

Land West of Copthorne, West Sussex

Centred at NGR 530545 139058

Report on Targeted Geoarchaeological Survey

Site Code: CPT17

ASE Project no: 170438

ASE Report no: 2017489

Planning ref: 13/04127/OUTES

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Abstract

Sixteen geoarchaeological test pits were hand dug in order to attempt to locate two reported concentrations of prehistoric stone artefacts recorded in the late 1930's by one Mr McKerrow. The location of each was located by total station survey within the woodland landscape of the site and test pits excavated to the surface of Holocene alluvial or colluvial sediments. No artefacts were recovered from any of the test pits.

However, each test pit revealed the upper part of a potentially much deeper series of Holocene sediments beyond the scope of this assessment. The complete absence of surface finds combined with the presence of this deeper sequence and evidence of historic deep interventions across the site raises the possibility that McKerrow's artefacts came from deeper preservational contexts.

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1.0 INTRODUCTION

1.1 Site Background

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 Terence O'Rourke Ltd on behalf of their client St Modwen, to produce a Heritage Mitigation Strategy & Written Scheme of Investigation (WSI) for archaeological evaluation of land west of Copthorne, West Sussex (Fig. 1, ASE 2017). Part of this WSI provided for a Geoarchaeological Test Pit survey to attempt to locate two Mesolithic stone artefact concentrations located within the site during the 1930's. This phase of works is reported on here.

1.1.2 The site is centred at National Grid Reference (NGR) 530545 139058 and is 55ha in extent. It is currently given over to fields and areas of scrub and woodland. It is bounded by farmland to the north, the A264 to the south, residential development to the east and the M23 to the west. A large portion of the centre of the site is wooded. To the north is the site of a former sewage works, traces of which are still extant. The most southerly of the fields was formerly occupied by a large pond which has subsequently been landfilled

1.1.3 A Desk-based Assessment and ES Chapter have been produced by Terence O'Rourke (2013a&b). These documents present the archaeological potential of the site and suggest measures for mitigating the impact of the development on the archaeological resource.

1.2 Geology and Topography

1.2.1 The majority of the site area is located on bedrock geology of Upper Tunbridge Wells Sand (interbedded sandstone and siltstone) with a band of Upper Tunbridge Wells Sand (mudstone) mapped as running along the western boundary of the site. There are also mapped alluvial deposits running north to south through the site relating to the Burstow Stream and Copthorne Brook, while the slopes are mantled with Quaternary superficial deposits of clay, silt, sand and gravel formed from material accumulated by down slope movements where slope topography is present on the site.

1.2.2 The Burstow Stream and Copthorne Brook, tributaries of the River Mole, run through the site from Shipley Bridge to the north and separate near Wellfield Copse, with Copthorne Brook then running to the south east and Burstow Stream to the south.

1.3 Planning Background

1.3.1 An outline planning application has been approved by Mid Sussex District Council (MSDC) for the residential development of the site (13/04127/OUTES). West Sussex County Council's Senior Archaeologist, as advisor to Mid-Sussex District Council, recommended that the site's archaeological potential could be mitigated by planning condition. Subsequent dialogue between Terence O'Rourke and the Local Planning Authority established that Surrey County Council's Archaeological Officer would provide advice for this scheme.

1.4 Scope of Report

- 1.4.1 This document reports on a geoarchaeological test pit survey aimed at relocating two concentrations to stone artefacts, which were discovered in the 1930's. It provides an account of the fieldwork methodology, the results of the survey and the conclusions and implications of those results. The work was carried out on the 13th and 14th November 2017 by Dr Matt Pope assisted by Jake Wilson and Vasilis Tsamis. Fieldwork was managed by Paul Mason and post-excavation work by Jim Stevenson.

2.0 GEOARCHAEOLOGICAL BACKGROUND

2.1 Introduction

2.1.1 The site is located broadly in the centre of the Weald, an eroded Cretaceous anticline bounded by the Chalk escarpments of the North Downs and the South Downs. The Upper Tunbridge Wells Sands solid geology outcrops at the site in one of the oldest parts of the exposed Cretaceous Geology and, along with the Hastings Beds, forms a series of relatively high ridges along the central east-west spine of the Anticline. As such this area provides the source for most of the rivers in South East England and in the case of the site, two small tributaries of the River Mole: the Copthorne Brook and the Burstow Stream.

