
**ARCHAEOLOGICAL MONITORING AND
RECORDING ON LAND AT THE FORMER
ELLOUGH AIRFIELD
(COPLAND WAY, WORLINGHAM),
SUFFOLK
(WOCW 13)**

Work Undertaken For
Biocore

March 2013

Report Compiled by
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APS Report No. **27/13**



**ARCHAEOLOGICAL
PROJECT
SERVICES**



Quality Control

Archaeological Monitoring and Recording on Land at Ellough Airfield (Copland Way, Worlingham), Suffolk (WOCW 13)

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1. SUMMARY

Following an archaeological evaluation by surface collection survey (fieldwalking) and trial trenching a further phase of archaeological mitigation and recording was undertaken on land off Copland Way (Ellough Airfield Industrial Estate), Worlingham, Suffolk.

During the evaluation three small undated archaeological features and a boundary ditch of probable medieval date were found. The small pits all contained charcoal and burnt flint and were interpreted as possibly being of prehistoric date. This interpretation led to a radiocarbon 14 date being obtained from charcoal recovered from one of the pits (Appendix 5). This indicated that the pits were of late Bronze Age date.

Two further areas were stripped of topsoil and archaeologically investigated. A further three small pits with charcoal-rich fills were found.

2. INTRODUCTION

2.1 Planning Background

Archaeological Project Services (APS) was commissioned by Biocore to undertake a programme of archaeological monitoring and recording in advance of the construction of a bio-gas plant at Copland Way, Worlingham (former Ellough Airfield), as detailed in Planning Application DC/11/0670/FUL submitted to Waveney District Council. Following an archaeological evaluation comprising fieldwalking and a programme of trial trenching undertaken in October 2012 (Percival 2012) and a subsequent radiocarbon 14 determination, (Appendix 5) Suffolk County Council Archaeological Service Conservation Team (Development Control and Planning) stipulated that a

further limited programme of archaeological monitoring and recording was required. The monitoring and recording consisted of the mechanical removal of topsoil and archaeological examination of two open areas of limited size.

This work took place between the 1st and 8th February 2013 in accordance with a specification prepared by Archaeological Project Services (Appendix 1) and approved by the Suffolk County Council Archaeological Service Conservation Team (Development Control and Planning).

2.2 Topography and Geology

Ellough Airfield and Industrial Estate lies within the parish of Worlingham, Suffolk. Worlingham is in effect the eastern suburb of the town of Beccles and is located on the southern side of the Waveney Valley. Ellough Airfield occupies a relatively flat area elevated above the town and river to the north and northeast (Figs 1 and 2).

The proposed development area itself is relatively flat and level varying in elevation between 22.2m OD and 23.4m OD across c. 250m. The local geology consists of Lowestoft Formation Diamicton, formerly known as Lowestoft formation till or boulder clay (<http://mapapps.bgs.ac.uk/geologyofbritain/home.html>). On the ground this meant heavy boulder clay with ill-sorted inclusions of chalk and gravel.

During the trial trenching evaluation periglacial features, ice-wedges or patterned ground were recorded across the site. These scars in the surface of the boulder clays formed under permafrost conditions prevalent when the last ice sheets retreated from the east of England at the end of the Pleistocene (Percival 2012).

2.3 Archaeological Setting

The Suffolk Historic Environment Record (SHER) lists a number of archaeological sites and finds within the vicinity of Ellough Airfield

Excavations in the 1990s in advance of an intensive poultry facility c. 0.6km south of the proposed development area uncovered a brick-kiln and linear features of medieval date (SHER ELO 003-004, Boulter 1996). Remains of post-medieval date related to Potters Farm were also found. The farm was presumably removed to make way for the airfield in 1942 (see below).

Less than 300m south of ELO 003-004 a possible ring-ditch (SHER ELO 005) has been recorded from aerial photographs. This feature was either a burial monument of Bronze Age date, or given that it was overlain by an aircraft dispersal area (now removed) it could have been a WWII military feature.

In 1989 c. 1km northeast of the proposed development site archaeological features and artefacts of Roman date (SHER NHC 007) were recorded during topsoil stripping associated with the construction of the B1127 Copland Way close to its junction with the A146.

East of NHC 007 a scatter of artefacts, predominantly of Roman date, have been found by metal detector (SHER NHC 012)

A moated site of probable medieval date (ELO 002) has been identified from aerial photographic evidence c. 850m southeast of the proposed development area. Historic map evidence indicates that cottages existed on the site in the 19th century and that the moat was partially still in existence. The probable moat is overlain by the airfield perimeter taxi-way.

The overwhelming influence on the

present appearance of the landscape of the proposed development area was the construction of Ellough or Beccles Airfield during WWII (SHER ELO 009).

Construction of Ellough Airfield, as it was more commonly known, began in August 1942, relatively late in WWII (Smith 1995). It was originally designed and planned to be a typical 'A' plan heavy bomber base built with massive concrete runways to accommodate the B17 'Flying Fortresses' or B24 'Liberators' of the USAAF 8th Air Force. Construction of the runways was not completed until late summer 1944 by which time it was no longer required by the USAAF. From August 1942 until November 1945 the airfield was used by RAF Coastal Command and the Fleet Air Arm, mostly for air sea rescue and anti-shipping operations. Military use of the airfield ceased at the end of WWII.

Approximately 1.2km northwest of the proposed development site a WWII bomb impact crater (WGM 014) has been recorded from aerial photographic evidence.

A rapid map regression exercise employing online resources (www.historicmaps.co.uk) indicates that prior to the construction of the airfield the landscape around the proposed development area consisted of a distinctive patchwork of small rectilinear fields, similar to those still in existence at Ellough Moor, 1.5km east of the proposed development area. These fields were swept away by the construction of the airfield. Following WWII other than the reconnection of Ellough Road/Benacre Road little changed until the late 1980s when the present B1127 Copland Way was constructed, allowing more of the former airfield to pass into industrial use. The WWII control tower was demolished in 2009. Since 1965 the southeast part of the airfield has been

used for a variety of civil aviation purposes.

2.4 The Evaluation

A full report on the archaeological evaluation of the development area has been produced (Percival 2012). The evaluation comprised a surface collection survey (fieldwalking) followed by the excavation of nineteen trial trenches (Fig. 3).

The proposed development area was intersected by two phases of substantial linear drains of 20th century date. Both of these phases were put in place in 1942-44 during the construction of Ellough Airfield. At least parts of the earlier phase of drains were still 'live' draining the extant northwest-to-southeast aligned concrete airfield runway.

A limited number of undated archaeological features were identified. A small boundary ditch of probable medieval or earlier date and three small pits containing charcoal and burnt flint were recorded. At the time of excavation the pits were identified as possibly being of prehistoric date and related to cooking activities results from sporadic temporary occupation.

2.5 The Radiocarbon 14 date

Following the submission of the evaluation report a single radiocarbon date was obtained from charcoal recovered by flotation from a bulk soil sample (sample 2 pit fill (15), pit [14]).

A calibrated date of 1043 to 907BC (95.4% probability) was obtained. Taken at face value this indicates that pit [14] and by association the other similar pits (features [12] and [24]) found during the evaluation were of late Bronze Age date.

It was not clear if the charcoal from which the date was obtained was burnt heartwood or younger twigs/roots or similar material. As the inner wood of trees is in effect dead and ceases to accumulate radiocarbon 14, dates obtained from heartwood charcoal may represent activity several centuries later than indicated by the date.

Bearing this in mind it is probably safer to regard pits [12], [14] and [24] as being of late Bronze or early Iron Age date.

3. AIMS AND OBJECTIVES

The aim of the work was to preserve by record any archaeological remains found within the excavation areas through archaeological excavation and recording.

