman pottery

- 7.3.5 The post-Roman pottery from the site consists of small featureless worn sherds that are usually in total isolation. As such they do not have the potential for any further analysis beyond that undertaken for this assessment and are recommended for discard.

Ceramic Building Material

- 7.3.6 The assemblage has been fully recorded for the archive. Text for the site narrative can be taken from this report. No further work is required.

Fired Clay

- 7.3.7 The following tasks are recommended:

Further research and consultation with a specialist on the possible mould fragments 1 day

Produce a short report (if required) 1 day

Select and discard material for the archive 0.25 days

Total 2.25 days

Glass

- 7.3.8 The assemblage has been recorded in full on *pro forma* sheets for archive. No further work is required.

Metallurgical Remains

- 7.3.9 No further work is required on this material.

Geological Remains

- 7.3.10 It is not proposed to undertake any further analysis on the stone beyond that undertaken for this assessment and no separate stone report is proposed for publication. However, the presence of the Period 2 querns should be highlighted in the site narrative, as should the presence of the perforated tool head. Only the latter piece is proposed for illustration.

Marine Mollusc

7.3.11 No further work is required

Animal Bone

7.3.12 The following tasks are recommended:

Incorporate refined stratigraphic/C14 data 0.25 days

Researching additional sites for similarities regarding antler deposits 1 day

Production of written report 1 day

Total 2.25 days

Human Bone

7.3.13 A number of partial ring gullies or possible barrow structures are located within the vicinity of the Roman ditch [429]. Carbon 14 analysis of the disarticulated remains would assist in determining dates further and whether there is a relationship with the surrounding features.

Produce a short report (if required) 1 day

Total 1 day

Burnt Bone

7.3.14 Further analysis 1 day

Comparisons 0.25 day

Report writing 0.75 day

Total 2 days

Registered Finds

7.3.15 The following tasks are recommended:

Integrate context information 0.5 days

Produce a short report and catalogue 1.5days

Selection of objects for archive 0.5days

Total 2.5 days

Environmental Remains

Charred plant macrofossils

- 7.3.16 Given the low potential in providing information on crop and other plant use at the site, no further work is recommended on the charred plant macrofossils arising from these samples.

Charcoal

- 7.3.17 It is recommended that further identification (up to 100 fragments per sample where available) and analysis work is undertaken on three possible cooking pit/furnace features (from periods 1 and 2) and from five samples from funerary related features (period 2). The funerary features include those defined as cremation burials as well as other features from which burnt bone was retrieved. Samples <36, 43, 16, 20, 23, 29, 67, 41> are recommended for further analysis.

Charred plant macrofossils

No time required – see above statement regarding further work.

Charcoal

Analysis of charred wood fragments from 8 samples:

| | |
|---|---------------|
| Identifications and data entry | 3 days |
| Literature consultation & report production | 1 days |
| Total | 4 days |

Worked Wood

- 7.3.18 It is recommended that the results of this assessment are summarised for publication, along with further investigation of comparative sources. The log ladder should be illustrated for publication.

| | |
|---|---------------|
| Literature consultation & report production | 1 day |
| External laboratory | Fee |
| Total | 2 days |

The Geoarchaeological Samples

- 7.3.19 No further work is recommended on the microfossil assemblage. No further radiocarbon dating is recommended. A brief discussion of the data should be prepared for the publication.

- 7.3.20 Diatom preservation was poor and requires no further work

- 7.3.21 The following tasks are recommended:

An additional 7 pollen samples be examined with the existing samples taken to full analysis counts. External laboratory fee. Fee

Plant macrofossil samples to be fully analysed to obtain information regarding the local vegetation habitats represented. This will include analysis of plant macrofossils and waterlogged wood from a total of 6 or 7 samples (including 3 samples within column <47> - and samples <59, 60, 61 and/or 62>) 3 days

The waterlogged bulk samples should also be examined for insect remains. External laboratory fee. Fee

Further radiocarbon dating relating to the sediments should be undertaken in addition to the date already obtained for the log ladder

A micromorphological examination should be made of the second possible pond deposit [353]. External laboratory fee. Fee

Total 3 days

The Scientific Dating Programme

Aims of the Scientific Dating Programme

7.3.22 Overall objective:

- To further understand the formation process of the site and to better date the geoarchaeological and paleoenvironmental change in the surrounding landscape.

7.3.23 Specific aims:

- To better date and understand the geoarchaeological and paleoenvironmental context of the site (RRA's 1 and 14)
- To refine the dating of the Late Neolithic/Early Bronze Age activity at the site (RRA's 2- 4)
- To confirm the date of the as yet unphased ring ditches (RRA 4)
- To confirm the dating of the Late Neolithic/Early Bronze Age pit group. Specifically to date potentially deliberately deposited antler from pit [343]
- To better date the Late Neolithic/Early Bronze Age activity in relation to ceramic chronology. Specifically is the evidence related to Grooved Ware or Beaker period remains (RRA's 2-4)
- To date the important Grooved Ware related remains from depositional pit [811]
- To refine the dating of Mid-Late Bronze Age occupation at the site (RRA's 7-10)
- To refine the dating of the of Mid-Late Bronze Age funerary activity (RRA 9)
- To date the disarticulated human remains from context [429]. Do these remains date to the Roman period (as currently phased) or other periods of activity at the site? (RRA 21)

7.3.24 Further work needs to be done to address the aims and objectives outlined above prior to analysis. Material for each of the aims needs to be further

assessed in the light of these objectives. If suitable material can be found consideration will be made for submission for radiocarbon dating. It is estimated that c. 10 samples will be selected for further radiocarbon dating.

Identification and selection of samples for further radiocarbon dating 3 days

Total 3 days

Illustration

7.3.25 There will be c. 30 stratigraphic figures, and c. 10 site photographs 5 days

7.3.26 It is estimated that around 46 illustrations are necessary to cover the range of finds present and the key stratified groups.

10 items of flintwork are proposed for illustration

Period 1 (10 bodysherds, highly decorated)

Period 2 (c.10 vessels, including 3 more complete profiles and other small rims/bodysherds, mostly undecorated)

Period 3 (c. 4 vessels, including one more complete profile, undecorated)

Period 4 (c. 4 more complete vessels)