2.1.2 The Upper Tunbridge Wells Sands are relatively soft once exposed and weather to sands and silts, which are rapidly transported downslope by erosive processes and enter fluvial systems as relatively fine-grained alluvium. Whilst the mostly wooded conditions at the site today are relatively stable, any disturbances of the solid geology through natural or human processes gives rise to relatively rapid erosion.

2.1.3 A geotechnical site investigation was undertaken in October 2017 (Atkins 2017). The investigation recorded basic sedimentary units (Top Soil, Made Ground, Weathered Upper Tunbridge Wells Sands and Upper Tunbridge Wells Sands). Of these the Weathered Upper Tunbridge Wells Sands Weathered deposits of the Upper Tunbridge Wells Sand Formation (UTWSF) were recorded in 45 of the 47 investigated locations at depths ranging between 0.0m and 6.0m (CP121). The average thickness of these deposits, where proven, was 3.65m (Atkins 2017).

2.1.4 These observations are significant in terms of archaeological potential as deposits logged as Weathered Upper Tunbridge Wells Sands are likely to include a wide variety of Quaternary sediments including alluvial and colluvial sediments from both Pleistocene and Holocene epochs.

2.2 Pleistocene

2.2.1 Given the landscape's vulnerability to erosion the distribution of mapped Pleistocene sediments in this part of the Weald are relatively limited. River Terrace deposits of the River Mole outcrop a kilometre to the north of the site towards Horley and to the west of the site towards Tinsley Green. Pleistocene fluvial deposit relating to the late Pleistocene cold stage might be expected to underlie the alluvium of the Burstow Stream and Copthorne Brook. They have not been mapped as outcropping within the site but may form part of the coarser beds of Weathered Upper Tunbridge Wells Sands mapped in the geotechnical site investigation. No Palaeolithic artefacts or Pleistocene fauna have been recovered from the vicinity.

2.3 Holocene

2.3.1 Mapped superficial deposits at the site and the recorded Weathered Upper Tunbridge Wells Sands, will also relate to Holocene alluvial and colluvial processes. Both streams that cross the site have relatively contained floodplains, which can be expected to have several metres of alluvial sedimentation at the point of maximum depth in their cross-stream profile. These alluvial sediments can be expected to interdigitate at the flood plain margins with colluvial slope deposits of weathered Upper Tunbridge Wells Sands.

2.4 Archaeological Background

2.4.1 The site has produced evidence for Holocene prehistoric activity in the form of stone artefacts found at two locations within the Heathyground Wood. The West Sussex County Council (WSCC) Historic Environment Record (HER) details that the finds derive from excavations carried out in 1938-9 by amateur archaeologist, Mr McKerrow. These excavations recorded a 'flint knapping floor' and 'Mesolithic occupation area'. The HER states that a selection of the finds from the excavations were sent to the British Museum and classified as being of Mesolithic date. In close proximity to the Mesolithic finds, the HER includes a findspot for an Early Bronze Age flint scraper that was also found during Mr McKerrow's excavations. Relocating these two find spots formed this basis of the survey reported on here.

2.4.2 These two locations are recorded in the WSCC's HER record MWS989 as two geographically distinct Mesolithic sites investigated in 1938-9, the "knapping floor" and "occupation site". In this report, these are referred to as Location A and Location B.

2.4.3 Location A, (the knapping floor) is located at 530500 139240 just to the south of the former waste water treatment works and on the edge of the Bustow stream. Location B (occupation site) lies in the woods to the south west (Figure 2)

2.4.4 The position of these sites is marked on the 1957 Ordnance Survey map, this was on the basis of McKerrow showing the Ordnance Survey's archaeological officer these location in 1952. The OS officer was able to locate them within a square 10 metres on each side with the grid reference referring to the SW corner of each square.

2.4.5 The central Weald has produced a nationally important series of Mesolithic artefact assemblages recovered as part of excavations of 'rock shelters' between Haywards Heath and Tunbridge Wells (eg. Jacobi and Tebbutt 1981) and field walked assemblages rich in microliths from between Horsham and Crawley, most notably by C.J. Attree and E.J.G Piffard (Clark 1934). This topographic situation of McKerrow's finds, close to streams on the edge of the high sandstone centre of the Weald fits well with the record of previous finds.

