

Report 2325



nps archaeology

## Archaeological Watching Brief for the Kessingland Wind Farm at Africa Alive, Suffolk

KSS 083



Prepared for  
EcoGen Ltd  
PO Box 49  
Chasewater  
Truro  
Cornwall  
TR4 8WZ

Stuart Calow BA

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[www.nps.co.uk](http://www.nps.co.uk)

<b>PROJECT CHECKLIST</b>		
Project Manager	David Whitmore	
Draft Completed	Stuart Calow	27/06/2011
Graphics Completed	David Dobson	27/06/2011
Edit Completed	Jayne Bown	28/06/2011
Signed Off	Nigel Page	26/08/2011
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## **NPS Archaeology**

Scandic House  
85 Mountergate  
Norwich  
NR1 1PY

T 01603 756150

F 01603 756190

E [jayne.bown@nps.co.uk](mailto:jayne.bown@nps.co.uk)

<http://nau.nps.co.uk/>

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Location:	Africa Alive, Whites Lane, Kessingland, Suffolk
District:	Waveney
Grid Ref.:	TM 520 859 and TM 516 862
HER No.:	KSS 083
OASIS Ref.:	104215
Client:	EcoGen Ltd
Dates of Fieldwork:	10 January 2011 – 23 February 2011

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## **Summary**

*An archaeological watching brief was conducted for EcoGen Ltd ahead of the construction of two wind turbines (Turbines 1 and 2), a switch room and temporary access roads at Africa Alive, Whites Lane, Kessingland, Suffolk.*

*One small gully was discovered at the site of the north-west turbine (Turbine 2). No dating evidence was found however several worked flints were recovered from the subsoil in the same area.*

## **1.0 INTRODUCTION**

The Watching Brief was conducted before the construction of two wind turbines, a switch room, cable trenches linking the turbines to the switch room and temporary approach roads at Africa Alive, Kessingland, Suffolk (Fig. 1). Turbines 1 and 2 were positioned approximately 500m apart, located respectively south-east and north-west of the Africa Alive animal park (Fig. 2).

This work was undertaken to fulfil a planning condition set by Waveney District Council (Ref. DC/06/1401/FUL). The work was conducted in accordance with a Project Design and Method Statement prepared by NPS Archaeology (Ref. NPS/BAU2325DW). This work was commissioned and funded by EcoGen Ltd.