1 Stone object (battle axe) is proposed for illustration

6 Registered finds are proposed for illustration

1 piece of worked wood (log ladder) is proposed for illustration

Total c. 46 illustrations 7 days

Total 12 days

| Stratigraphic | Days |
|--|-------------|
| Define grouping and landuse. The 741 sub-groups created at assessment level are likely to form some 150 groups and perhaps 40 or so landuses (buildings, open areas, boundaries etc.). They will be defined using stratigraphic, spatial and chronological analysis, using the subgroup matrix and dating evidence. Rates based on analysis of 500 subgroups to groups per day and landuses defined at 10 per day | 6 |
| Define periods and phases. The general chronological phases of activity across the site will be identified from the group matrix and defined landuses. These periods will form chronological framework of the site. There are likely to be 7 such periods and 10 or more phases. The groups forming each phase will be mapped on the database and incorporated with similarly dated activity from the surrounding landscape. | 5 |
| Describe landuse. Interpretative text will be written about each landuse element including a definition of the buildings, open areas and boundaries etc., their form and function on a site and landscape-wide basis. | 5 |
| Describe periods. A textual summary, built from landuse and group texts where appropriate, will be formed for each of the periods. Plots of each phase (incorporating the wider landscape) will be produced using GIS and hand-annotated with conjecture. | 6 |
| Documentary research should be conducted prior to commencement of the final authorship of the publication text by the principal author. This should include relevant study of archaeological features, sites and published themes of the surrounding area, region, and the south-east. | 5 |
| Prepare integrated publication report. This task comprises the combination of the stratigraphic period and landuse descriptions and the relevant portions of completed finds, environmental, documentary and integrated analytical reports. Photographic images will also be selected from the archive for publication. Completion of this task will result in the first (unedited) draft of the report. | 13 |
| Specialist Analysis | |
| Flintwork | 4.25 |
| Prehistoric and Roman Pottery | 4 |
| Fired Clay | 2.25 |
| Animal Bone | 2.25 |
| Human Bone | 1 |
| Burnt Bone | 2 |
| Registered Finds | 2.5 |
| Charcoal Analysis | 4 |
| Worked Wood | 2 |
| Geoarchaeological Samples | 3 |
| Scientific Dating Programme | 3 |
| c14 lab costs c. 10 samples | Fee |
| Illustration | 12 |
| X-ray and conservation | Fee |
| Editing (pre-submission & post-ref) | 2 |
| Project Management | 2 |
| Publication fee | Fee |

Table 20: Resource for completion of publication report

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OASIS Form

OASIS ID: archaeol6-210021

Project details

Project name Land at Oldlands Farm, Bognor Regis, West Sussex

Short description of the project This report presents the results of an extensive programme of archaeological trenching, 'strip, map and sample' investigations, and geotechnical watching brief carried out by Archaeology South-East (ASE) on land at Oldlands Farm, Bognor Regis, West Sussex for CgMs Consulting Ltd on behalf of the client Bericote Properties Ltd. The work was undertaken between June and November 2014. The archaeological excavation area totalled c. 3.3 with additional trenching, test pitting and borehole survey. The work was conducted prior to the creation of a Flood Compensation Area. The main development area was to receive imported material of to raise levels between 0.5 m and 1.5m above existing levels and therefore a design solution was apparent to mitigate the impact of this part of the development. The fieldwork and post-excavation assessment stage was conducted under the overall management of CgMs Consulting Ltd on behalf of their client. Archaeological remains dating from the Mesolithic to the post-medieval period were encountered including important Late Neolithic/Early Bronze Age features associated with possible occurrences of Grooved Ware pottery; a rare find from Sussex in general. Also found at the site was extensive evidence of M-LBA occupation, land division, enclosure and funerary activity as well as Middle Iron Age-Later Romano-British remains and a medieval strip field system.

Project dates Start: 01-06-2014 End: 05-11-2014

Previous/future work Yes/Not known

Any associated project reference OFB14 - Sitecode codes

Any associated project reference B1(c)/B2/B8 - Planning Application No. codes

Type of project Recording project

Site status None

Current Land use Cultivated Land 3 - Operations to a depth more than 0.25m

Monument type PIT CLUSTER Late Neolithic

Monument type PIT CLUSTER Early Bronze Age

Monument type FIELD SYSTEM Bronze Age

Monument type ENCLOSURE Bronze Age

Monument type SETTLEMENT Bronze Age

Monument type CREMATION Bronze Age

Monument type BURNT MOUND Bronze Age

Monument type DRAINAGE DITCH Iron Age

Monument type DRAINAGE DITCH Roman

Monument type FIELD SYSTEM Roman

Monument type ENCLOSURE Roman

Monument type FIELD SYSTEM Medieval

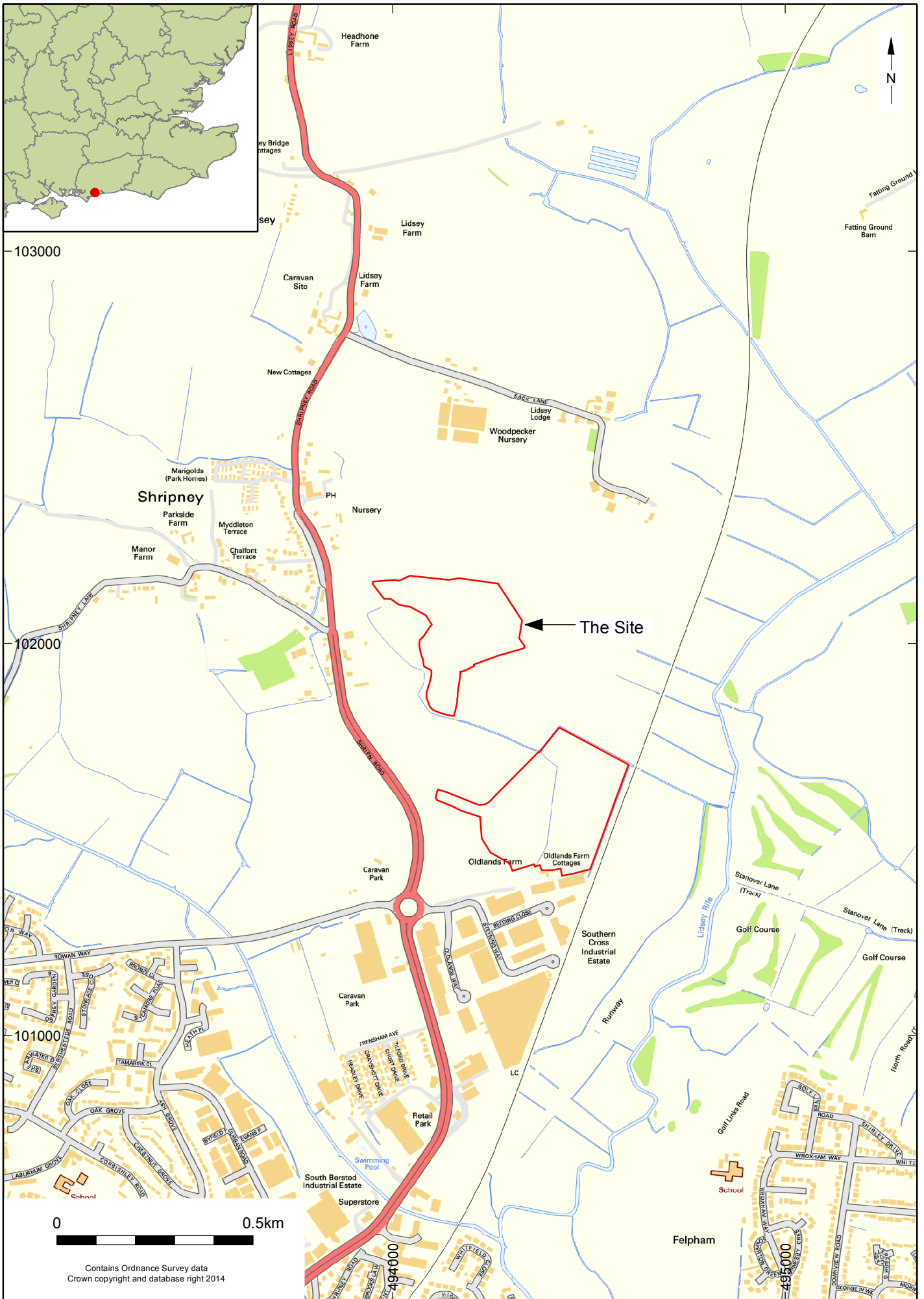
Monument type DRAINAGE DITCH Post Medieval