The objectives of the monitoring and recording were to: Determine the form and function and spatial arrangement of any archaeological features encountered and as practicable, recover dating evidence from them, and to establish the sequence of the archaeological remains present.

4. METHODS

Initially two excavation areas, Areas 20 and 21 were laid out using a survey grade Thales Global Positioning System (GPS). Both areas measured c. 14m by 14m.

The relatively thin (0.3m deep) topsoil was removed to the surface of the boulder clays using a mechanical excavator fitted with a toothless ditching bucket working under archaeological supervision. The areas were inspected for archaeological remains and parts of the exposed surfaces hand-cleaned where necessary.

Following an appraisal of initial results the northernmost area, Area 20 was extended by another 20m by 20m 'block'

to the southeast (Fig 4).

Each element of the archaeological features recorded during the evaluation was allocated a unique reference number or context number. Written, drawn and photographic records relating to each feature and/or context were made. A brief description and interpretation of each context appears in Appendix 2

Appropriate scales were used for plans and sections drawings were. Recording was undertaken according to standard APS practice.

Following excavation, finds were examined and a period date assigned where possible (Appendix 3).

5. RESULTS

Area 20 (Fig. 4)

This was the northernmost area. Initially an area measuring c. 14m by 14m was excavated over the eastern end of evaluation Trench 10 and pit [24].

Two small charcoal-rich features [51] and [53] were identified in the southernmost corner of the area. (Plate 1) Following consultation with the local authority planning archaeologist it was decided that this area should be extended to the south and an extension measuring 20m by 20m was dug from the south-western and south-eastern sides of the initial area (Plate 2).

Upon excavation features [51] and [53] proved to be burnt root holes from small trees or shrubs. Intensive burning of the upper parts of the trees or shrubs had caused burning to extend patchily down characteristic sinuous irregular root holes.

One feature of anthropogenic origin was recorded in the southern extension of Area 20. Pit [59] was sub-oval and measured

0.6m by 0.4m and was 0.1m deep (Fig. 6, Plate 3). The dark grey sandy clay fill of this feature (58) contained abundant charcoal as well as burnt clay and burnt stone (see Appendix 2).

An east-to-west aligned linear drainage feature of 20th century date previously identified in evaluation Trenches 11, 14 and 16 was clearly seen running across the southernmost part of Area 20 (Plate 2).

Area 21 (Fig. 5)

The southernmost area measured c. 14m by 14m and was targeted on the northern end of evaluation Trench 18, pits [12] and [14] (Plate 4).

Two further pits with charcoal-rich fills were found in this area. Pit [55] was shaped like an irregular triangle. This was in part due to truncation of its northern side by a field drain (Plate 5). Each side of the triangle was c. 0.65m long and it was 0.35m deep (Fig. 6). It was filled with brownish-grey clay heavily flecked with charcoal.

Pit [57] was sub-rectangular and measured 0.8m by 0.5m and was 0.1m deep (Fig. 6, Plate 6). It was filled with grey charcoal-rich clay ([56])

The north-to-south aligned drainage feature of 20th century date identified in evaluation Trench 18 initially was not clearly visible during the excavation of Area 21 due to the nature of its fill and the presence of field drains. A post-excavation review of records confirmed its presence and alignment.

6. DISCUSSION

It is probably reasonable to assume that all five charcoal-rich pits encountered are of the same date. Based on the only dating evidence recovered, the radiocarbon date,

a late Bronze Age to early Iron Age date for the pits seems likely. This does not rule out a wider date range for the pits.

The continued low level presence of potential food debris such as hazelnut shells and the presence of burnt clay and stones in pit [59] all hint that cooking was the original purpose of the pits. It seems likely that the fires that gave rise to the charcoal within the pits burned on the surface at very high temperatures. Hot embers and heated stones were then placed into the open pits, covering food perhaps contained within leaves or other organic wrapping. This scenario explain the both the lack of in situ burning and large quantities of food waste.

Pits with similar characteristics have been found at Foxhall, near Ipswich 52km southeast of the development area (Glover 2012). Although a large proportion of the pits at Foxhall were bigger than those at Worlingham, many were not. Although all 37 charcoal-rich pits at Foxhall were assigned a late Iron Age date dating evidence was sparse and a wider chronological spread remains possible. The Foxhall pits were interpreted as mostly having been connected with charcoal production.

Small charcoal-filled pits are not infrequently found during archaeological investigations in the Norwich area c. 27km northwest of the development area (see Percival forthcoming). These pits have a wide chronological distribution dating from the Bronze Age to the Roman period and beyond and are most commonly interpreted as being associated with charcoal production. However, it may be that like the Worlingham features some of these at least were used as cooking pits.

7. CONCLUSIONS

The characteristics, scale and density of the features encountered are probably best characterised as representing a 'background' level of sporadic temporary occupation.

The heavy ill-drained clays of the plateau on which Ellough Airfield stands probably meant that it was not the setting for intensive activity or settlement during prehistory and beyond.

8. ACKNOWLEDGEMENTS

Archaeological Project Services wishes to acknowledge the assistance of Biocore who commissioned the fieldwork and Report The work was coordinated by Dale Trimble who edited this report along with Gary Taylor.

9. PERSONNEL

Project Coordinators:	Dale Trimble
Project Officer:	John Percival
Site Staff:	John Percival
Surveying:	Gary Trimble
Photographic reproduction:	John Percival
Illustrations:	John Percival

10. BIBLIOGRAPHY

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Glover, G., 2012 *Archaeological Excavation Assessment Report: Land off Felixstowe Road, Foxhall, Suffolk* Allen Archaeology Report AAL2012045, unpublished

Percival, J. W. 2012 *Archaeological Evaluation on land at the former Ellough Airfield, Copland Way, Worlingham, Suffolk (WOCW 12)* Archaeological Project Services Report 94/12

Percival, J. W., forthcoming *Late Iron Age and Roman Field Systems in the Yare Environs* *Norfolk Archaeology*

Smith, G. 1995 *Suffolk Airfields in the Second World War* Countryside Books, Newbury

11. ABBREVIATIONS

APS	Archaeological Project Services
IfA	Institute of Field Archaeologists
OD	Ordnance Datum (height above sea level)
SHER	Suffolk Historic Environment Record