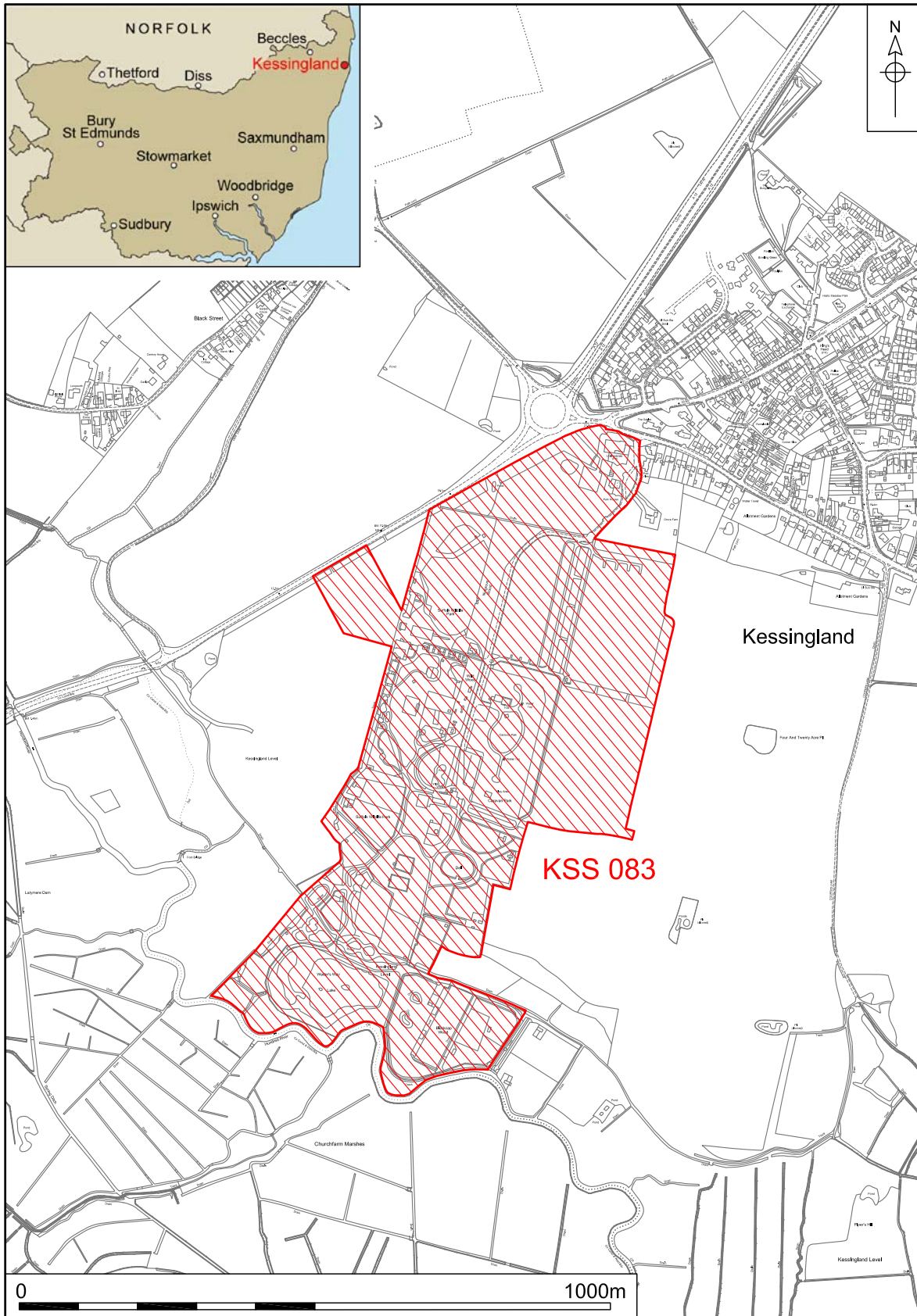
This programme of work was designed to assist in defining the character and extent of any archaeological remains within the proposed redevelopment area, following the guidelines set out in *Planning Policy Statement 5: Planning for the Historic Environment* (Department of Communities and Local Government 2010).

The site archive is currently held by NPS Archaeology and on completion of the project will be deposited with the Suffolk County Council Archaeology Service, subject to the landowner's permission, following the relevant policies on archiving standards.

## **2.0 GEOLOGY AND TOPOGRAPHY**

Turbines 1 and 2 are located at 12-15m OD. At Turbine 1 (to the south-east) the land slopes gently downwards towards the south, directly to the north of the Hundred River flood plain. The land at the site of Turbine 2 (the north-westernmost turbine) slopes down gently towards the east.

The solid geology is chalk bedrock covered by London Clay and then Norfolk Crag sands and gravels. After the last ice age glacial erosion deposited boulder clays and alluvial sands and gravels ([www.bgs.ac.uk](http://www.bgs.ac.uk)).



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Figure 1. Site location. Scale 1:10,000

Topsoil at the site of Turbine 1 was 0.3m deep and comprised dark brown slightly silty sand. The subsoil was 0.2-0.3m thick and consisted of mid orange brown silty sand. The 'natural' drift geology below this was orange sand and gravel.

Topsoil on the site of Turbine 2 was also 0.30m deep and comprised the same dark brown silty sand that occurred at Turbine 1. The subsoil was 0.3–0.4m deep and was also the same mid orange-brown silty sand encountered at Turbine 1. The 'natural' drift geology here is also orange sand and gravel.

### **3.0 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND**

A search of the Suffolk Historic Environment Record for the area revealed eleven known sites within a 1km radius of the sites of excavation.