Significant Finds FLINTWORK Mesolithic

| | |
|--------------------------|---|
| Significant Finds | POT Late Neolithic |
| Significant Finds | POT Bronze Age |
| Significant Finds | POT Iron Age |
| Significant Finds | POT Roman |
| Significant Finds | POT Medieval |
| Significant Finds | POT Post Medieval |
| Significant Finds | CBM Roman |
| Significant Finds | CBM Medieval |
| Significant Finds | CBM Post Medieval |
| Significant Finds | BATTLEAXE Early Bronze Age |
| Significant Finds | LADDER Bronze Age |
| Significant Finds | LOOMWEIGHT Bronze Age |
| Significant Finds | COIN Roman |
| Significant Finds | MOULD Bronze Age |
| Investigation type | "Full survey", "Test-Pit Survey", "Watching Brief" |
| Prompt | Direction from Local Planning Authority - PPS |
| Project location | |
| Country | England |
| Site location | WEST SUSSEX ARUN BOGNOR REGIS Oldlands farm |
| Postcode | PO22 XXX |
| Study area | 3.30 Hectares |
| Site coordinates | SU 494307 101946 50.8885657315 -1.29716493614 50 53 18 N 001 17 49 W Point |
| Lat/Long Datum | Unknown |
| Height OD/Depth | Min: 1.00m Max: 4.00m |
| Project creators | |
| Name | of |
| Organisation | Archaeology South East |
| Project originator | brief CgMs Consulting Ltd |
| Project originator | design Archaeology South-East |
| Project director/manager | Paul Mason |
| Project supervisor | Andrew Margetts |
| Type | of |
| sponsor/funding body | CgMs Consulting Ltd |
| Project archives | |
| Physical Exists? | Archive No |
| Digital Exists? | Archive No |
| Paper Exists? | Archive No |

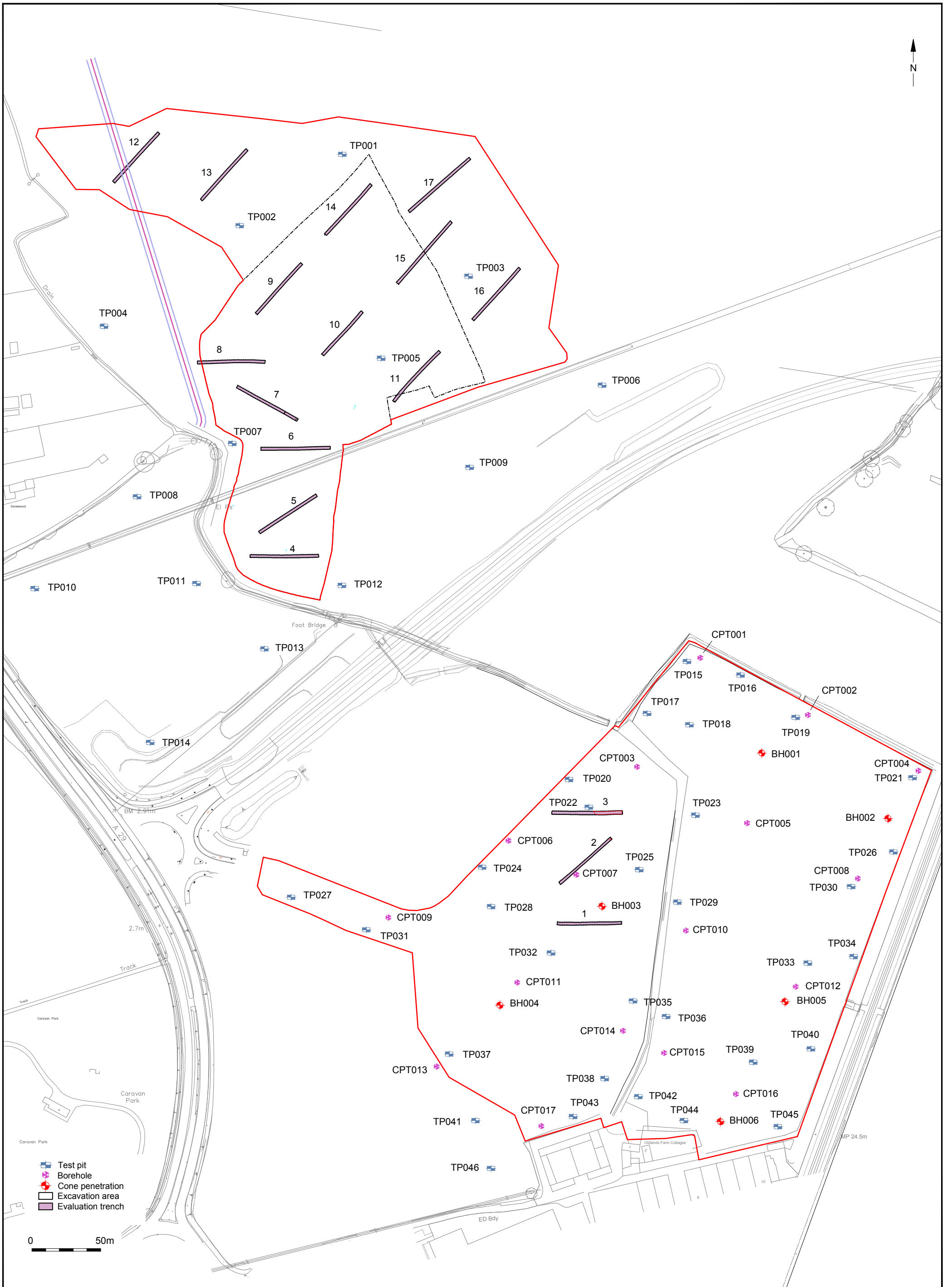
Project bibliography
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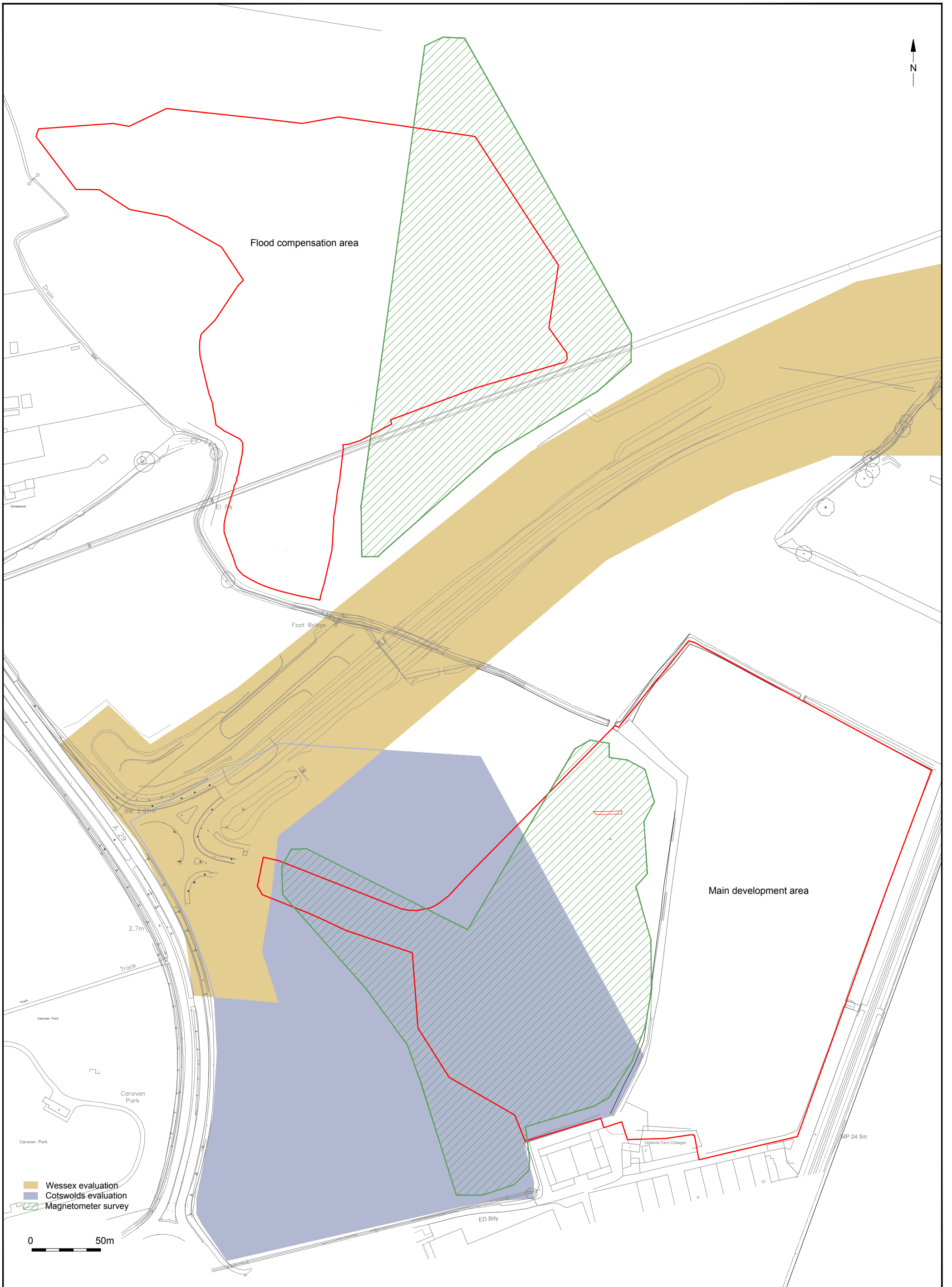
Publication type Grey literature (unpublished document/manuscript)
Title Land at Oldlands Farm, Bognor Regis, West Sussex
Author(s)/Editor(s) Margetts, A
Other bibliographic details ASE Report No: 2015088
Date 2015
Issuer or publisher ASE
Place of issue or publication Portslade
Description PXA
Entered by andy margetts (a.margetts@ucl.ac.uk)
Entered on 28 April 2015