2.4.6 Nationally, the region is important in giving rise to some of the earliest records of microlithic industries (Honeywood 1877; Toms 1915) and being the first region in which the hollow-based Horsham point microlith was identified (Clark 1934; Woodcock 1981)

2.5 Project Aims and Objectives

2.5.1 The aims of the project were as follows

- To relocate through survey the mapped position of McKerrow's two stone artefact concentrations.
- To identify the presence or absence of artefacts in surface deposit at each location.
- To constrain the extent of each artefact concentration.

2.5.2 Objectives to meet the aims

- Undertake a total station survey to relocate the position of each artefact concentration.
- To excavate 0.5 x 0.5m test pits on transects centred on the mapped position of each concentration to recover and map the extent of each.
- To record the surface lithology at each location.

2.5.3 The following research agenda aims from the draft South East Region Research Framework (Pope 2009) are relevant to this study:

5.1 Targeted provision for detailed work on the recovery of Mesolithic material, with particular attention to the potential for buried land-surfaces and primary context assemblages, in developer funded archaeology. Is this archaeology recognised as significant?

5.2 Research excavation of known flint scatter sites in the central Weald. (Threats exist to potential stratigraphy from agriculture and timber felling machine tracks). Can we establish a systematic assessment of the threats to these sites?

5.4 Is there evidence of later prehistoric re-use of Mesolithic flint working sites, particularly in the Bronze Age? Might this be explained by discovery of these sites during forest clearance and agricultural phases in the Weald during the Bronze Age? Is there potential for research both in the field and through museum collections?

5.7 Earlier Mesolithic assemblages have benefited from much doctoral research over the years, is the same true for the later, geometric-dominated assemblages? Preferred shapes of scrapers and picks/axes, knapping technique characteristics all give indications of chronology to the general Mesolithic period. Would it be possible to refine this further?

5.9 Mesolithic involvement in the formation of Heathland ecology. Through modern examination of the palaeoenvironmental record, can early Holocene involvement in the formation of these habitats still be upheld?"

3.0 GEOARCHAEOLOGICAL METHODOLOGY

3.1 Fieldwork Methodology

- 3.1.1 Each site was located using total station and differential GPS to within 10cm of the given NGR's from WSCC Historic Environment Records.
- 3.1.2 At each location eight 0.5 x 0.5m hand-dug Geoarchaeological Test Pits were carefully excavated through topsoil and sub-soil deposits down to the surface of and into underlying alluvial or colluvial sediments (Fig. 2).
- 3.1.3 During excavation the soils were sifted for stone artefacts and any other cultural or environmental evidence. A record was made of the sedimentary sequence in terms of lithology, colour, structure and coarse components.

3.2 Fieldwork constraints

- 3.2.1 The site offered a number of constraints to the fieldwork. Most notably parts of the site were heavily vegetated with birch, holly and bramble making the placement of pits along even transects difficult. In places rooting was so dense that excavation was impossible in a systematic way. The stream side location of the first artefact concentration (Location A) was heavily covered in holly trees making access and working problematic (Figure 5).
- 3.2.2 Aside from the practical difficulties of moving and working in woodland, it placed limits on both the speed of survey (line of sight and satellite access for the GPS) and low light conditions made high quality photography difficult.

4.0 RESULTS (Figs 3 & 4)

4.1 Lithology

- 4.1.1 At each location a remarkably consistent sedimentary profile was encountered, which enabled a characterisation of the surface deposits in each case.
- 4.1.2 At Location A (GTPs 1-8) up to 250mm of topsoil overlay a thin light grey sandy subsoil typically 50mm in thickness, this has a sharp contact with a whitish-grey silty sand which appeared to be alluvial in origin. In places a weakly developed iron pan layer was noted at the contact between the subsoil and the underlying alluvium.
- 4.1.3 At Location B (GTPs 9-16) a similar lithology was encountered with up to 200mm of topsoil overlying a slightly thicker light grey sandy subsoil up to 150mm in thickness. The subsoil overlay a light grey sandy deposit free of clasts or organic inclusions. This has been provisionally interpreted as a colluvial slope deposit.
- 4.1.4 Although test pit GTP10 was situated in the centre of a visible east to west ditch that crossed the centre of the site, it revealed an identical sequence to that of the surrounding landscape. Test pit GTP15, located within the flanking bank recorded a loose, mixed subsoil to 300mm depth, interpreted as up-cast.
- 4.1.5 No evidence for ploughing was observed at the contact between the subsoil and colluvial/alluvial sediments in any test pit. There was a complete absence of coarse components within the lithological sequence. No geological clasts or artefacts of any size were encountered.
- 4.1.6 No finds beyond 20th century litter were encountered in any of the test pits.