Two small ring ditches and one large one (35m diameter), probably of Bronze Age date, appear as cropmarks 200-300m to the south west of the site. A number of artefacts have been discovered in locations nearby, all of which were found on or metal detected from the top soil. These finds include flint artefacts (Neolithic flint axes, an arrowhead, scrapers, flakes and potboilers), a Bronze Age copper alloy axe fragment, two Iron Age (Iceni) coins; two Late Saxon (Edward the Confessor) coins; medieval potsherds, a lead seal, copper alloy brooches, buckles and strap ends.

At the time of the Norman Conquest, Kessingland is recorded as a prosperous fishing port, shown at Domesday (1086) to pay (as well as other taxes) 22,000 herring to the local Norman lords, who had usurped the lands of their Saxon predecessors ([www.british-history.ac.uk](http://www.british-history.ac.uk)). At that time, Kessingland was situated on the northern side of an estuary of the River Hundred, which was navigable up to Latymere Dam, beyond the modern A12 road. After the fourteenth century there are no further references to Kessingland as a fishing port, the estuary by then having presumably silted up. There was a slight resurgence of herring fishing in the nineteenth century but Kessingland remained a small village until the twentieth century when modern transport encouraged residential dwellings and holiday parks to develop in the area.

### **4.0 METHODOLOGY**

The objective of this watching brief was to mitigate the impacts of the proposed works by appropriate levels of archaeological excavation and recording being undertaken where archaeological remains are identified, and these cannot be preserved *in situ*.

Machine excavation was carried out with a hydraulic 360° mechanical excavator using a toothless ditching bucket under constant archaeological supervision.

Each turbine occupied a circular area measuring 21m in diameter and had an adjacent area of 900m<sup>2</sup> prepared as hard standing for a crane requiring deposits to be removed to a depth of 0.3-0.4m.

Turbine 1 (the south-eastern turbine) required the construction of an east-west approach road approximately 100m long by 5m wide. A drainage channel was excavated parallel to the approach road some 5m to its north and measured approximately 90m long, 0.5m wide, and 0.6m deep. A second drainage channel of the same dimensions but this time measuring 30m long was excavated on a

north-south alignment across the entrance to the approach road at its western end.

No approach road was constructed for Turbine 2. As with Turbine 1, an area of roughly 900m<sup>2</sup> was prepared for the crane hard standing adjacent to a 21m diameter circle to its west for the turbine itself. Topsoil and subsoil in the vicinity of Turbine 2 was removed by machine to a depth of 0.4–0.6m.

Spoil, exposed surfaces and features were scanned with a metal-detector. All metal-detected and hand-collected finds other than those which were obviously modern, were retained for inspection.

No environmental samples were taken.

All archaeological features and deposits were recorded using NPS Archaeology pro forma. Trench locations, plans and sections were recorded at appropriate scales. Monochrome and digital photographs were taken of all relevant features and deposits where appropriate.

Site conditions were good, with the work taking place in fine weather.

## **5.0 RESULTS**

### **Turbine 1**

Within the excavated circular area for Turbine 1, where the subsoil was relatively shallow, 'natural' deposits were revealed however no archaeological features were encountered.

Machine excavation of the approach road and crane hard standing to a depth of 0.3-0.4m below the ground surface did not reach the base of the subsoil and no archaeological remains were observed.

The two drainage channels were excavated to a depth of 0.6m and although they reached the 'natural' orange sand and gravel no archaeological features were observed.

Screening by metal detector of the soil arisings recovered only modern artefacts which were not retained.