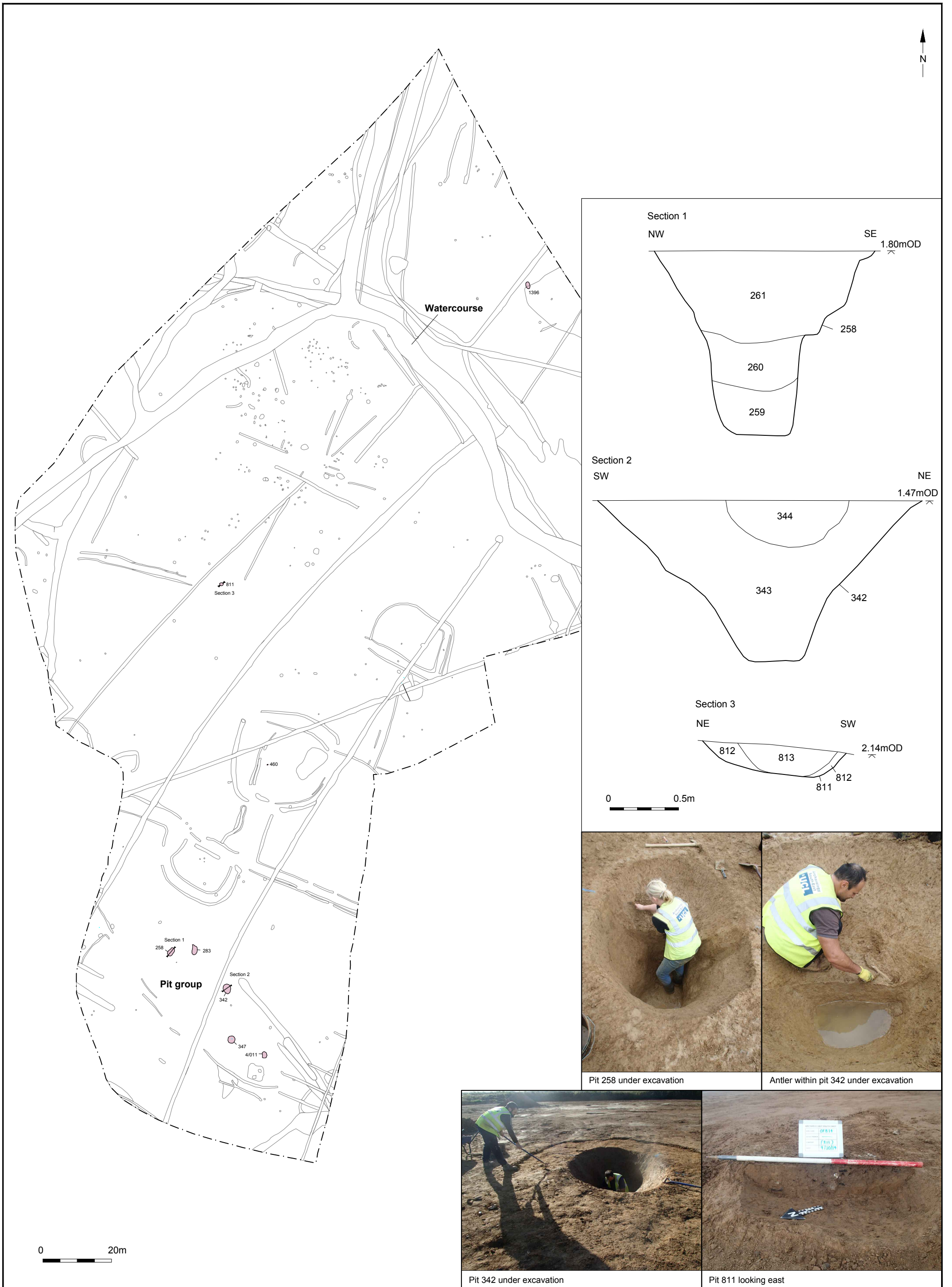
Contains Ordnance Survey data
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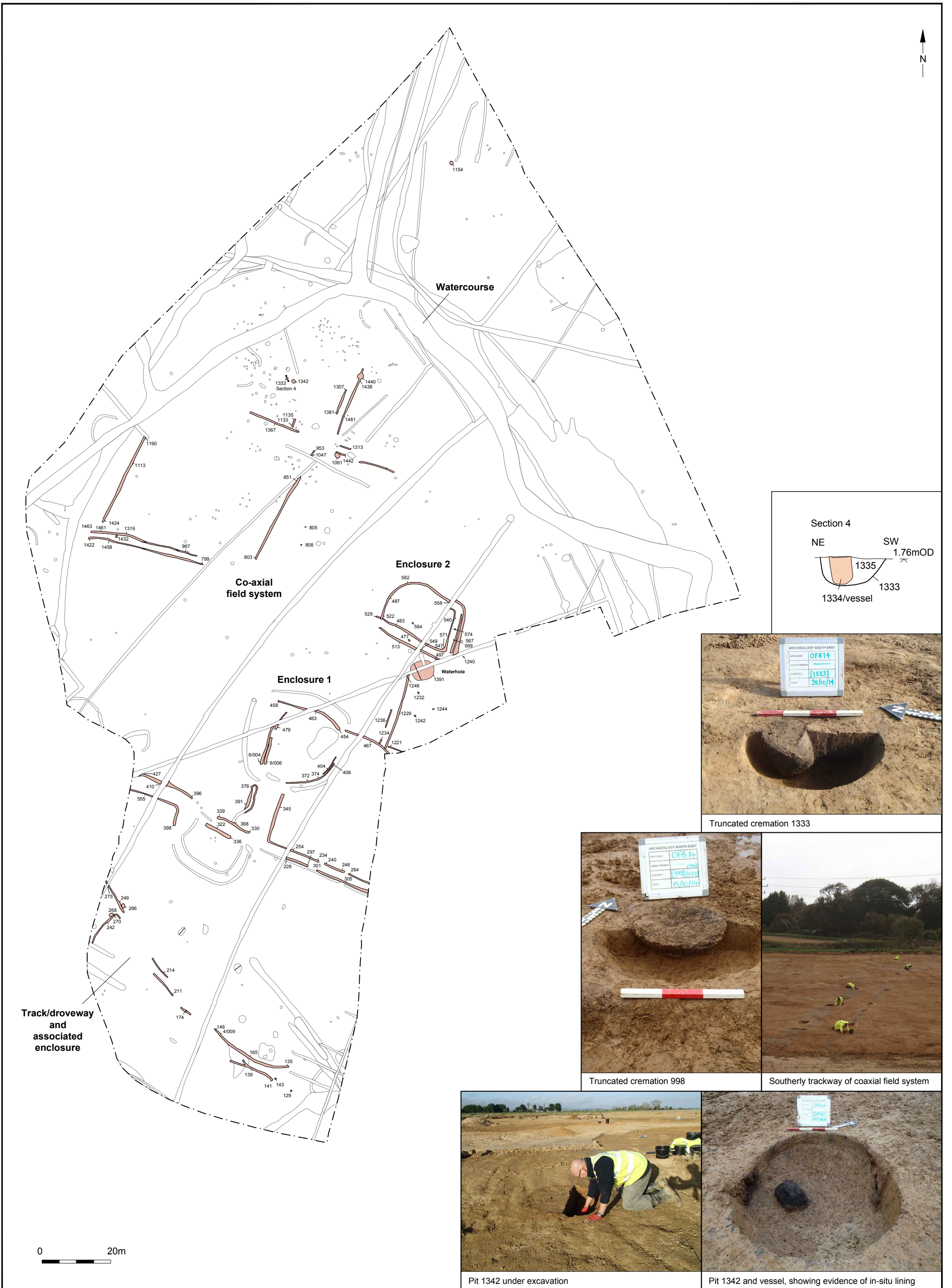
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|--------------------------|---------------|-------------------------------------|--------|
| © Archaeology South-East | | Land at Oldlands Farm, Bognor Regis | Fig. 1 |
| Project Ref: 7006 | April 2015 | Site location | |
| Report Ref: 2015088 | Drawn by: JLR | | |



