

Mapping the Stonehenge World Heritage Site

DAVE BATCHELOR

Introduction

STONEHENGE AND SURROUNDING MONUMENTS are situated on the southern side of the undulating chalk plateau of Salisbury Plain (Fig. 1) about 13 km north of Salisbury and close to the small historic town of Amesbury, and the military garrison based at Larkhill. The plateau area is bounded by two river valleys running north-south, the larger of the two, the river Avon, to the east and the river Till to the west (Fig. 2). This central area is dissected by a number of relatively shallow dry river valleys, such as Stonehenge Bottom. There is extensive use of the land for arable production, although some of the area immediately surrounding The Avenue close to the stones has been returned to pasture relatively recently, with several plantations dotted throughout the landscape to provide shelter and screening. The northern part of the study area extends into the military occupied Salisbury Plain Training Area which is currently unimproved grassland. The area being studied is crossed from east to west by a trunk road, the A303, and several other major arterial roads bisect the area from north to south.

Stonehenge was inscribed by UNESCO onto the World Heritage List in November 1986, sharing the same designation, site C373, as Avebury. The Stonehenge World Heritage Site, an area in excess of 2,600 hectares, is presently defined by the river Avon in the east, the road known as the Packway to the north and in the west by the A360 and B3086 roads, and a series of field boundaries to the south. The siting of a visitor centre (currently there are some 700,000 paying visitors per year) has been a problem within this sensitive landscape.

It was the unfortunate dislocation of the focal point of this World Heritage Site, the actual monument itself, from the surrounding landscape, which was in use for 1.5 millennia, and has stood for a further 3.5 millennia, by the relatively recent modern development and the resultant intrusion of the current levels of traffic on the surrounding roads that led to recent, and well documented, debate about an alternative route for the A303.

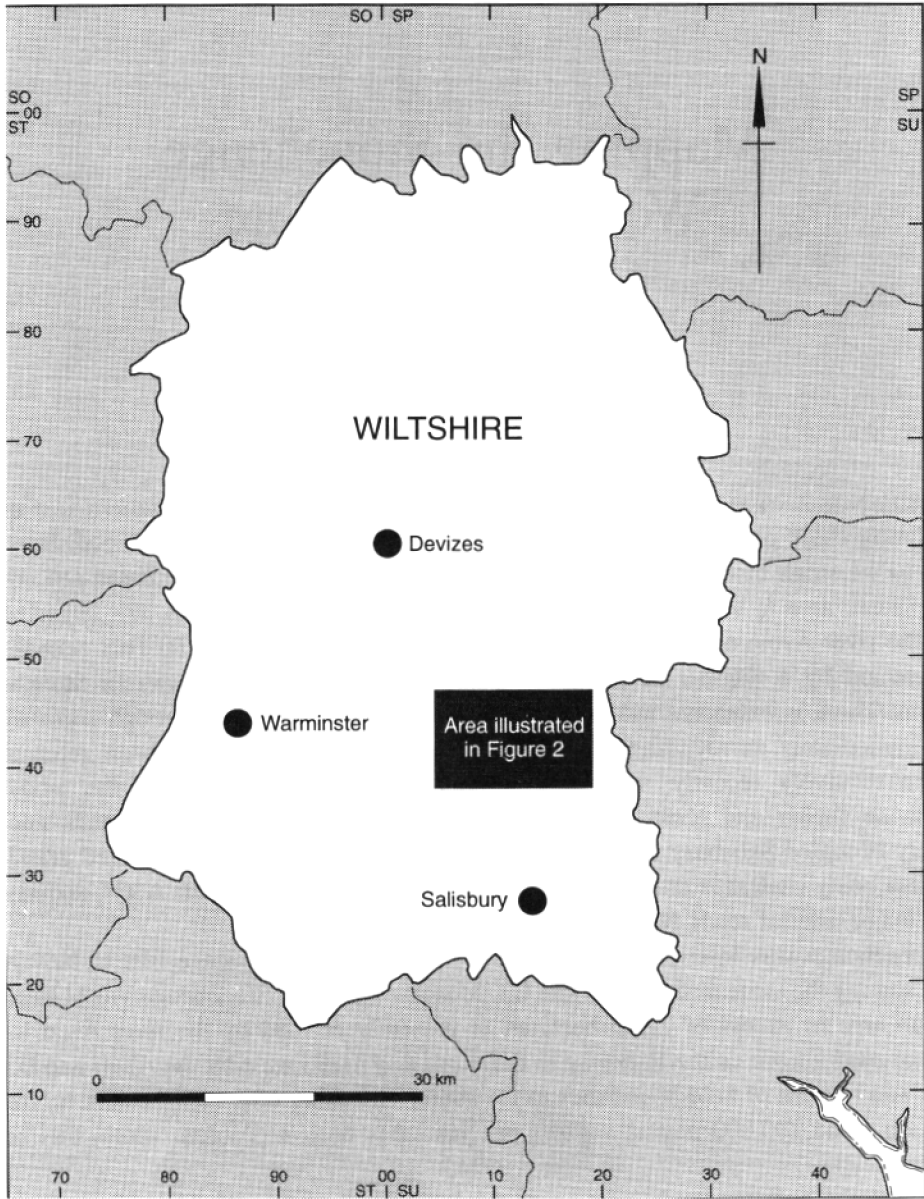


Figure 1. Location map.