5.0 DISCUSSION AND CONCLUSIONS

5.1 Overview of lithological sequence and its implications

5.1.1 The survey was undertaken in an attempt to locate McKerrow's two stone artefact concentrations. The survey methodology was based on the assumptions that McKerrow had carried out excavations at both locations, that the excavations were relatively shallow in depth and that the position of the excavations was well recorded by the Ordnance Survey.

5.1.2 Although provisional, current understanding of the landscape and its lithology, as established by the test pit survey results has put these assumptions into question.

1. At both locations there was evidence of previous ground disturbance, neither is thought likely to be McKerrow's excavations. At Location A the outline of a large 6x5m rectangular trench was located within the Holly thicket, its age is impossible to determine and it was partially infilled but still up to a metre deep. At Location B a boundary ditch crossed the centre of the mapped area of the concentration.
2. At both locations relatively shallow topsoils and subsoils overlay colluvial and alluvial deposits of uncertain depth. In both cases it is likely that the exposed part of each lithology only represents the most recent of multiple episodes of sedimentation which, in the case of the alluvium could be several metres thick. Therefore, there is scope for preservation of Prehistoric stone artefact concentrations at depths that could not be assessed by the small size of these hand-dug test pits.
3. It is apparent that the position of each stone artefact concentration was mapped by the Ordnance Survey in 1957, almost 15 years after the excavations took place and potentially after changes to the landscape in terms of vegetation cover. Even though McKerrow worked with the surveyor to mark the location of the two concentrations, it is unreasonable to expect these to be extremely accurate.

5.2 Deposit survival and existing impacts

5.2.1 The survey allowed the opportunity to consider the site as a sedimentary system and consider the potential for prehistoric archaeological survival. While prehistoric artefacts and possibly features may survive locally below topsoil and the most recent phases of slope deposits, there is high potential for survival at greater depths. Given the known presence of artefacts at, or close to the locations sampled in the survey, and the complete absence of finds from the shallow test pits, it is considered likely that the artefacts could have been derived from more deeply buried sedimentary units.

5.2.2 Any superficial deposits are likely to be thickest within the valley bottom where they could exceed 4m in depth. They would be expected to grade into slope deposits for no more than a couple of metres thickness at the valley edges and thinner against the valley sides.

5.2.3 The site within the survey area has been impacted upon locally by small scale land fill activity and the 20th century waste water treatment works. In addition, the extensive woodland cover should be considered an impact in terms of rooting. Where surveyed by test pitting, rooting was extensive within the topsoil and subsoil but did not seem to penetrate extensively to depth into the underlying colluvium and alluvium. However, there is likely to be more extensive rooting associated with the larger pine trees present across parts of the site.

5.3 Consideration of research aims

5.3.1 The survey did not locate either of the two artefact concentrations, indeed not a single artefact was recovered in any of the test pits. This suggests that greater understanding is needed with regards to the deeper sedimentary sequence across the site as well as a reconsideration of the assumptions on which this survey was predicated.

5.4 Conclusions and Recommendations

5.4.1 The test pit survey did not locate either of the artefact concentrations recorded by McKerrow, however this should not be taken to indicate that the wider extent of each concentration no longer survives at the site. The survey has shown that a deeper and potentially variable/complex set of sub-surface deposits should be anticipated at the site and which were almost certainly logged as part of the Weathered Tunbridge Wells Sandstone Deposit in the Atkins (2017) geotechnical site investigation. It is possible that the artefact concentrations were preserved at depth within these sediments. It is highly possible that McKerrow investigated areas that had been recently disturbed and that the artefacts he recovered from the site had originally been preserved at depth and disturbed during these interventions.

5.4.2 If the artefacts arose from more deeply buried deposits then the artefact concentrations should be viewed, not as isolated sites of prehistoric activity, but as a point in the landscape where prehistoric deposits have been 'sampled'. However, near surface preservation cannot be ruled out, as the trench evaluation exercise is scheduled to assess.