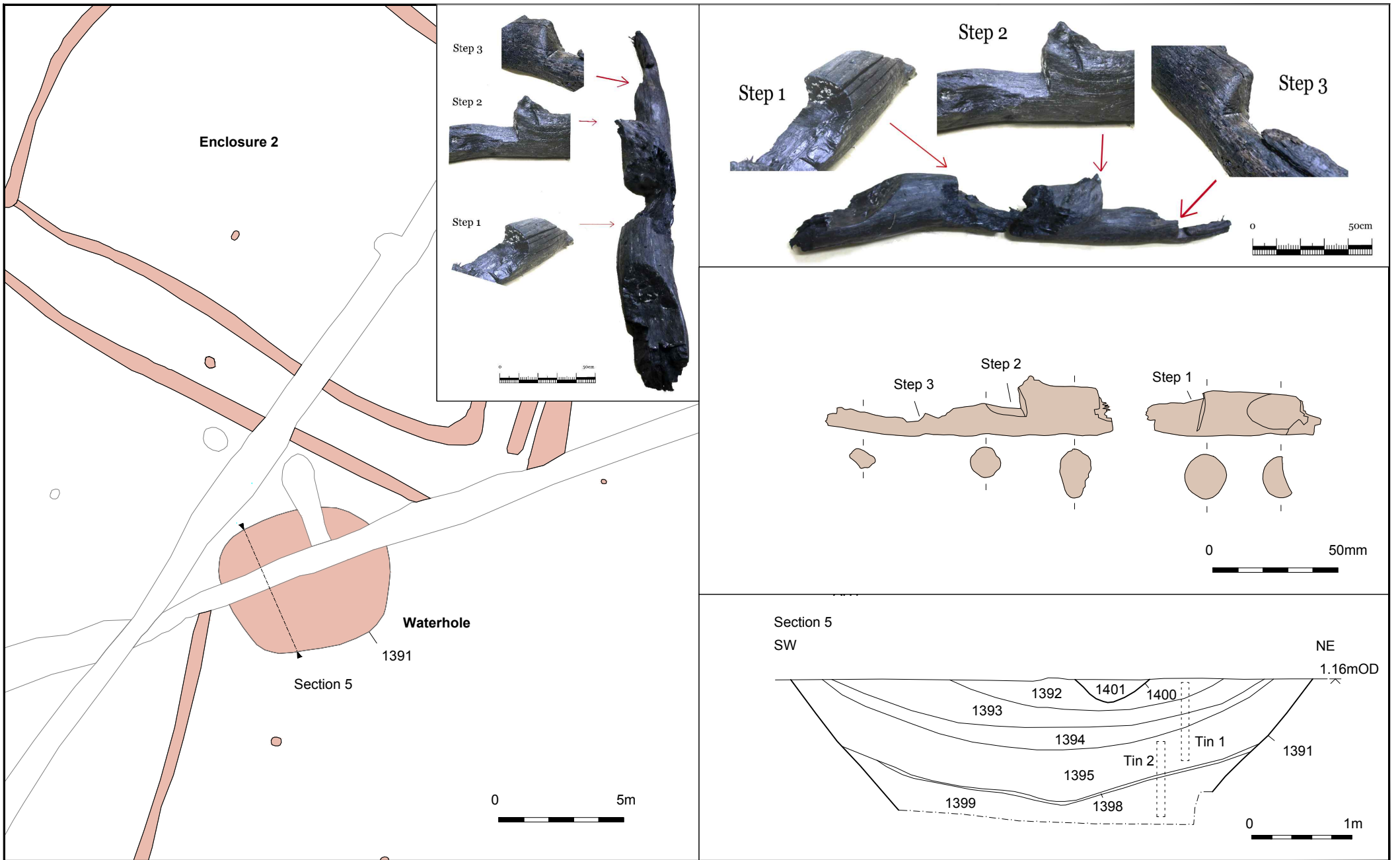


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| © Archaeology South-East | | Land at Oldlands Farm, Bognor Regis | Fig. 3 |
| Project Ref: 7006 | April 2015 | Previous work on site | |
| Report Ref: 2015088 | Drawn by: JLR | | |