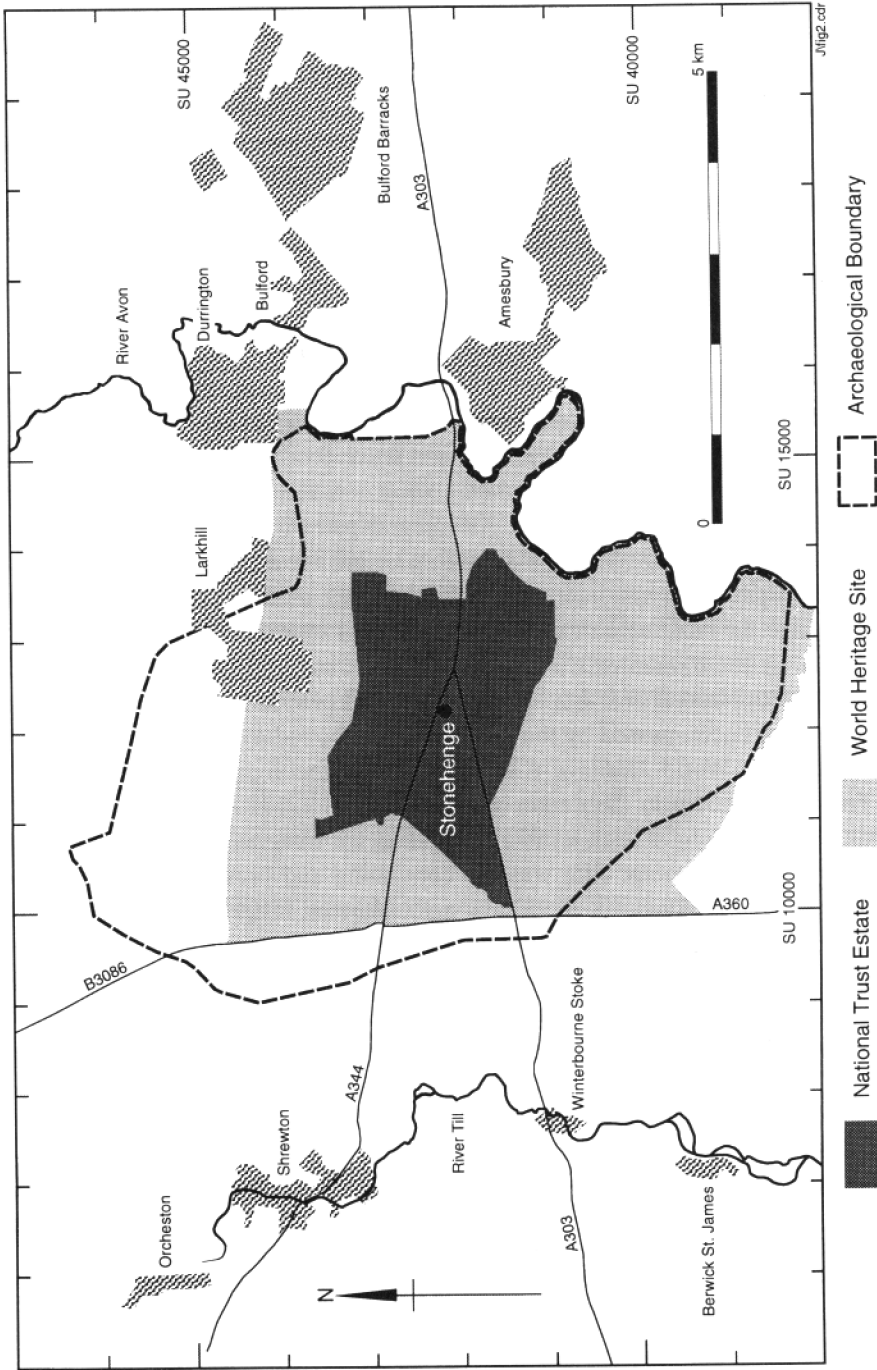


Figure 2. World Heritage Site boundary and National Trust Ownership map.