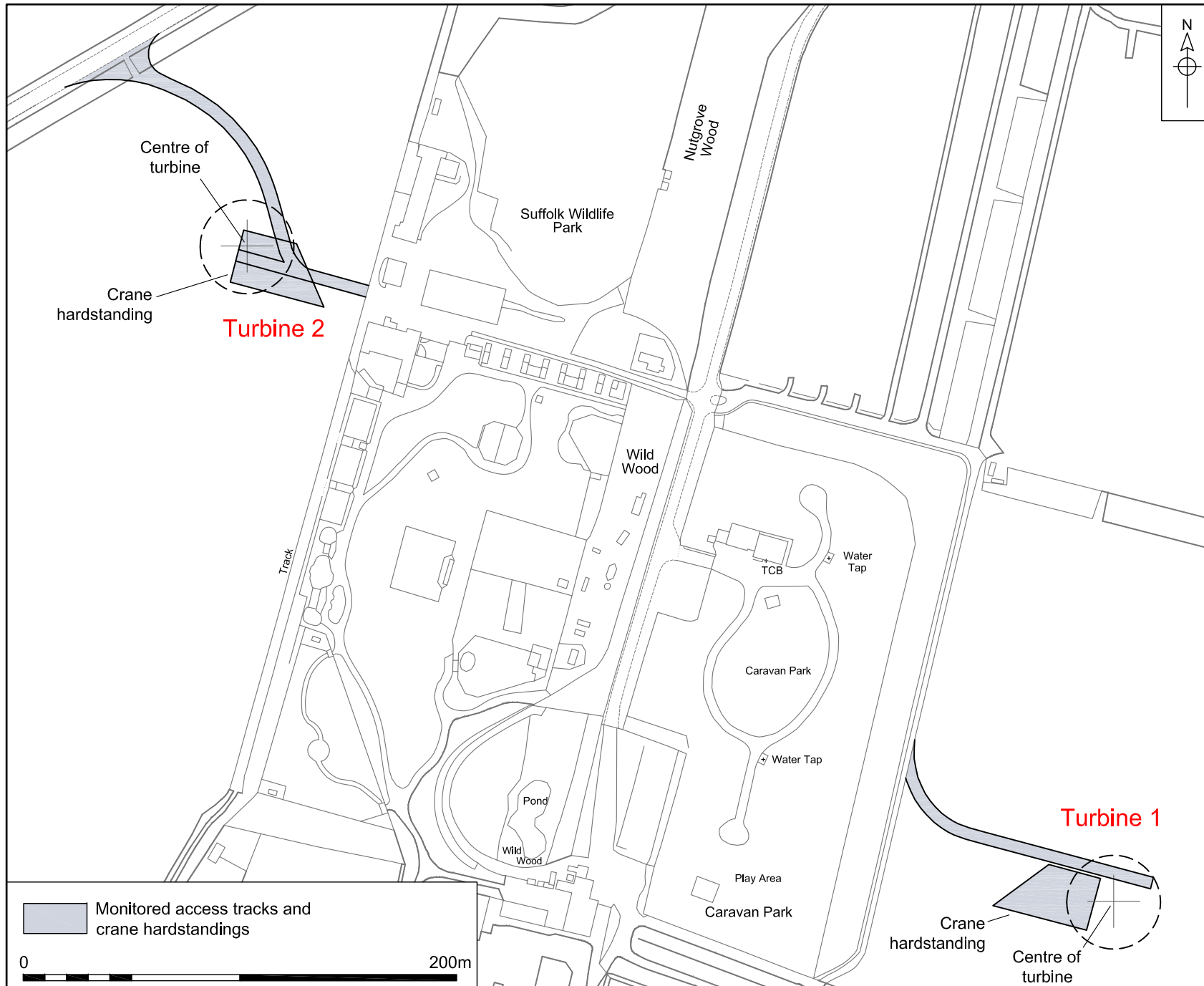
### **Turbine 2**

In the circular area stripped for Turbine 2 the subsoil was observed to be shallower than the other areas in the vicinity. The orange 'natural' was exposed revealing east-west aligned linear gully [1] measuring 0.4m wide and 0.1m deep. A section along the gully measuring 1m was excavated. The fill (2) of gully [1] was a mid brown silty sand with occasional small and medium sub-angular flint inclusions. No artefacts or ecofacts were recovered. Several worked flints of the later Neolithic period were retrieved from sub-soil (3) within the stripped circular area (6.0 below).