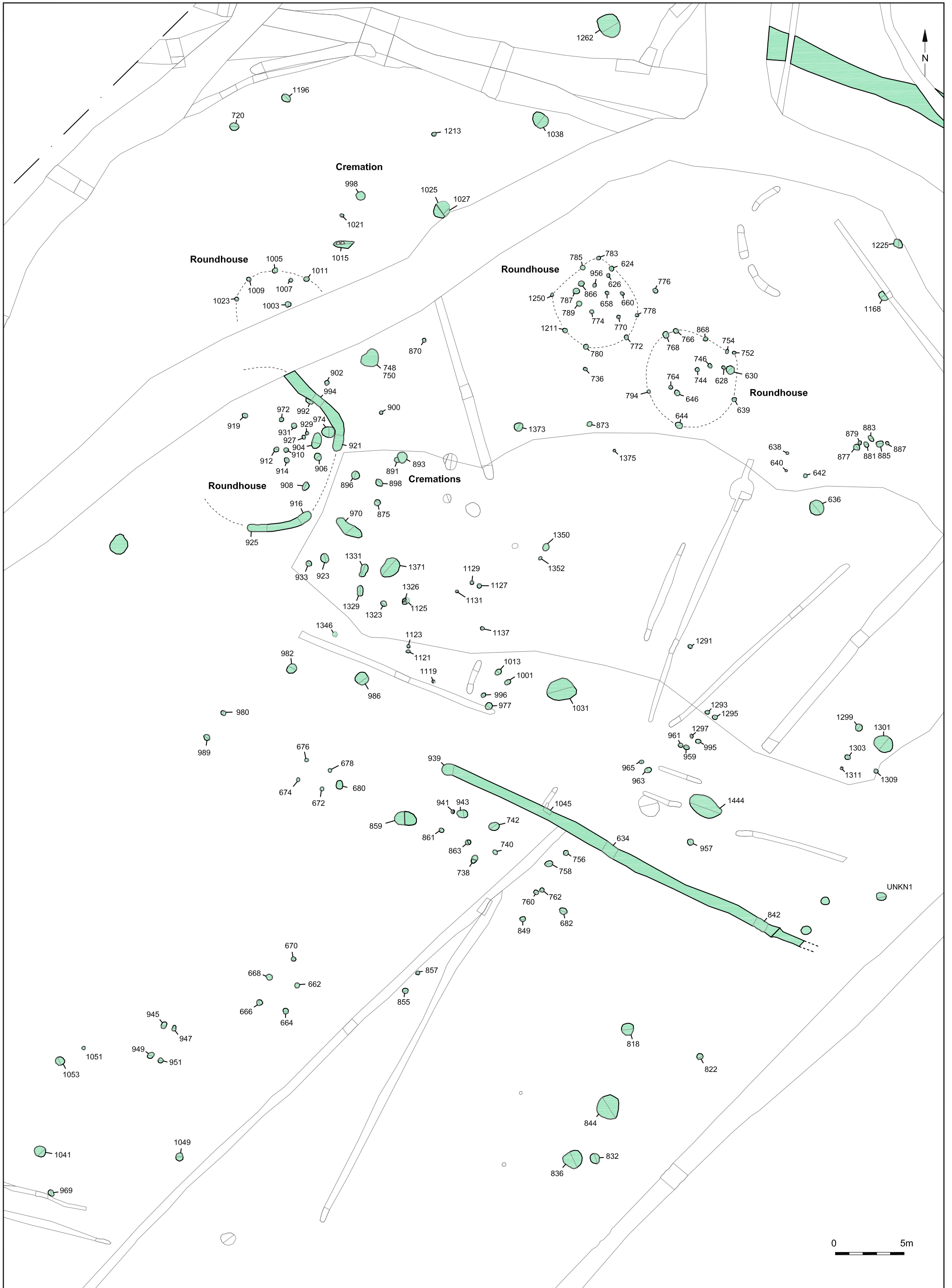
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| © Archaeology South-East | | Land at Oldlands Farm, Bognor Regis | Fig. 5 |
| Project Ref: 7006 | April 2015 | Period 2.1: Mid-Late Bronze Age, plan, section and photographs | |
| Report Ref: 2015088 | Drawn by: JLR | | |



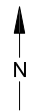
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| © Archaeology South-East | | Land at Oldlands Farm, Bognor Regis | Fig. 6 |
| Project Ref: 7006 | April 2015 | Period 2.1: Mid-Late Bronze Age, plan, section and photographs | |
| Report Ref: 2015088 | Drawn by: JLR | | |



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|--------------------------|---------------|---|--------|
| © Archaeology South-East | | Land at Oldlands Farm, Bognor Regis | Fig. 7 |
| Project Ref: 7006 | April 2015 | Photograph of a broken fragment of perforated tool from ditch [571]. (Roe's intermediate form of battle axe; Roe 1979, 25) | |
| Report Ref: 2015088 | Drawn by: JLR | | |



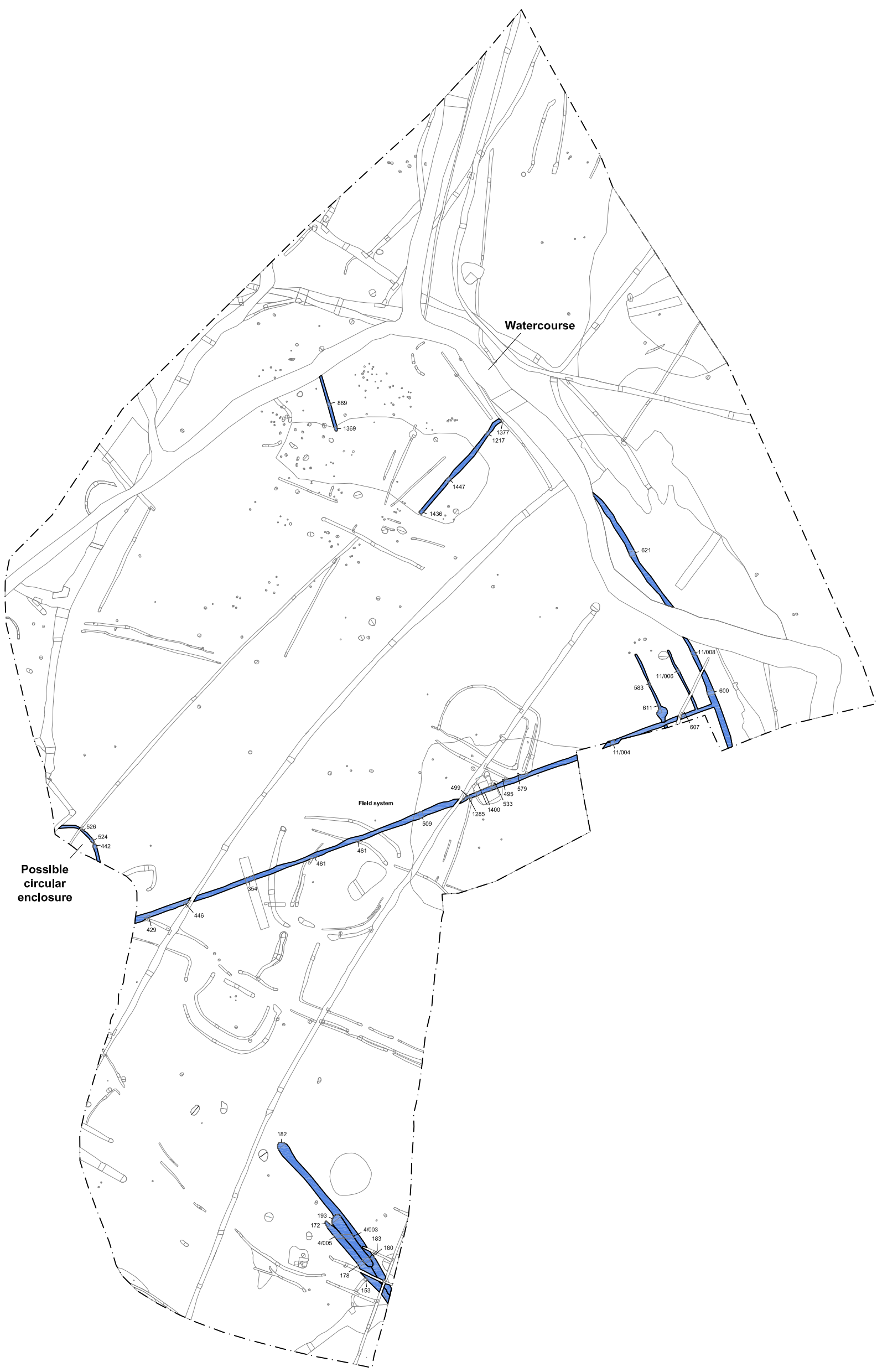
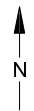
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| © Archaeology South-East | | Land at Oldlands Farm, Bognor Regis | Fig. 9 |
| Project Ref: 7006 | April 2015 | Period 2.2: Mid-Late Bronze Age, detail of round houses | |
| Report Ref: 2015088 | Drawn by: JLR | | |