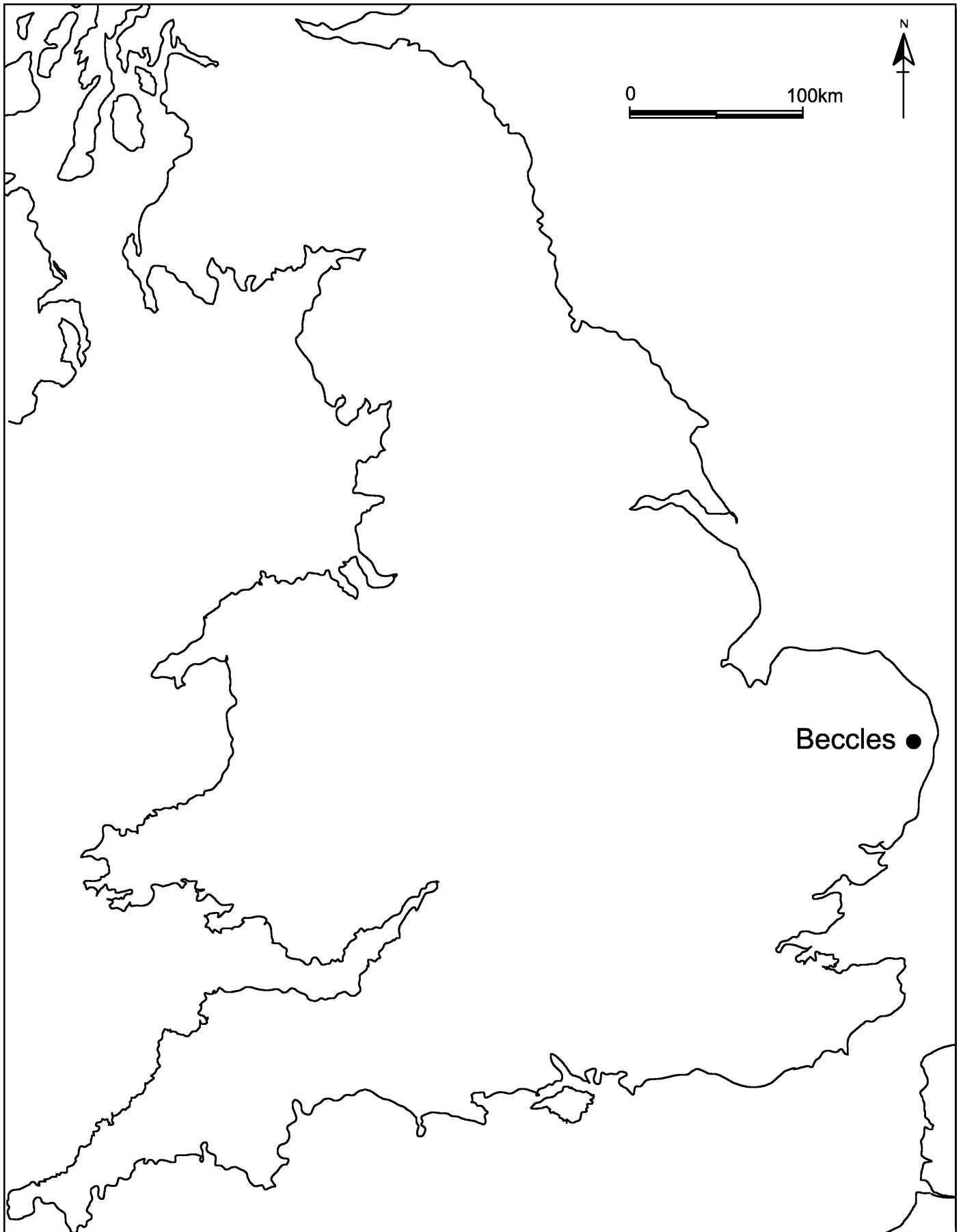


Figure 1 General location plan

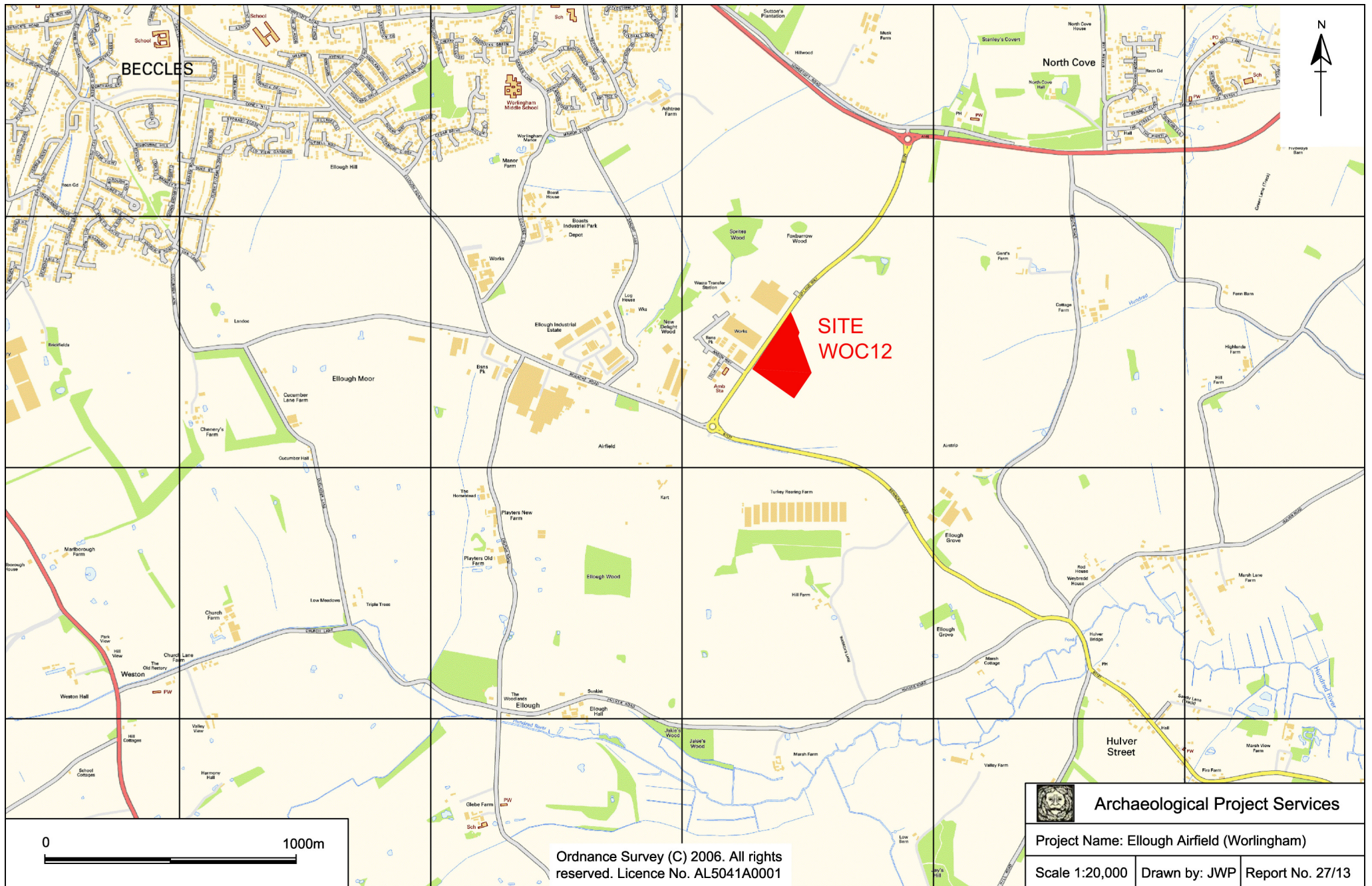


Figure 2 Site location plan

Ordnance Survey (C) 2006. All rights reserved. Licence No. AL5041A0001

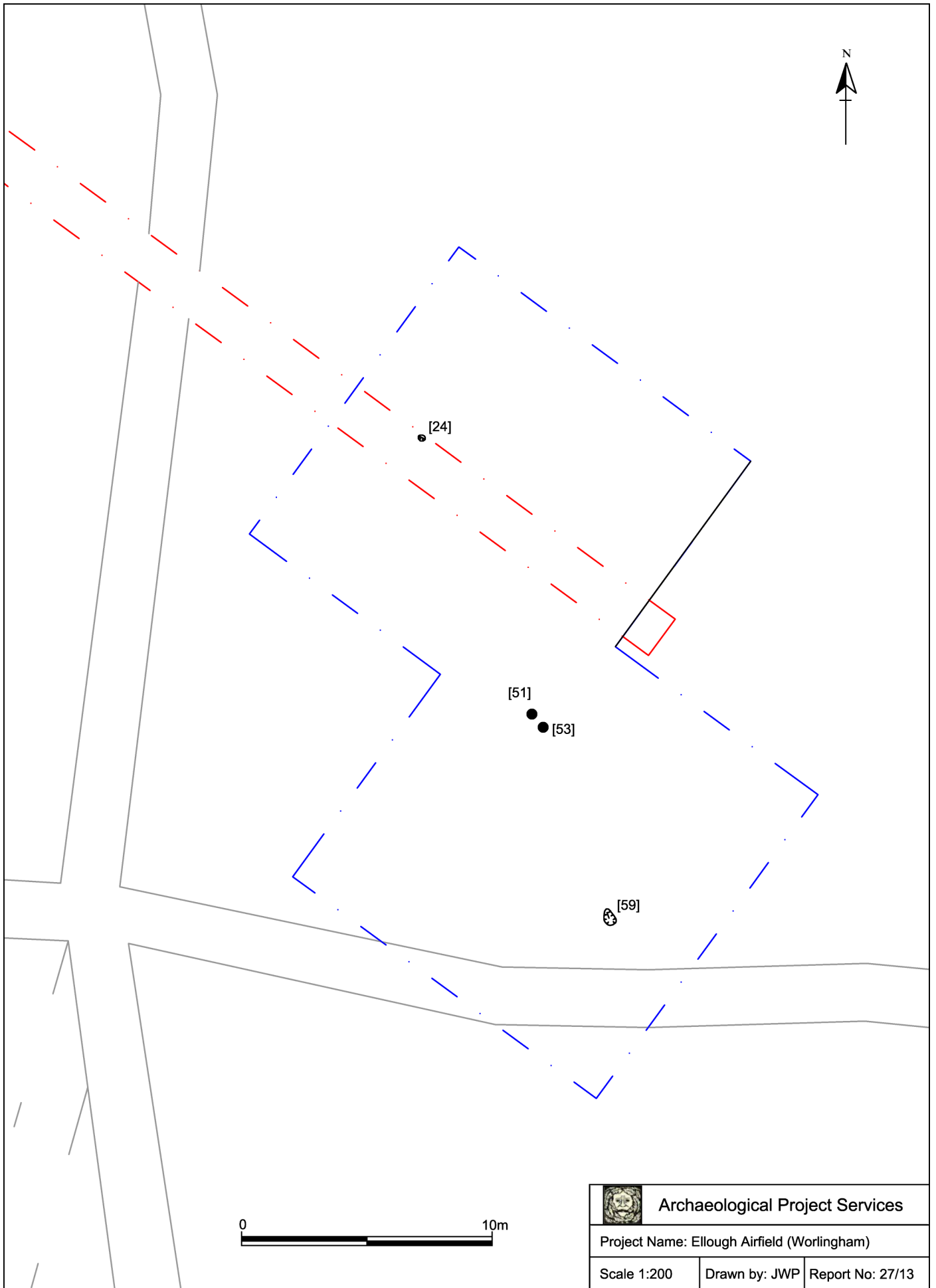


Figure 4 Plan of Area 20

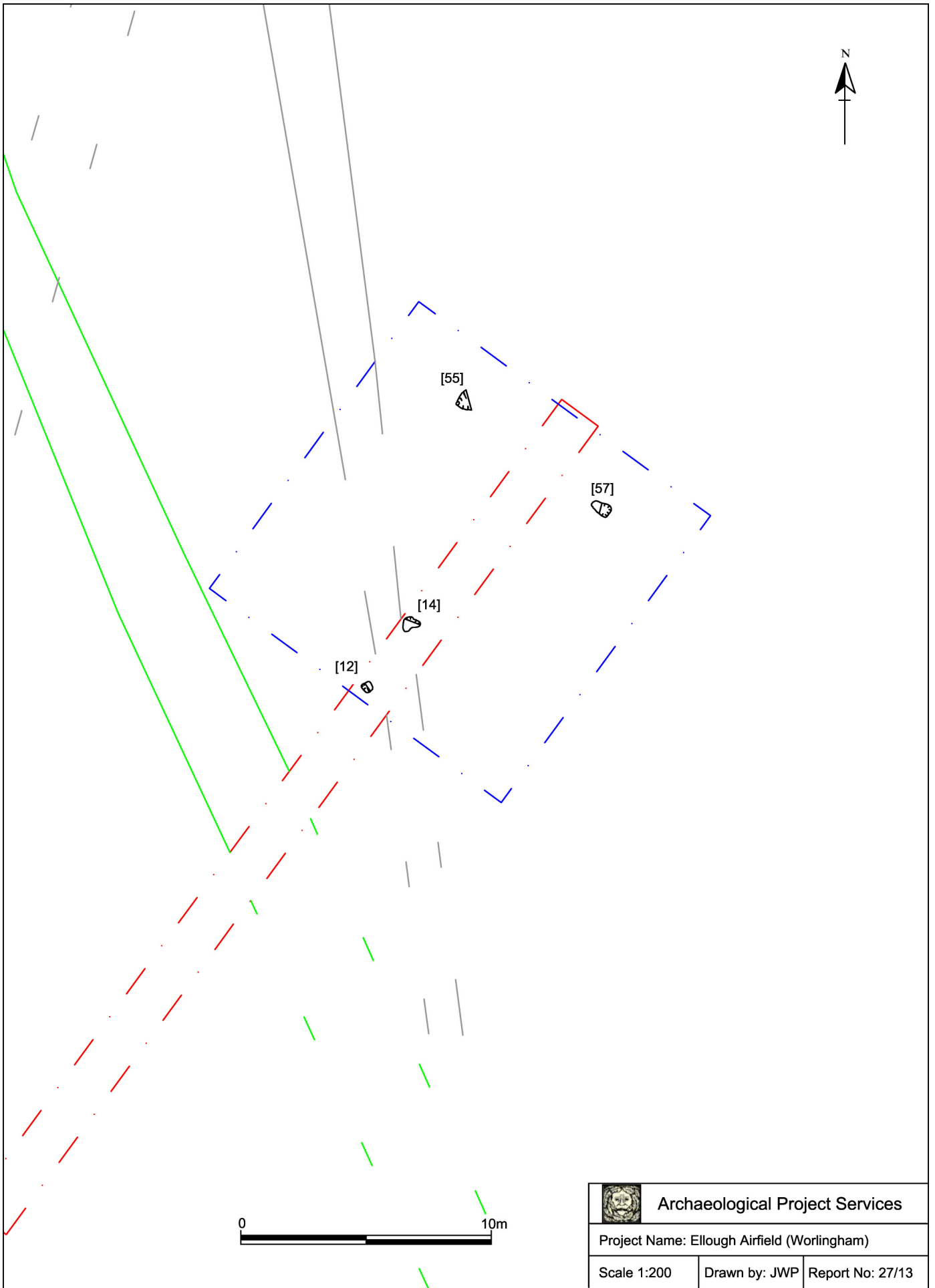
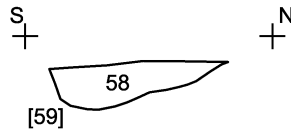
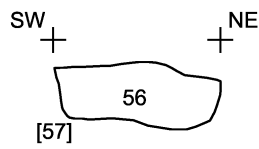
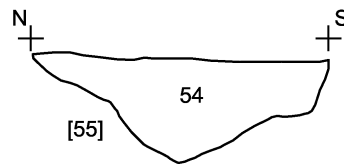


Figure 5 Plan of Area 21

Section - Area 20



Sections - Area 21




 Archaeological Project Services		
Project Name: Ellough Airfield (Worlingham)		
Scale 1:20	Drawn by: JWP	Report No: 27/13