The 900m<sup>2</sup> area of hard standing for the crane was machined to a depth of 0.4–0.60m. Being down-slope, here the subsoil was deeper below the surface and the 'natural' orange sand and gravel was not reached. No archaeological features were observed.

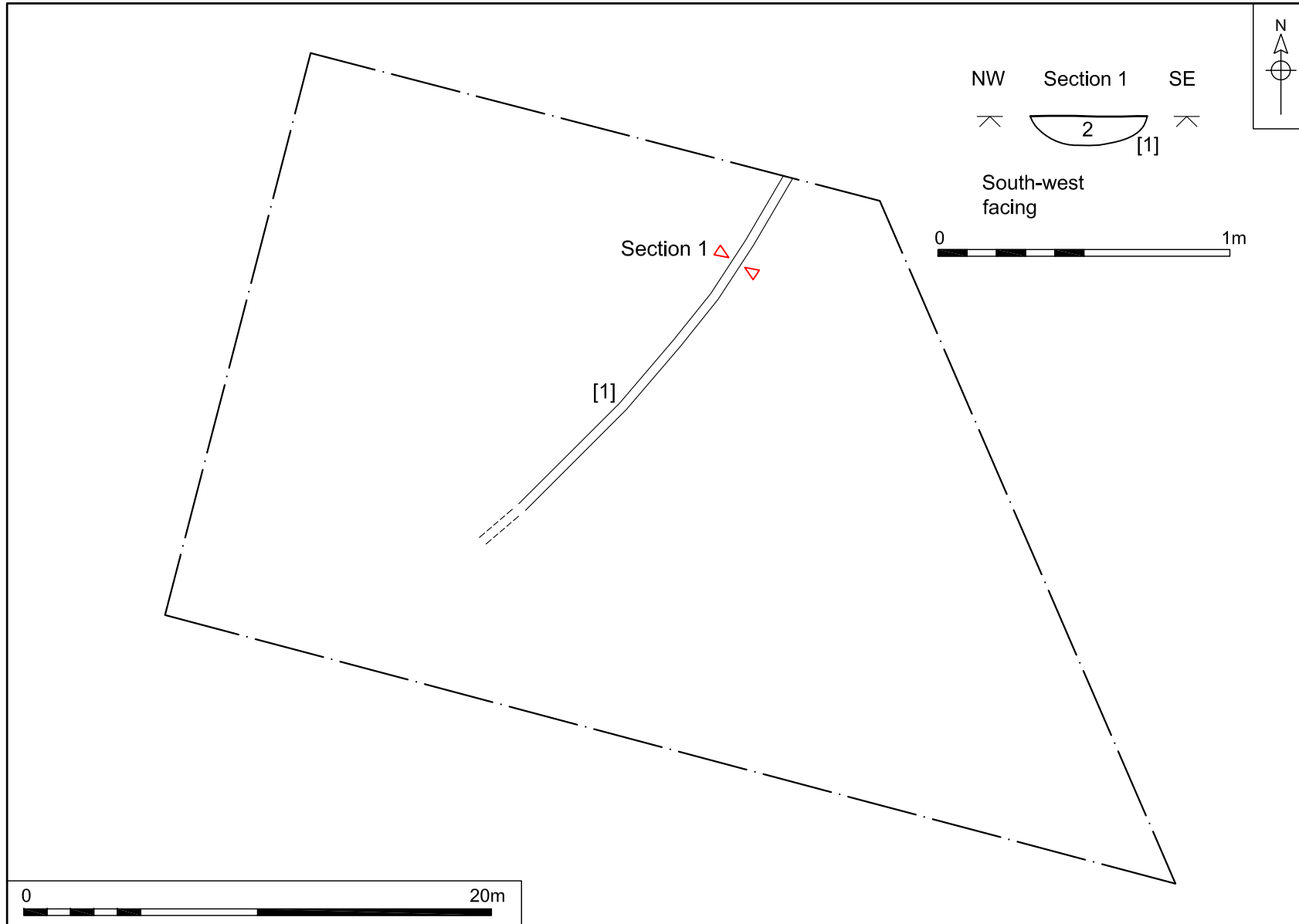
All metal-detected finds from the soil arisings were modern and were discarded.