Pit 1071 under excavation



Pit 1071 looking north-west



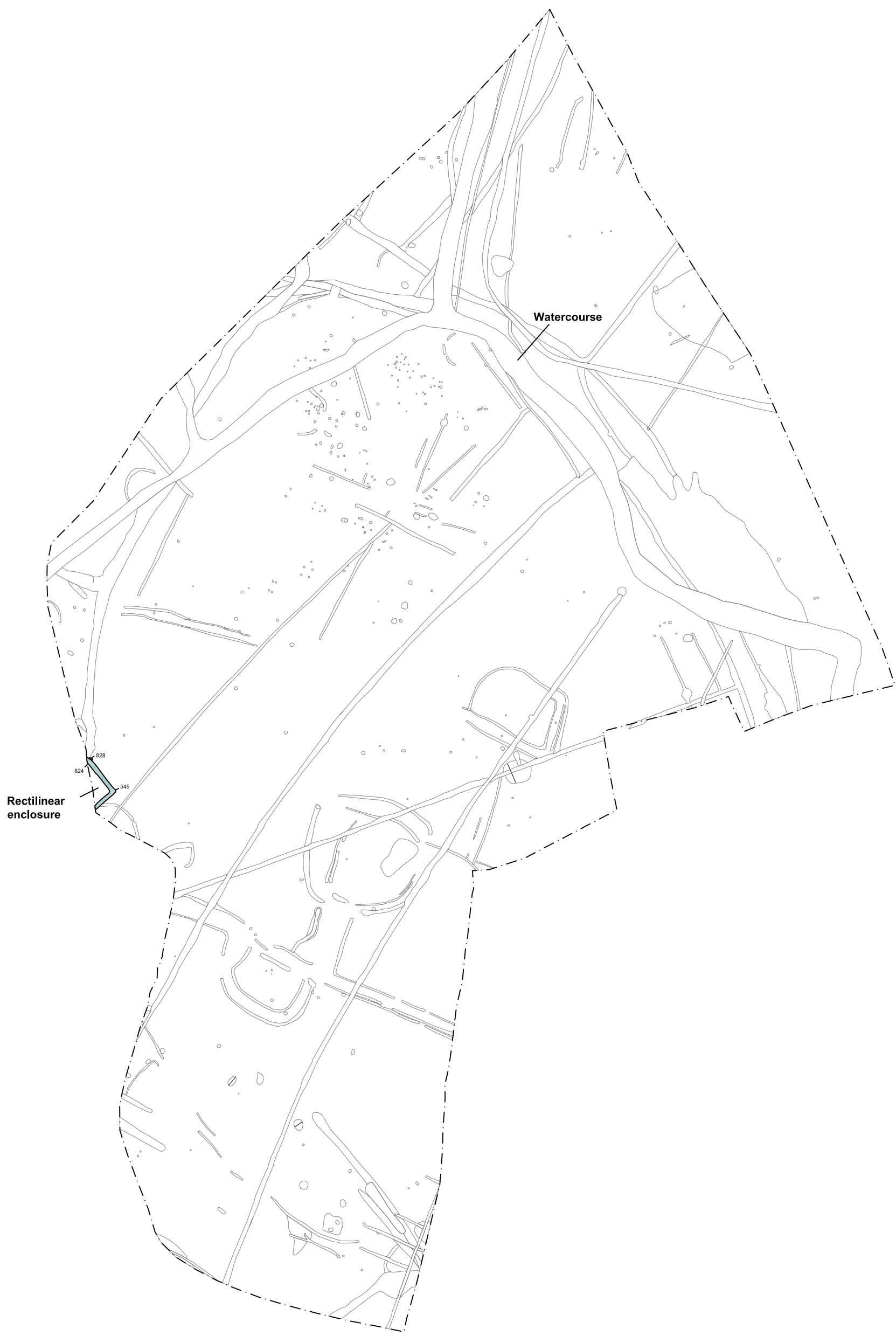
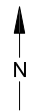
Possible circular enclosure