Figure 6 Sections

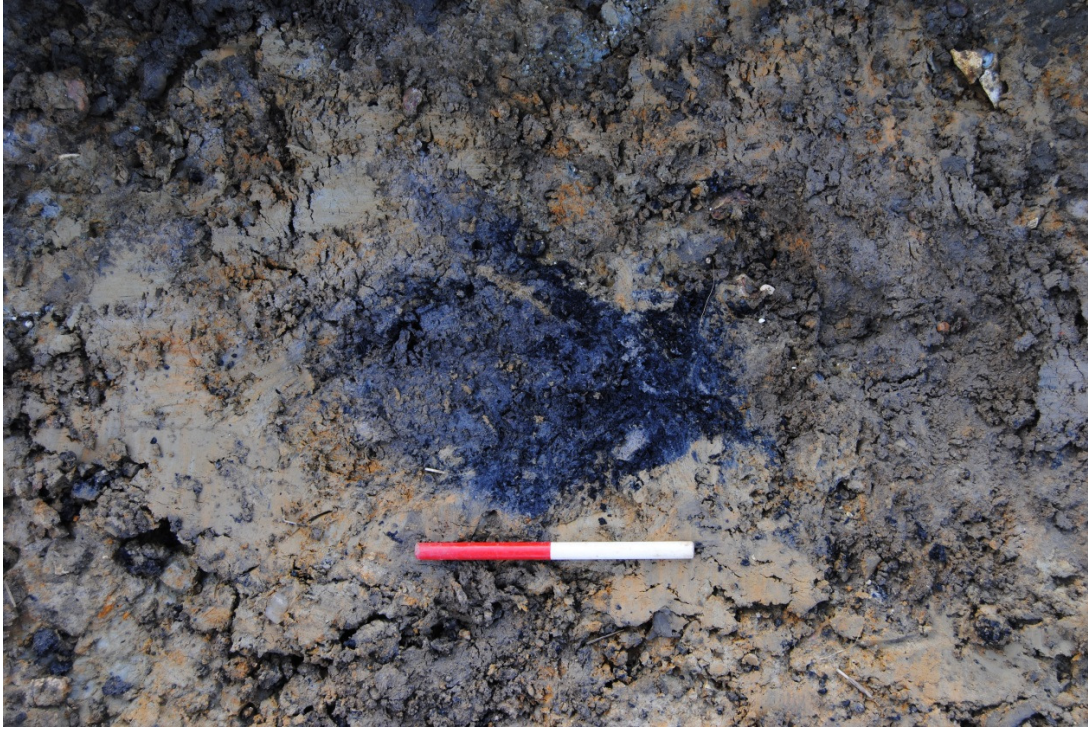


Plate 1. Feature [53] pre-excitation, 0.2m scale.



Plate 2. Looking northwest across the extension to Area 20. Two 2m scales.



Plate 3. Looking southwest at feature [59] pre-excavation, 0.2m scale



Plate 4. looking north across Area 21. Two 2m scales



Plate 5. Looking northeast at pit [55] post-excavation, 0.5m scale.

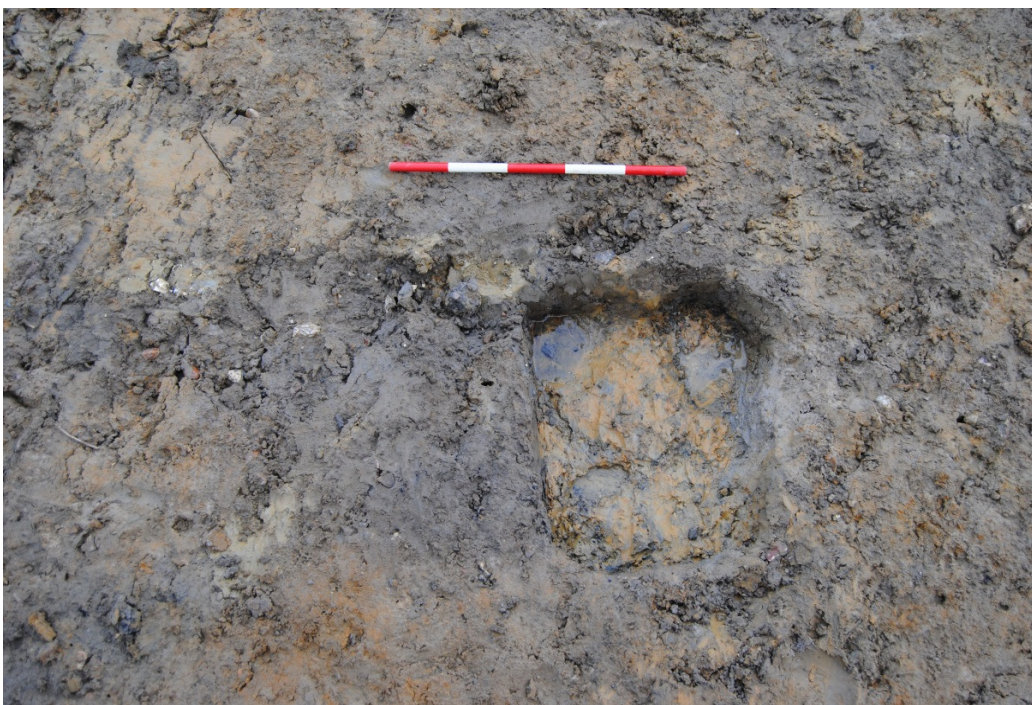


Plate 6. Pit [57] post-excavation, 0.5m scale

APPENDIX 1

**LAND AT FORMER ELLOUGH AIRFIELD
COPLAND WAY
WORLINGHAM
SUFFOLK**

WRITTEN SCHEME OF INVESTIGATION

FOR

**SPECIFICATION FOR
ARCHAEOLOGICAL MONITORING AND RECORDING
PREPARED FOR**

BIOCORE

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1 SUMMARY

- 1.1 *Archaeological monitoring and recording is required in advance of development at the former Ellough Airfield, Copland Way, Worlingham, Suffolk*
- 1.2 *The area is archaeologically sensitive with remains of late Bronze Age to Early Iron Age date discovered during recent evaluation of the site. Other previous investigations close by have revealed medieval and post-medieval remains including a series of shallow ditches and a 13th-14th century brick kiln.*
- 1.3 *Roman remains have been found to the east and northeast. A medieval moat is located to the northeast. The site is within the former Ellough airfield.*
- 1.4 *Initially the archaeological work will consist of an excavation of two 20m x 20m areas, centred on pits discovered in Trenches 10 and 18 of the evaluation. Any further monitoring required during the stripping of a wider 80m x 80m area focussed on Trenches 10 and 18 will be based on the results of the initial investigation.*
- 1.5 *On completion of the fieldwork a report will be prepared detailing the results of the scheme of works. The report will consist of a narrative supported by illustrations and photographs.*

2 INTRODUCTION

- 2.1 This document comprises a specification for the archaeological monitoring and recording in advance of development at the former Ellough Airfield, Copland Way, Worlingham, Suffolk.
- 2.2 This document contains the following parts:
 - 2.2.1 Overview.
 - 2.2.2 Stages of work and methodologies.
 - 2.2.3 List of specialists.
 - 2.2.4 Programme of works and staffing structure of the project

3 SITE LOCATION

- 3.1 Worlingham is located 2km east of Beccles in the administrative district of Waveney, Suffolk. The former Ellough Airfield is situated about 1.5km southeast of the village centre, on the southeast side of Copland Way, at National Grid Reference TM 453 883. Covering 3.3ha, the application site has recently been used for the arable agriculture, having previously functioned as an airfield..

4 PLANNING BACKGROUND

- 4.1 A planning application (DC/11/0670/FUL) for construction of an anaerobic digestion plant and associated building has been submitted to Waveney District Council. Suffolk Archaeological service advised that an archaeological evaluation was required and provided a brief for investigations.
- 4.2 The evaluation identified remains which Radiocarbon dated to the late Bronze Age\Early

Iron Age. As mitigation the Suffolk County Council planning archaeologist has requested that archaeological monitoring and recording is undertaken in advance of development at the site.

5 SOILS AND TOPOGRAPHY

The site is at the junction of soils of the, to the north, Newport 3 Association, and Hanslope Association deposits to the south. Newport 3 soils are typical brown sands formed in glaciofluvial sands (Hodge et al. 1984, 274). Hanslope Association are calcareous pelosols developed in chalky till (Hodge et al. 1984, 209). The site is on fairly flat land at c. 22m OD.