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HER Summary

HER enquiry no.						
Site code	SAI 17					
Project code	170438					
Planning reference	13/04127/OUTES					
Site address	Land West of Copthorne					
District/Borough	West Sussex					
NGR (12 figures)	530545 139058					
Geology	Upper Tunbridge Wells Sand					
Fieldwork type	Eval	Excav	WB	HBR	Survey	Other Test Pits
Date of fieldwork	13/11/2017-14/11/2017					
Sponsor/client	Terence O'Rourke on behalf of St Modwen					
Project manager	Paul Mason					
Project supervisor	Matt Pope					
Period summary	Palaeolithic	Mesolithic	Neolithic	Bronze Age	Iron Age	
	Roman	Anglo-Saxon	Medieval	Post-Medieval	Other	
Project summary (100 word max)	<p>16 geoarchaeological test pits were hand dug in order to attempt to locate two reported concentrations of prehistoric stone artefacts recorded in the late 1930's by one Mr McKerrow. The location of each was located by total station survey within the woodland landscape of the site and test pits excavated to the surface of Holocene alluvial or colluvial sediments. No artefacts were recovered from any of the test pits.</p> <p>However, each test pit revealed the upper part of a potentially much deeper series of Holocene sediments beyond the scope of this assessment. The complete absence of surface finds combined with the presence of this deeper sequence and evidence of historic deep interventions across the site raises the possibility that McKerrow's artefacts came from deeper preservational contexts</p>					
Museum/Accession No.						

OASIS form

OASIS ID: archaeo16-301822

Project details

Project name	Land west of Copthorne, West Sussex
Short description of the project	Sixteen geoarchaeological test pits were hand dug in order to attempt to locate two reported concentrations of prehistoric stone artefacts recorded in the late 1930's by one Mr McKerrow. The location of each was located by total station survey within the woodland landscape of the site and test pits excavated to the surface of Holocene alluvial or colluvial sediments. No artefacts were recovered from any of the test pits. However, each test pit revealed the upper part of a potentially much deeper series of Holocene sediments beyond the scope of this assessment. The complete absence of surface finds combined with the presence of this deeper sequence and evidence of historic deep interventions across the site raises the possibility that McKerrow's artefacts came from deeper preservational contexts.
Project dates	Start: 13-11-2017 End: 14-11-2017
Previous/future work	No / Yes
Any associated project reference codes	170438 - Contracting Unit No.
Type of project	Field evaluation
Site status	None
Current Land use	Woodland 7 - Scrub
Methods & techniques	"Test Pits"
Prompt	Planning condition
Position in the planning process	After outline determination (eg. As a reserved matter)

Project location

Country	England
Site location	WEST SUSSEX MID SUSSEX WORTH Land west of Copthorne
Postcode	RH10 3PD
Study area	4 Square metres
Site coordinates	TQ 30545 39058 51.135354471075 -0.133894990822 51 08 07 N 000 08 02 W Point

Project creators

Name of Organisation	Archaeology South East
Project brief originator	Local Authority Archaeologist and/or Planning Authority/advisory body
Project design	ASE