Watercourse

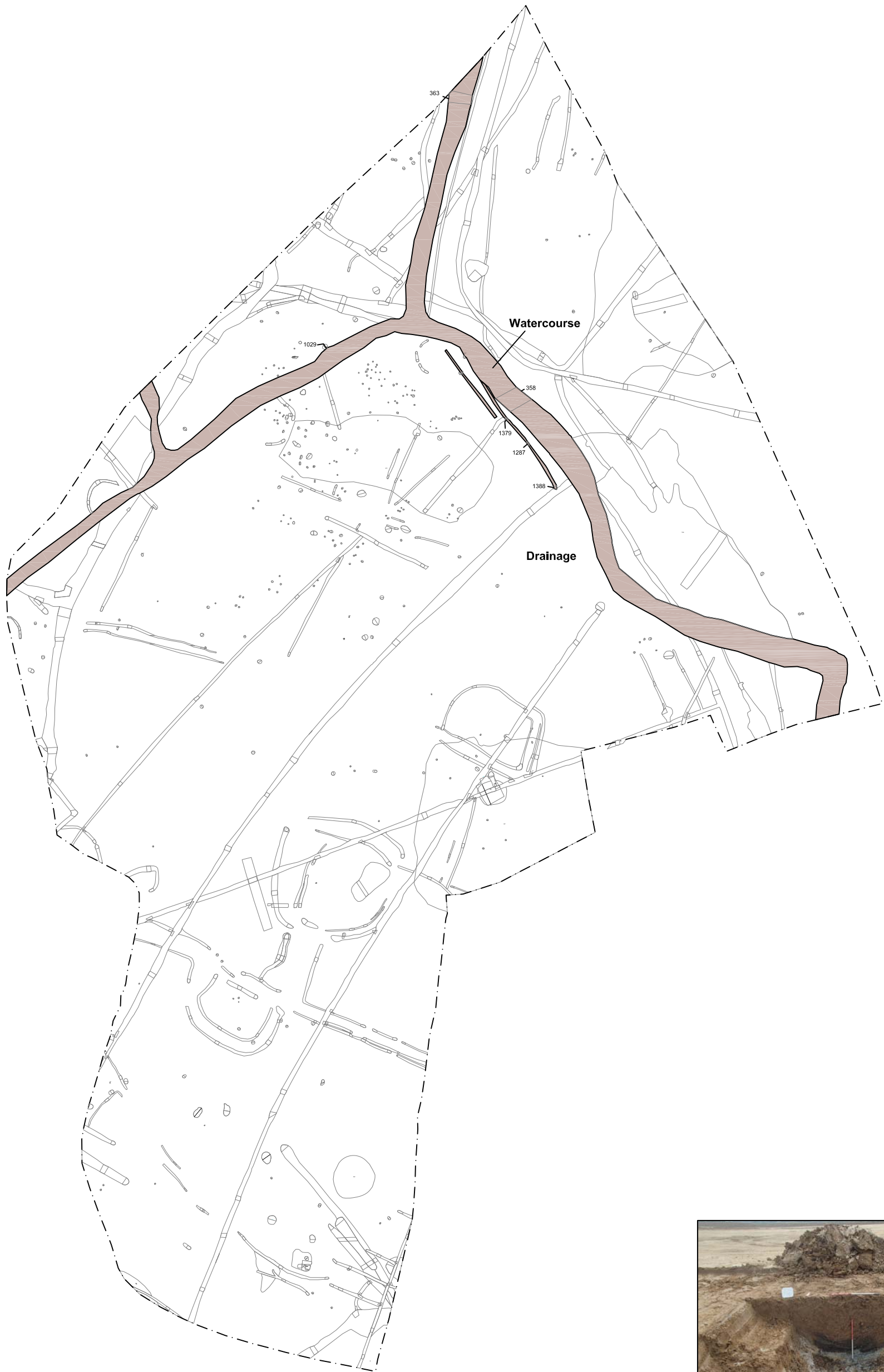
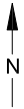
Field system



| | | | |
|--------------------------|---------------|--|---------|
| © Archaeology South-East | | Land at Oldlands Farm, Bognor Regis | Fig. 11 |
| Project Ref: 7006 | April 2015 | Period 4.1: Early Romano-British, plan | |
| Report Ref: 2015088 | Drawn by: JLR | | |



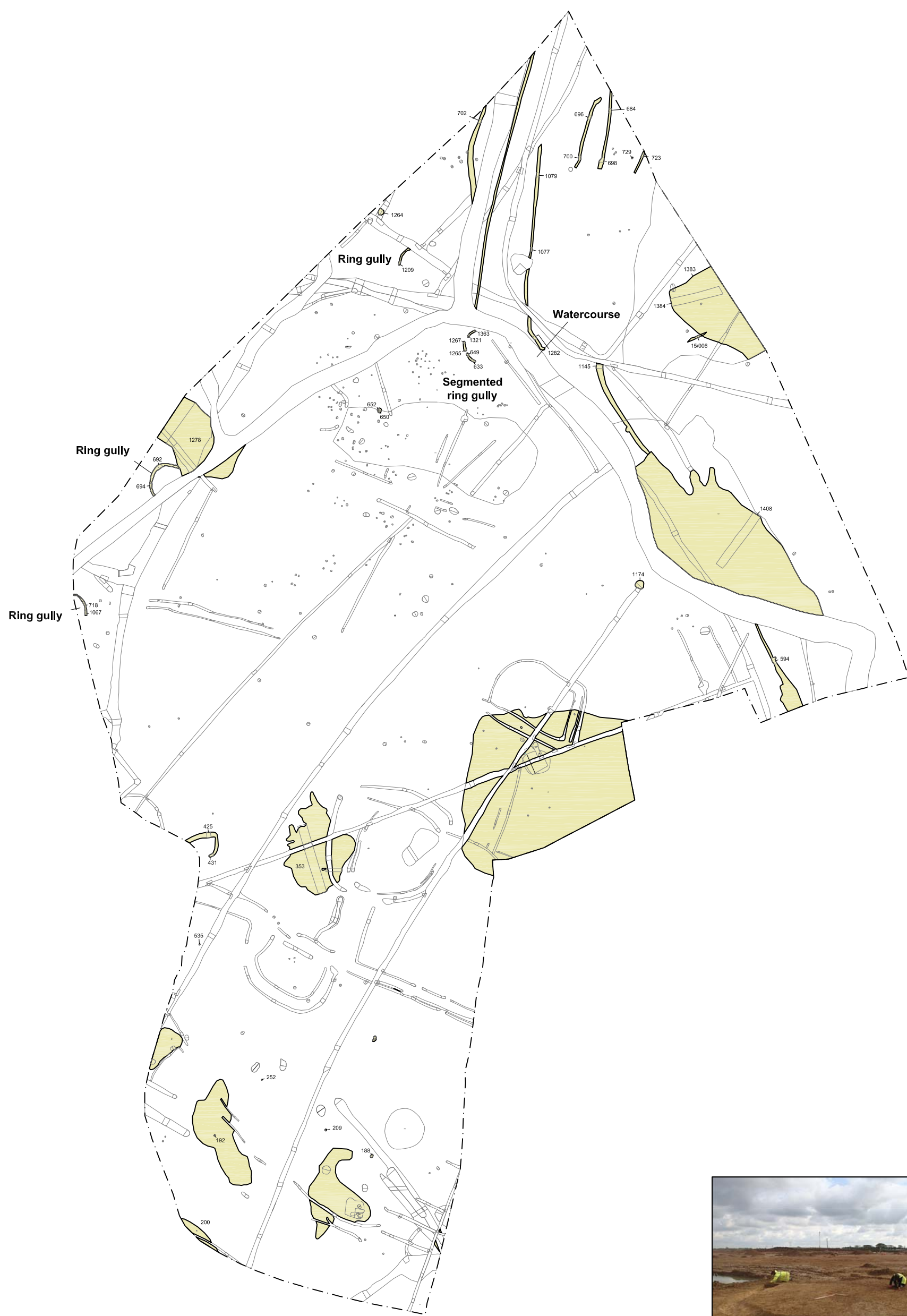
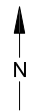
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| © Archaeology South-East | | Land at Oldlands Farm, Bognor Regis | Fig. 12 |
| Project Ref: 7006 | April 2015 | Period 4.2: Later Romano-British, plan | |
| Report Ref: 2015088 | Drawn by: JLR | | |



0 20m



Ditch 358 looking south



Undated potential ring gully under excavation

| | | | |
|--------------------------|---------------|-------------------------------------|---------|
| © Archaeology South-East | | Land at Oldlands Farm, Bognor Regis | Fig. 15 |
| Project Ref: 7006 | April 2015 | Undated, plan | |
| Report Ref: 2015088 | Drawn by: JLR | | |

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