6 ARCHAEOLOGICAL OVERVIEW

6.1 Evaluation of the site (Percival 2012) identified two pits in Trenches 10 and 18 which were thought to be of possible prehistoric date. Radiocarbon dating of charcoal from Pit [014] in Trench 18 confirmed a late Bronze/Early Iron Age date.

6.2 Previous investigations just to the southeast revealed medieval and post-medieval remains. A series of ditch-like features were revealed together with a brick kiln dating to the 13th-14th century. Features relating to the 1845 tithe map layout of the farm were also recorded. Roman remains and artefacts were recorded to the east of the site during stripping for a new road to the Ellough Airfield industrial estate. A scatter of Roman artefacts, including metalwork and pottery, were found to the northeast. A medieval moat is also located to the northeast. Ditched field boundaries of probably post-medieval date have also been recorded on aerial photographs of the area to the northeast of the site. Ellough Airfield is a former military establishment.

7 AIMS AND OBJECTIVES

7.1 The aims of the investigation will be:

7.1.1 To archaeologically excavate and record features in the areas of excavation.

7.2 The objectives of the scheme of works will be to:

7.2.1 Determine the form and function of the archaeological features encountered;

7.2.2 Determine the spatial arrangement of the archaeological features encountered;

7.2.3 As far as practicable, recover dating evidence from the archaeological features, and

7.2.4 Establish the sequence of the archaeological remains present on the site.

8 SITE OPERATIONS

8.1 General considerations

8.1.1 All work will be undertaken following statutory Health and Safety requirements in operation at the time of the scheme of works.

- 8.1.2 The work will be undertaken according to the relevant codes of practise issued by the Institute for Archaeologists (IFA), under the management of a Member of the institute (MIFA). Archaeological Project Services is IFA registered organisation no. 21.
- 8.1.3 Any and all artefacts found during the investigation and thought to be 'treasure', as defined by the Treasure Act 1996, will be removed from site to a secure store and promptly reported to the appropriate coroner's office.

8.2 Methodology

- 8.2.1 Archaeological recording will be undertaken within two 20m x 20m areas focussed on the two pits recorded during the evaluation, one in Trench 10 and the other in Trench 18. A toothless ditching bucket fitted to a mechanical excavator will be used for all ground reduction. Any further requirements for monitoring and recording within a 80m x 80m area focussed on Trenches 10 and 18 will be determined by the discoveries in the two 20m x 20m areas.
- 8.2.2 All stripping will be undertaken under direct control and supervision of an archaeologist. Overburden will be stripped to the top of the first archaeological horizon or to the surface of natural deposits, whichever comes first.
- 8.2.3 Section drawings will be recorded at a scale of 1:10. Features recorded in plan will be drawn at a scale of 1:20. Written descriptions detailing the nature of the deposits, features and fills encountered will be compiled on Archaeological Project Services pro-forma record sheets.
- 8.2.4 All discrete features will be 50% sample excavated, apart from those thought to be part of structures which will 100% excavated. Linear features will be 10% sample excavated using 1m wide sections if appropriate.
- 8.2.5 Sections will be positioned to investigate all stratigraphic relationships between features.
- 8.2.6 Any finds recovered will be bagged and labelled for later analysis.
- 8.2.7 Throughout the scheme of works a photographic record will be compiled. The photographic record will consist of:
- the site during work to show specific stages, and the layout of any archaeology within the stripped area.
 - individual features and, where appropriate, their sections.
 - groups of features where their relationship is important
- 8.2.8 Should human remains be located the appropriate licence will be obtained before their removal. In addition, the Local Environmental Health Department and the police will be informed.

9 ENVIRONMENTAL ARCHAEOLOGY

- 9.1 Bulk samples will be recovered from suitable deposits identified during the investigation. Those taken from prehistoric features should be of 40l volume.

10 POST-EXCAVATION

10.1 Stage 1

- 10.1.1 On completion of site operations, the records and schedules produced during the scheme of works will be checked and ordered to ensure that they form a uniform sequence forming a level II archive. A stratigraphic matrix of the archaeological deposits and features present on the site will be prepared. All photographic material will be catalogued and labelled, the labelling referring to schedules identifying the subject/s photographed.
- 10.1.2 All finds recovered during the field work will be washed, marked and packaged according to the deposit from which they were recovered. Any finds requiring specialist treatment and conservation will be sent to the Conservation Laboratory at The Collection, Lincoln.

10.2 Stage 2

- 10.2.1 Detailed examination of the stratigraphic matrix to enable the determination of the various phases of activity on the site.
- 10.2.2 Finds will be sent to specialists for identification and dating.

10.3 Stage 3

- 10.3.1 On completion of stage 2, a report detailing the findings of the scheme of works will be prepared.
- 10.3.2 This will consist of:
- A non-technical summary of the results of the investigation.
 - A description of the archaeological setting of the scheme of works.
 - Description of the topography of the site.
 - Description of the methodologies used during the scheme of works.
 - A text describing the findings of the scheme of works.
 - A consideration of the local, regional and national context of the scheme of works findings.
 - Plans of the archaeological features exposed. If a sequence of archaeological deposits is encountered, separate plans for each phase will be produced.
 - Sections of the archaeological features.
 - Interpretation of the archaeological features exposed, and their chronology and setting within the surrounding landscape.

- Specialist reports on the finds from the site.
- Appropriate photographs of the site and specific archaeological features.

11 REPORT DEPOSITION

- 11.1 Copies of the investigation report will be sent to: the client; and the Suffolk County Council Historic Environment Record.

12 ARCHIVE

- 12.1 The documentation, finds, photographs and other records and materials generated during the investigation will be sorted and ordered into the format acceptable to the appropriate local museum. This sorting will be undertaken according to the guidelines and conditions stipulated by the museum, and appropriate national guidelines, for long-term storage and curation.

- 12.2 Upon completion and submission of the report, the landowner will be contacted to arrange legal transfer of title to the archaeological objects retained during the investigation from themselves to the receiving museum. The transfer of title will be effected by a standard letter supplied to the landowner for signature

13 PUBLICATION

- 13.1 Details of the investigation will be input to the Online Access to the Index of Archaeological Investigations (OASIS).
- 13.2 Notes or articles describing the results of the investigation will also be submitted for publication in the appropriate national journals: *Medieval Archaeology* for medieval and later remains, and *Britannia* for discoveries of Roman date.

14 CURATORIAL RESPONSIBILITY

- 14.1 Curatorial responsibility for the archaeological work undertaken on the site lies with the Suffolk Historic Environment Service. They will be given written notice of the commencement of the project to enable them to make monitoring arrangements..

15 VARIATIONS AND CONTINGENCIES

- 15.1 Variations to the proposed scheme of works will only be made following written confirmation of acceptance from the archaeological curator.
- 15.2 In the event of the discovery of any unexpected remains of archaeological importance, or of any changed circumstances, it is the responsibility of the archaeological contractor to inform the archaeological curator.
- 15.3 Where important archaeological remains are discovered and deemed to merit further investigation additional resources may be required to provide an appropriate level of investigation, recording and analysis.
- 15.4 Any contingency requirement for additional fieldwork or post-excavation analysis outside

the scope of the proposed scheme of works will only be activated following full consultation with the archaeological curator and the client.

16 PROGRAMME OF WORKS AND STAFFING LEVELS

- 16.1 It is anticipated that stripping of the two 20m x 20m areas will take two to three days. A single Project Officer will monitor the works with contingency provision for an additional site assistant if necessary. A
- 16.2 Post-excavation analysis and report production will be undertaken by the Project Officer, or a post-excavation analyst as appropriate, with assistance from a finds supervisor, illustrator and external specialists. Ten person days has been allocated to post-excavation and writing of the report.