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Figure 2. Location of monitored areas. Scale 1:2500



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Figure 3. Plan and section of gully [1] within the hardstanding for Turbine 2. Scale 1:250 and 1:20

## 6.0 THE FINDS

### 6.1 Flint

by Andrew Peachey

#### 6.1.1 Introduction

Watching brief investigations at Kessingland recovered a total of 21 fragments (254g) of struck flint as unstratified material from subsoil (3) (Appendix 3). The struck flint included an oblique arrowhead, a blade core and six scrapers (Table 1), all in an un-patinated, fresh condition. As the struck flint was recovered from the subsoil, it need not be contemporary; however this assemblage appears homogenous and suggests probable activity in the later Neolithic period.

Implement/Flake Type	Frequency	Weight (g)
Blade Core	1	55
Oblique Arrowhead	1	2
Double side-end scraper	1	19
Side-end scraper	1	19
End scraper	1	19
Side Scraper	3	49
?Flake Blank	1	24
Utilised Flakes	9	61
Uncorticated Flakes	3	6
<i>Total</i>	<i>21</i>	<i>254</i>

Table 1: Quantification of struck flint implement and flake types

#### 6.1.2 Methodology & Terminology

The flint was quantified by fragment count and weight (g), with all data entered into a Microsoft Excel spreadsheet that will be deposited as part of the archive. Flake type (see 'Dorsal cortex,' below) or implement type, patination, colour and condition were also recorded as part of this data set, along with free-text comments.

The term 'cortex' refers to the natural weathered exterior surface of a piece of flint, and the term 'patination' to the colouration of a flaked surface exposed by human or natural agency. Dorsal cortex is categorised after Andrefsky (2005, 104 & 115) with 'primary flake' referring to those with cortex covering 100% of the dorsal face; 'secondary flake' with 50-99%; 'tertiary' with 1-49% and 'un-corticated' to those with no dorsal cortex. A 'blade' is defined as an elongated flake whose length is at least twice as great as its breadth, often exhibiting parallel dorsal flake scars (a feature that can assist in the identification of broken blades that, by definition, have an indeterminate length/breadth ratio). Terms used to describe implement and core types follow the system adopted by Healy (1988, 48-9).

#### 6.1.3 Commentary

Kessingland is situated on the east coast of Suffolk, in an area of secondary sources of raw flint beyond the eastern extent of the chalk belt that runs through

Suffolk and Norfolk (Waddington 2004, 3). The raw material utilised for the struck flint in the assemblage reflects the local availability of secondary deposits of surface and river gravels, but does not appear to include any material sourced from beach gravels. The raw flint ranges from mid to dark grey, generally with a fairly thin cortex that, where present, ranges from off-white to orange-grey indicating it was probably sourced from surface gravels. However sparse fragments also have a slightly uneven, smooth white cortex that suggests they were sourced from river gravels. This range reflects the lessening degree of selection in raw material evident in flint work in the region from the beginning of the later Neolithic (Butler 2005, 155).

The single core (55g) in the assemblage has two parallel striking platforms (type B1) with flake scars that indicate it was used to produce blades and appears to be exhausted. Cores of this type were used throughout the Neolithic but the size of this example suggests a later Neolithic origin, as earlier Neolithic types tend to be slightly smaller when exhausted.

The oblique arrowhead, characteristic of the later Neolithic, also reflects the continuation of blade technology. The parallel dorsal scars on the arrowhead indicate it was formed from a blade that was snapped and then bi-facially retouched along the cutting edge. The three small fragments of debitage in the assemblage are also comprised of bladelets or blade-like flakes.

