CONTOURED FLINT DISTRIBUTION ANALYSIS

Coneybury Hill, Amesbury, Wiltshire

Discussion document

Report No.35736.1

Prepared for:

Sir William Halcrow & Partners
Burderop Park
SWINDON

Wiltshire County Council
Library and Museum Service
Bythesea Road
Trowbridge
BA14 8BS

The Trust for Wessex Archaeology is a Registered Charity, No. 287786.

Acknowledgements

Wessex Archaeology are grateful for the encouragement and assistance of Dr John Samuels of John Samuels Archaeological Consultants, and the County Archaeological Officer for Wiltshire, Mr Roy Canham, who also provided the digitised primary data collected by Wessex Archaeology during the Stonehenge Environs Project for English Heritage.

Primary data verification and transfer was carried out by Andrew Crockett, Quicksurf®contour analysis and CAD presentation was provided by Linda Coleman, assisted by Andrew Crockett. The work was carried out under the supervision of Michael Heaton (Project Manager) and Susan M. Davies (Project Monitor).

Introduction

Wessex Archaeology are currently undertaking archaeological impact surveys of proposed alternative upgrade routes for the A303 adjacent to Stonehenge on behalf of the Department of Transport. The work is being co-ordinated by Sir William Halcrow and Partners Consulting Engineers and John Samuels Archaeological Consultants. Wessex Archaeology were instructed by John Samuels Archaeological Consultants to assess, in conjunction with the County Archaeological Officer, the applicability of computer-based techniques that have been used for the presentation of surface artefact data collected by Wessex Archaeology on adjacent archaeological surveys.

Wessex Archaeology have recently employed 'surface trend analysis' for the presentation of data collected during various surface artefact collection (SAC) surveys conducted throughout Wessex. The technique rapidly constructs contours (or *isopleths*) from gridded X, Y, Z data points, enabling ready **visual** analysis of the raw data.

At the suggestion of the County Archaeological Officer, data collected for the Coneybury Hill area the during the Stonehenge Environs Project (Richards 1990) by Wessex Archaeology was chosen as test data. Although the exact position of the survey area is not important for the purposes of this assessment, the survey area is adjacent to one of the proposed route corridors and has already been analysed and presented using traditional methods (Richards *ibid*).

The fieldwalking data examined represents part of the material recovered during the Stonehenge Environs Project. The following analysis, therefore, is inherently limited by the range of attributes recorded and the manner in which the data was collected. The test data was collected from an area of approximately 27.250 hectares situated to the west of Luxenborough Plantation (Fig.1a-d). Material was collected from a gridded array of 218 linear Surface Artefact Collection (SAC) units, each 50m long, with search width of *c.* 2.5m, resulting in a total surface area examined of 27,250m^2. This represents a 10% sample of the total surface area of the survey.

This short report presents that data as processed on Wessex Archaeology's CAD facility, as a discussion document. The report itself does not draw any conclusions or make recommendations.

Methodology

The data file STONEHEN.dbf, as supplied by Wiltshire County Archaeological Officer in dBaseIV® format, was downloaded through dBaseIV® into the following space-delimited ASCII text data files containing the relevant X, Y and Z information (see below).

RC_FLT.dat	Eastings, Northings and total numbers of worked flint per SAC unit in column format.
RC_BFLT.dat	Eastings, Northings and total numbers of burnt worked flint per SAC unit in column format.
RC_TOOLS.dat	Eastings, Northings and total numbers of flint tools per SAC unit in column format.
RC_WASTE.dat	Eastings, Northings and total numbers of flint waste per SAC unit in column format.

These files were then processed through Quicksurf® to produce the contour plots presented in Figs 1a-d. The grid search method used was Inverse squares, as it enhances local patterning by a weighting factor with minimal lateral shift of the data set. Interpolation was based on the surrounding eight data units with an arbitrary grid size of 100 for the X-axis, and a computer generated automatic grid value for the Y-axis. Both the grid size and search radius chosen was designed to enhance the recognition of local patterning in the data set. Contour intervals were selected to illustrate patterning to the best effect, with every 4th contour indexed to facilitate peak recognition.

Results

All worked flint (Fig.1a)

The primary concentration of material is located within the north-west quadrant of the assessment area, represented by a major peak of 100+ pieces per SAC unit, and a minor peak to the east of 80+ pieces per SAC unit. Topographically, this concentration corresponds to the brow of a north-west facing slope. This slope forms the south-east side of a coombe running down into Stonehenge Bottom to the south-west. The remainder of the distribution appears to be a general overall scatter of material, with no apparent concentrations.

Burnt Worked Flint (Fig.1b)

Burnt flint data was not provided. Few pieces of burnt worked flint were recovered during the survey, making pattern recognition difficult. The major peak identified for the distribution of all worked flint (Fig.1a; see above) is paralleled by a small peak of 3+ pieces of burnt worked flint per SAC unit, with secondary peaks to the south-south-west and east-north-east. A further concentration is identifiable to the north of Coneybury Hill, which does not appear to bear a direct relationship to any of the remaining three distribution plots. The remainder of the distribution appears to be a general overall scatter of material, with no apparent concentrations.

All Flint Tools (Fig.1c)
As with burnt worked flint, few flint tools were recovered compared with the total worked flint artefact assemblage, making pattern recognition difficult. A small concentration of 8+ pieces per SAC unit is located in the area of the concentration for all worked flint (Fig.1a; see above), whilst similar sized concentrations are located to the south and south-west of this minor peak. The remainder of the distribution appears to be a general overall scatter of material, with no apparent concentrations.

All Flint Waste (Fig.1d)
As the total worked flint artefact assemblage consists almost entirely of waste flakes and cores, the resulting distribution for flint waste is virtually identical to that for all worked flint. This indicates a major and minor peak in the north-west corner of the evaluation, with 100+ and 80+ pieces respectively per SAC unit recovered. The remainder of the distribution appears to be a general overall scatter of material, with no apparent concentrations.

Summary
The four contour plots collectively indicate a concentration of both worked and burnt flint centred on SU 13200 41650. This concentration is located on high ground above a deep north-west - south-east aligned coombe, and at least 100m from the nearest existing or former field boundary. As a result the effects of both downslope movement and a tillage induced headland can to a large part be discounted. Insufficient data is present to draw any meaningful conclusions concerning possible differences between worked and burnt flint distribution patterns, in general the distributions appear complementary. The clearly definable north - south aligned ridges that are apparent on all of the contour plots are almost certainly a result of using 50m long SAC units 25m apart. This 'ridging' could have been minimised by reducing the SAC unit length to 25m or increasing the spacing to 50m.

To further enhance peak recognition, it would be useful to compare the contour maps with a distribution plan indicating the fieldwalkers involved. If correlation can be identified, and Individual A can be seen to have walked all the runs containing 80+ pieces of flint for instance, then a certain degree of caution would have to be taken in positively identifying these peaks as 'sites'.