17 SPECIALISTS TO BE USED DURING THE PROJECT

- 17.1 The following organisations/persons will, in principle and if necessary, be used as subcontractors to provide the relevant specialist work and reports in respect of any objects or material recovered during the investigation that require their expert knowledge and input. Engagement of any particular specialist subcontractor is also dependent on their availability and ability to meet programming requirements.

<u>Task</u>	<u>Body to be undertaking the work</u>
Conservation	Conservation Laboratory, The Collection, Lincoln
Pottery Analysis	Late Prehistoric – David Knight Trent & Peak Archaeological Trust or Dale Trimble/Alex Beeby mentored by David Knight
Pottery Analysis	Early Prehistoric – Sarah Percival – independent specialist
Roman –	Alex Beeby, in house IFA bursary trainee mentored by Barbara Precious independent Roman pottery specialists. Anglo-Saxon, Medieval and Post medieval – Dr Anne A Boyle independent pottery specialist APS
Non-pottery Artefacts	J Cowgill, Independent Specialist
Animal Bones	Matilda Holmes, independent faunal remains specialist
Environmental Analysis	J Rackham or V Fryer, Independent Specialists
Human Remains Analysis	R Gowland, Independent Specialist

18 INSURANCES

- 18.1 Archaeological Project Services, as part of the Heritage Trust of Lincolnshire, maintains Employers Liability Insurance of £10,000,000, together with Public and Products Liability insurances, each with indemnity of £5,000,000. Copies of insurance documentation can be supplied on request.

19 COPYRIGHT

- 19.1 Archaeological Project Services shall retain full copyright of any commissioned reports under the Copyright, Designs and Patents Act 1988 with all rights reserved; excepting that it hereby provides an exclusive licence to the client for the use of such documents by the client in all matters directly relating to the project as described in the Project Specification.
- 19.2 Licence will also be given to the archaeological curators to use the documentary archive for educational, public and research purposes.
- 19.3 In the case of non-satisfactory settlement of account then copyright will remain fully and exclusively with Archaeological Project Services. In these circumstances it will be an infringement under the Copyright, Designs and Patents Act 1988 for the client to pass any report, partial report, or copy of same, to any third party.
- 19.4 The author of any report or specialist contribution to a report shall retain intellectual copyright of their work and may make use of their work for educational or research purposes or for further publication.

20 BIBLIOGRAPHY

Percival, J., 2012 Archaeological Evaluation on land at the former Ellough Airfield, Copland Way, Worlingham, Suffolk (WOCW 12). Unpublished Archaeological Project Services Report **94/12**

Specification: Version 1, 30th January 2013

APPENDIX 2

Context Summary

Context	Area	Description	Interpretation	Date
50	20	Patchy charcoal fill	Fill of [51]	undated
51	20	Irregular cut feature	Burnt root hole	undated
52	20	Patchy charcoal fill	Fill of [53]	undated
53	20	Irregular cut feature	Burnt root hole	undated
54	21	Brownish-grey heavily charcoal flecked clay	Fill of [55]	? late Bronze Age
55	21	Somewhat irregular pit 0.5m wide, 0.25m deep	?Cooking pit	? late Bronze Age
56	21	Grey clay frequent charcoal	Fill of [57]	? late Bronze Age
57	21	Sub-rectangular pit 0.8m x 0.5m, 0.1m deep	?Cooking pit	? late Bronze Age
58	20	Dark grey sandy clay, frequent charcoal, moderate burnt stones and burnt clay	Fill of [59]	? late Bronze Age
59	20	Somewhat irregular sub-oval pit 0.6m x 0.4m, 0.1m deep	?Cooking pit	? late Bronze Age

Appendix 3

THE FINDS

BAKED CLAY

By Sarah Percival

A total of fifteen pieces of baked clay weighing 101g were recovered from the fill of pit [59]. The poorly fired pieces are made of coarse sandy fabric with sparse, medium-sized chalk and flint inclusions. No wattle or other impressions are present indicating that the baked clay was not structural however several feature a hand-smoothed surface with opposing roughened surface suggesting use as a lining perhaps for a hearth or similar. The baked clay is comparable to fragments from a possible clay oven or furnace found within the Iron Age enclosure at Barnham (Martin 1993, 15).

Context	Quantity	Weight	Description
58	15	101g	Coarse, poorly fired orange sandy fabric with sparse flint and chalk pieces.

STONE

By Sarah Percival

A total of four pieces of heat affected stone weighing 1,249g were collected from the fill of pit [59]. The rounded quartzitic cobbles, which were almost certainly derived from river rolled deposits, have been heated to produce characteristic red discolouration and angular fracture. Quartzitic cobbles are common finds within prehistoric contexts and as excellent thermal conductors were perhaps used for cooking food.

Context	Quantity	Weight	Description
58	4	1,249g	Pale coloured rounded quartzitic cobble fragments, x1 reddened by exposure to heat.

REFERENCES

Martin, E. 1993 'The Iron Age Enclosure at Barnham' in Martin E. *Settlements on Hill-Tops: Seven Prehistoric Sites in Suffolk* East Anglian Archaeology 65, 1-22

Appendix 4

ENVIRONMENTAL EVIDENCE

By Val Fryer

Introduction and method statement

Samples for the retrieval of the plant macrofossil were taken from three pits, the fills of which were recorded as containing moderate to high densities of charcoal fragments.

The samples were processed by manual water flotation/washover and the flots were collected in a 300 micron mesh sieve. The dried flots were scanned under a binocular microscope at magnifications up to x 16 and the plant macrofossils and other remains noted are listed in Table 1. Nomenclature within the table follows Stace (1997). All plant remains were charred.

The non-floating residues were collected in a 1mm mesh sieve and will be sorted when dry. Any artefacts/ecofacts will be retained.

Results

Although charcoal/charred wood fragments were abundant within all three assemblages, other macrofossils were very scarce. Sample 5 contained occasional fragments of hazel (*Corylus avellana*) nutshell, and the assemblages from samples 6 and 7 included indeterminate seeds. Small pieces of charred root or stem were also recorded within samples 5 and 6. The charcoal fragments were mostly large and very angular, possibly suggesting that they were buried immediately after combustion. It was also noted that several fragments were fringed with tarry globules, possibly suggesting that the material had been burnt at a very high temperature.

Sample No.	5	6	7
Context No.	54	56	58
Plant macrofossils			
<i>Corylus avellana</i> L.	x		
Charcoal <2mm	xxxx	xxxx	xxxx
Charcoal >2mm	xxxx	xxxx	xxxx
Charcoal >5mm	xxx	xx	xxxx
Charcoal >10mm	xx	x	xx
Charred root/stem	x	x	
Indet.seeds		x	x
Other remains			
Black porous 'cokey' material	x	x	
Black tarry material	xx		
Burnt/fired clay			x
Small coal frags.		x	
Sample volume (litres)	10	10	10
Volume of flot (litres)	0.2	<0.1	0.2
% flot sorted	50%	100%	50%

Key to Table

x = 1 – 10 specimens xx = 11 – 50 specimens xxx = 51 – 100 specimens xxxx = 100+ specimens

Other remains were also scarce. The fragments of black porous and tarry material were mostly probable residues of the combustion of organic remains at very high temperatures. However, occasional pieces were very hard and brittle, and it was assumed that these, along with the small coal fragments, were probably intrusive within the pit fills. Such materials are commonly recorded within areas where night soil/midden waste was dumped during the late medieval/Post-medieval periods, or where steam ploughs were used during the early modern period.

Conclusions

In summary, as the current assemblages are so limited in composition, and as the pits from which the samples were taken were so isolated, it is very difficult to provide any suggestion as to the significance of the features or the taphonomy of the remains. As stated, it would appear most likely that the remains were buried very soon after burning, but whether they are derived from hearth waste, industrial detritus or any other source is not known.