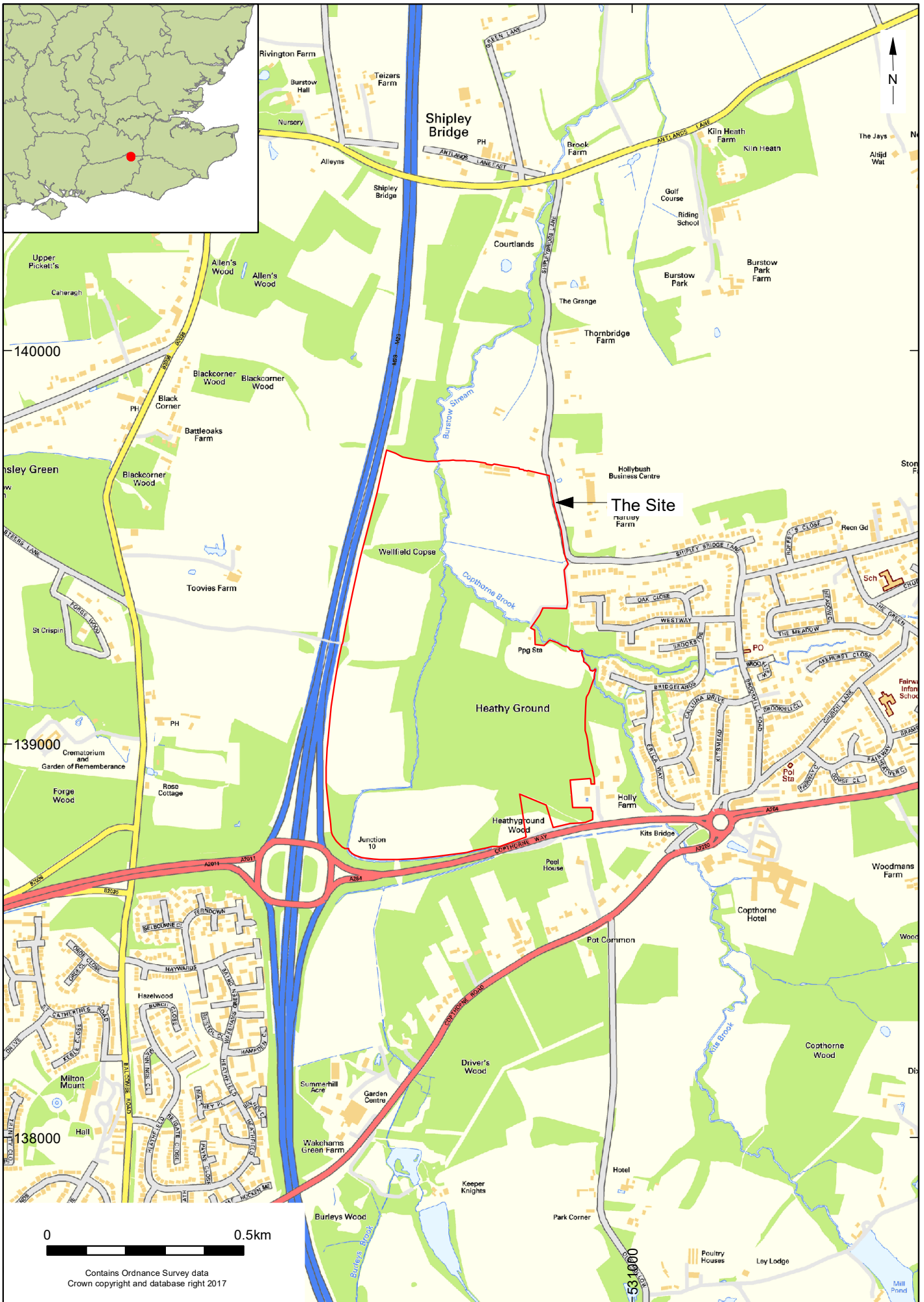
originator
Project director/manager Paul Mason
Project supervisor Matt Pope