The six scrapers in the assemblage were all formed by the application of abrupt retouch to lateral and or distal ends of debitage flakes. The double side-end, side-end and side scrapers (three examples) were all formed of blade-like fragments of debitage, probably struck from a pre-prepared platform during the reduction/preparation of a nodule into a true blade core. These five scrapers have an average weight of 17.4g and are relatively uniform in size, ranging from 40-60mm in length, with a width of 30mm and thickness of 10mm. Scrapers such as these could have been produced in the earlier or later Neolithic, as opposed to the end scraper and probable flake blank that are rounder in profile, only slightly larger than thumbnail scrapers, which are typical of later Neolithic to early Bronze Age flint work. The nine utilised flakes, which probably represent small improvised scrapers, are also more typical of the decline in lithic technology evident in the later Neolithic and early Bronze Age. The utilised flakes comprise small (<30mm<sup>2</sup>) tertiary and un-corticated flakes with limited retouch to single lateral edges and are similar to the more neatly manufactured thumbnail scrapers of the early Bronze Age.

## **7.0 CONCLUSIONS**

One small undated east-west gully [1] was observed in the circular area stripped for Turbine 2.

Of perhaps more significance is the assemblage of late Neolithic worked flints that were recovered from subsoil (3) in the same area. The flints have homogeneity of flint type and form suggesting activity in the area in this period.

No archaeological remains were observed at the site of Turbine 1, its approach road or drainage trenches.

## **Acknowledgements**

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Thanks are also extended to Andy Barnett for helping the author with the fieldwork, Lucy Talbot and Becky Sillwood for processing finds, Andrew Peachey for the interesting flint report; David Dobson for producing the graphics for the report and Jayne Bown for editing it.

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### Appendix 1a: Context Summary

Context	Category	Cut Type	Fill Of	Description	Period	Location
1	Cut	Gully		Gully	Unknown	Turbine 2
2	Deposit		1	Fill of gully [1]	Unknown	Turbine 2
3	Deposit			subsoil	Unknown	Turbine 1
4	Deposit			Natural sands and gravels	-	
5	Deposit			Topsoil	Unknown	

### Appendix 1b: OASIS Feature Summary

Period	Feature	Number
Unknown	Gulley	1

### Appendix 2a: Finds by Context

Context	Material	Qty	Wt	Period
3	Flint – Struck	21	254g	Neolithic

### Appendix 2b: OASIS Finds Summary

Period	Material	Total
Neolithic	Flint – Struck	21

### Appendix 3: Flint

Ctxt	Find/type	No.	Wt (g)	Patinated	Retouched	Colour	Cortex	L	W	D	Comment
3	Core	1	55	\	na	Dark grey	thin, orange/grey	40	40	25	Type B1 blade core, probably exhausted
3	Arrowhead	1	2	\	yes	mid grey	\	25	25	3	Oblique Arrowhead
3	Double side-end scraper	1	19	\	yes	Dark grey	thin white, slightly pitted	55	30	10	Elongate, rectangular secondary flake
3	Side-end scraper	1	19	\	yes	mid grey	thin, orange/grey	40	30	10	Approximately rectangular tertiary flake
3	End scraper	1	19	\	yes	Dark grey	thick, white, smooth	35	30	10	Oval primary flake (almost a thumbnail scraper)
3	Side Scraper	1	14	\	yes	Dark grey	thick, white, slightly pitted	45	30	10	Blade-like secondary flake
3	Side Scraper	1	26	\	yes	Dark grey	thick, white, slightly pitted	60	30	10	Blade-like tertiary flake
3	Side Scraper	1	9	\	yes	Dark grey	thick, white, slightly pitted	45	25	7	Blade-like primary flake
3	?Flake Blank	1	24	\	\	mid grey	thin, orange/grey	40	40	12	Tertiary flake (?to be a scraper)
3	Utilised Flakes	9	61	\	yes	Dark grey	thick, white, slightly pitted	20-30	15-30	5-7	Tertiary flakes (improvised scrapers)
3	Uncorticated Flakes	3	6	\	\	mid grey	\	\	\	\	small, blade-like
	<i>Total</i>	21	254								

**Appendix 4: Archaeological Specification**