As none of the assemblages contain a sufficient density of material for quantification (i.e. 100+ specimens), little further analysis is recommended. However, it should be noted that identification of the charcoal may provide data about the local environment and resource management.

Reference

Stace, C., 1997 *New Flora of the British Isles*. 2nd edition. Cambridge University Press

Appendix 5

THE RADIOCARBON 14 DATE

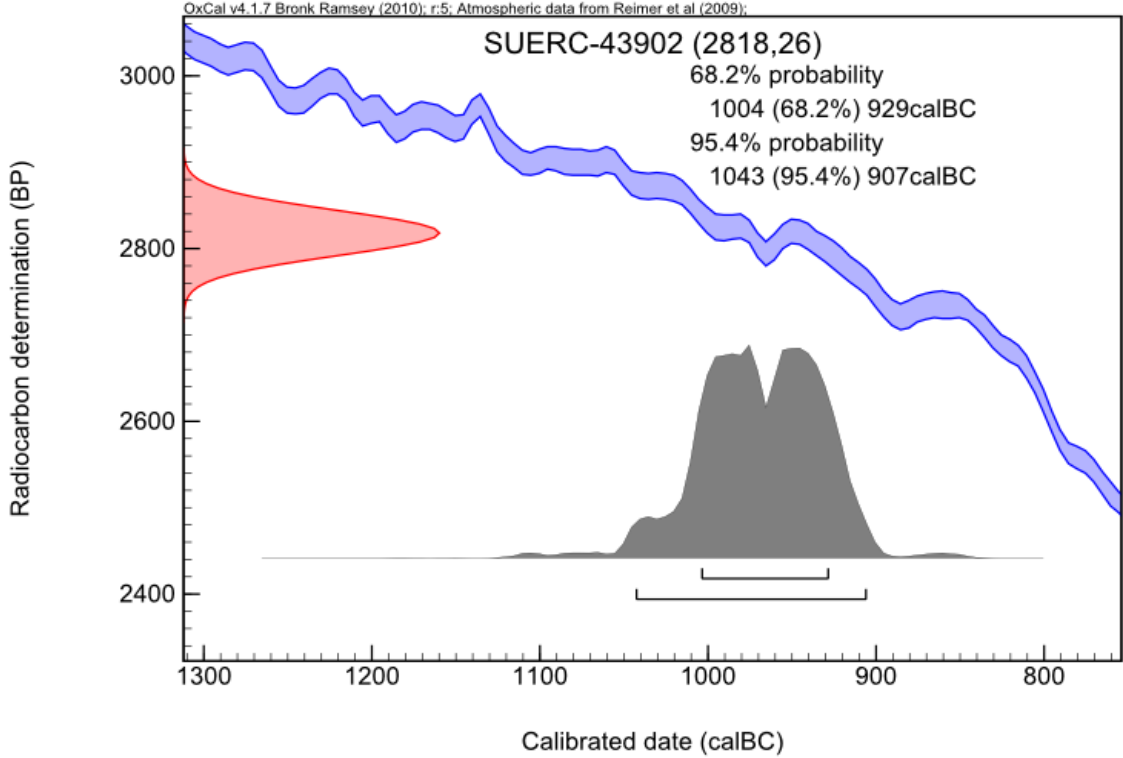
Radiocarbon Laboratory	Scottish Universities Environmental Research Centre Rankine Avenue Scottish Enterprise Technology Park, East Kilbride Glasgow G75 0QF 01355 223332 www.glasgow.ac.uk/suerc
Date of Radiocarbon Dating Certificate	22 January 2013
Laboratory Code	SUERC-43902 (GU29360)
Submitter	Dale Trimble Archaeological Project Services The Old School, Cameron Street Heckington, Lincolnshire NG34 9RW
Site Reference	Worlingham Copland Way WOCW12
Context Reference	15
Sample Reference	Sample 2
Material	Charcoal : Not Known
$\delta^{13}\text{C}$ relative to VPDB	-27.1 ‰
Radiocarbon Age BP	2818 \pm 26

N.B. The above ^{14}C age is quoted in conventional years BP (before 1950 AD). The error, which is expressed at the one sigma level of confidence, includes components from the counting statistics on the sample, modern reference standards, background standards and the random machine error.

The calibrated age ranges are determined using the University of Oxford Radiocarbon Accelerator Unit calibration program OxCal 4.1 (Bronk Ramsey 2009). Terrestrial samples are calibrated using the IntCal09 curve while marine samples are calibrated using the Marine09 curve.

Samples with a SUERC coding are measured at the Scottish Universities Environmental Research Centre AMS Facility and should be quoted as such in any reports within the scientific literature. Any questions directed to the Radiocarbon Laboratory should also quote the GU coding given in parentheses after the SUERC code. The contact details for the laboratory are email g.cook@suerc.gla.ac.uk or Telephone 01355 270136 direct line.

Calibration Plot



Appendix 6

THE ARCHIVE

The archive created during the monitoring and recording will be amalgamated with the archive created during the evaluation. All number sequences are continuous.

The combined archive consists of:

Evaluation	Monitoring and Recording	Total	Archive Material
2	1	3	Context register sheets
38	10	48	Context record sheets
19	0	19	Trench record sheets
2	1	3	Photographic record sheets
1	0	1	Plan record sheet
1	0	1	Section record sheet
7	4	11	Daily record sheets
31	4	35	Sheets of scale drawings
1	0	1	Sample register sheet
2	3	5	Sample record sheets
6	2	8	Bag of finds
2	3	5	Bagged soil samples

All primary records are currently kept at:

Archaeological Project Services
The Old School
Cameron Street
Heckington
Sleaford
Lincolnshire
NG34 9RW

The ultimate destination of the project archive is:

Suffolk County Council Museums Service

Suffolk Historic Environment Record Number:

WGM014

Archaeological Project Services Site Code:

WOCW 13

OASIS Record No:

archaeo11-146661

The discussion and comments provided in this report are based on the archaeology revealed during the site investigations. Other archaeological finds and features may exist on the development site but away from the areas exposed during the course of this fieldwork. *Archaeological Project Services* cannot confirm that those areas unexposed are free from archaeology nor that any archaeology present there is of a similar character to that revealed during the current investigation.

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Appendix 7

GLOSSARY

Bronze Age	A period characterised by the introduction of bronze into the country for tools, between 2250 and 800 BC.
Context	An archaeological context represents a distinct archaeological event or process. For example, the action of digging a pit creates a context (the cut) as does the process of its subsequent backfill (the fill). Each context encountered during an archaeological investigation is allocated a unique number by the archaeologist and a record sheet detailing the description and interpretation of the context (the context sheet) is created and placed in the site archive. Context numbers are identified within the report text by brackets, e.g. [004].
Cut	A cut refers to the physical action of digging a posthole, pit, ditch, foundation trench, etc. Once the fills of these features are removed during an archaeological investigation the original 'cut' is therefore exposed and subsequently recorded.
Fill	Once a feature has been dug it begins to silt up (either slowly or rapidly) or it can be back-filled manually. The soil(s) that become contained by the 'cut' are referred to as its fill(s).
Iron Age	A period characterised by the introduction of Iron into the country for tools, between 800 BC and AD 50.
Medieval	The Middle Ages, dating from approximately AD 1066-1500.
Natural	Undisturbed deposit(s) of soil or rock which have accumulated without the influence of human activity
Post-medieval	The period following the Middle Ages, dating from approximately AD 1500-1800.
Prehistoric	The period of human history prior to the introduction of writing. In Britain the prehistoric period lasts from the first evidence of human occupation about 500,000 BC, until the Roman invasion in the middle of the 1st century AD.
Roman, Romano-British	Pertaining to the period dating from AD 43-410 when the Romans occupied Britain.