Project archives

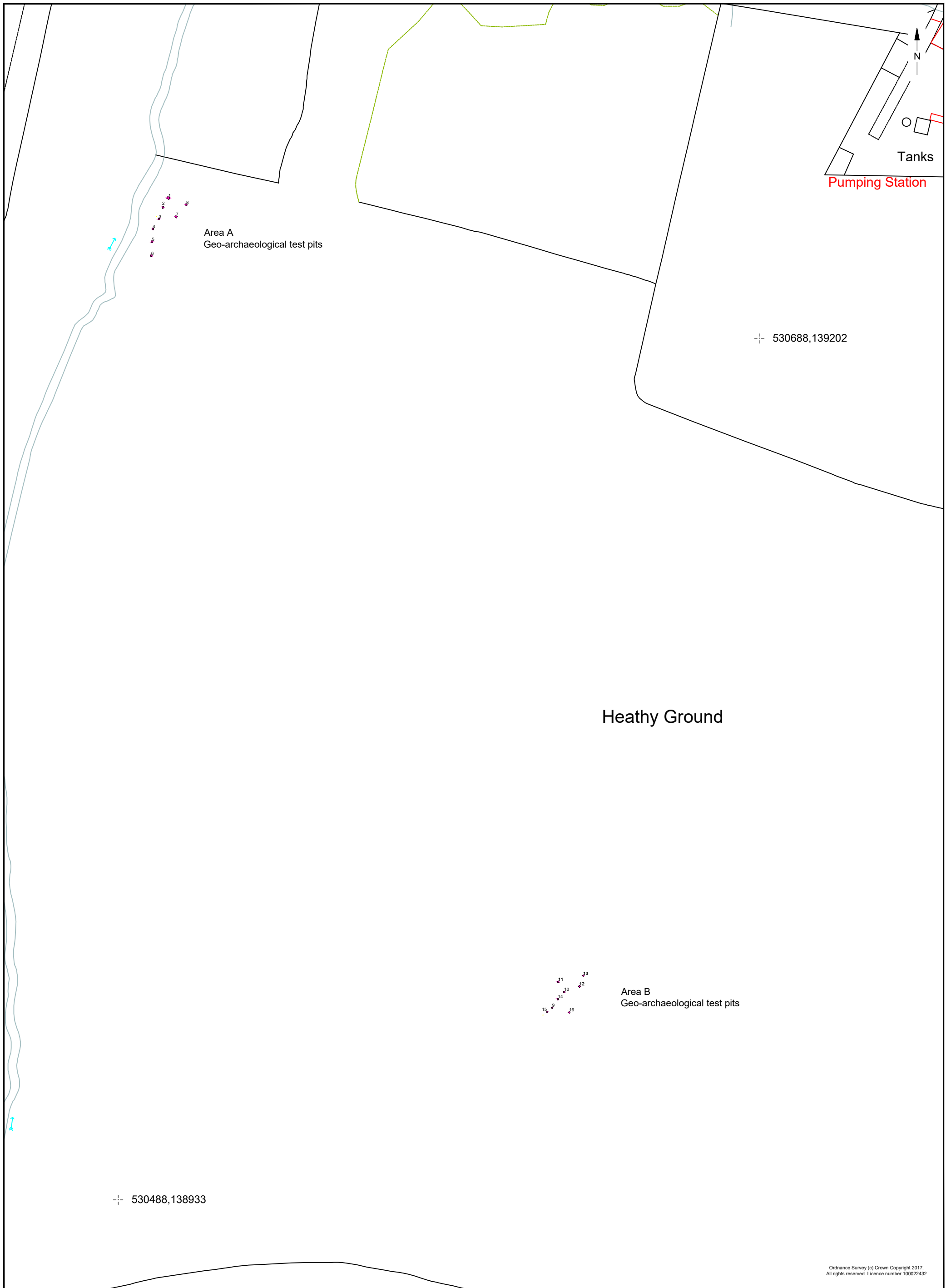
Physical Archive Exists? No
Digital Archive recipient local museum
Digital Media available "Images raster / digital photography"
Paper Archive recipient Local Museum
Paper Media available "Report"

Project bibliography 1

Publication type Grey literature (unpublished document/manuscript)
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© Archaeology South-East		Land west of Copthorne		Fig. 1
Project Ref: 170438	November 2017	Site location		
Report Ref: 2017489	Drawn by: AR			



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© Archaeology South-East		Land west of Copthorne	Fig. 2
Project Ref: 170438	May 2017	Geo-archaeological test pits location	
Report Ref: 2017489	Drawn by: JLR		



© Archaeology South-East		Land west of Copthorne	Fig. 3
Project Ref: 170483	November 2017	Area A: geo-archaeological test pit location plan	
Report Ref: 2017489	Drawn by: AR		

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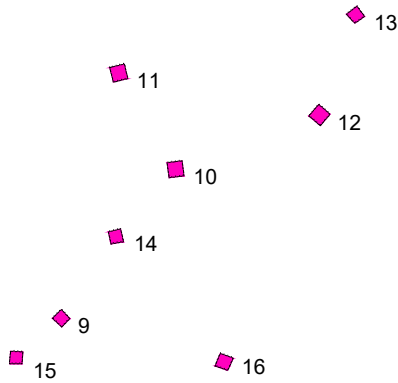
GTP 10 - Detail photograph



GTP12 - Detail photograph



GTP 14- Detail photograph



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0 5m

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© Archaeology South-East		Land west of Cophthorne	Fig. 5
Project Ref: 170483	November 2017	General site photographs	
Report Ref: 2017489	Drawn by: AR		

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