Background

Whilst preparing this paper the genesis of the project was revisited: a request from Dr Wainwright in early 1994 to undertake an assessment of the impact of a number of alternative road lines for an upgraded A303, to European Highway Standards, that had been put forward by the Highways Agency. This initial request came with the 'generous' timescale of two weeks; we did actually have to take slightly longer, but not that much (Blore *et al.* 1994). While the need to continue the assessment of the impact of the many alternative road schemes put forward has been a major part of the work of the project team, it was always seen that this formed only a component of what were to be the wider aims and objectives of the project as a whole. The core to these objectives has been the collation of a dataset which will be held in a Geographical Information System (GIS) which can then be interrogated, externally by others, to assist in the management, planning and researching of the landscape which surrounds Stonehenge.

English Heritage together with the National Trust, who hold significant amounts of land around the site, are currently jointly formulating new strategies for the future management and interpretation of the landscape. An integral part of this work involves the need to redefine the World Heritage Site boundary to take greater account of the totality of the landscape, and in particular the interrelationship of other monuments both to themselves and to Stonehenge. In fact the staff of the Monuments Protection Programme, when they came to reschedule the monuments in this area, drew a boundary that was determined on archaeological groups and differs from the current World Heritage boundary. As indicated in Figure 2 the area encompassed by the archaeological boundary is marked by the broken line and the current World Heritage Site is shown in the light grey shading with the National Trust land shown in the darker grey shading.

In addition to the longer term aims of producing an integrated management plan for the Stonehenge World Heritage Site was the continuing and pressing need to assess the impact of the Highways Agency's proposals, up to thirteen different options at one time, for a route to upgrade the A303 which currently passes through the World Heritage Site and, as shown, extremely close to the stones themselves. The closure and physical removal of the extant A303 and the smaller A344 is seen as being fundamental to the preservation of the site for the future and to remedy its current inadequate surroundings and presentation. This led to an extension of the study area to include areas to the east and west well beyond the World Heritage Site boundary, or indeed any that may be proposed, to encompass the starting points of various route options that have been tabled. The final area is some 135 sq km of which the World Heritage Site occupies just less than 20%.

Computing requirements

It is necessary at this point to give some background and explanation of the situation, with regard to the computer hardware and software used, which is currently one of transition and expansion. All of the databases and graphics were initially held on a high specification Pentium-based PC running a variety of commercially available packages to handle separately the text and graphics, including Dbase, AutoCAD and CAD Overlay. Ordnance Survey map data were purchased in the format of 12 scanned Rasta images at 400dpi from 5×5 km 1:10,000 scale maps, or 'tiles'. It was necessary to write 'in house' programs to interface the vector data from one source with the OS-sourced Rasta map images. Similarly the programming necessary to apportion values and scores to the surface-collected flint and scored archaeology maps was written specifically for the project. All of the maps were output using an A0 300dpi colour inkjet plotter.

The project team are currently upgrading and converting the datasets such that they will then be run on a full GIS package running the software package ArcInfo on a Sun Sparc 5 computer. This will effect a major change and allow the creation of a dynamic link between the textual data and the mapped outputs. This will incorporate additional data and be able to explore more fully the integration of these data and develop the core of a management system for the whole of the World Heritage Site, which we hope may be developed as a model for other landscape-based World Heritage Sites, such as Hadrian's Wall. It is fair to say that we have yet to explore fully the additional potential that this platform will allow; the efforts to date have been directed at replicating the high quality output of the earlier system.

Project objectives

Once the initial road impact assessment was successfully completed it was possible to reorientate the project and this led to the larger project based upon the study of 135 sq km centred on the site of Stonehenge.

The objectives of the wider project were

- to compile a database of the known archaeological sites, now known to number 1,490
- to digitise the information to produce a graphical database of the records
- to gather information on: the totals of worked flint recovered from surface collection, all evaluation work undertaken, and areas of grassland that had not been cultivated for the past twenty years
- to devise a method of judging and 'scoring' the recorded archaeological data resulting in a map showing the data zoned into areas of high, medium and low archaeological sensitivity and importance.

All of these objectives were to be met by the examination and use of existing

information and no primary data-gathering work was to be undertaken, although this has not been ruled out for the future. It was decided that the basic scale for the mapped output would be 1:10,000, although the data are structured to allow for the use of other scales, most commonly 1:25,000 which fits neatly onto an A1 sheet, whilst remaining a commonly used scale.

The database

The information that was held on the Wiltshire County Sites and Monuments Record (SMR) was the primary source for achieving the first two objectives. The SMR is held on two separate but related databases held on computer; every text record that is held on one database has a corresponding digitised graphics record on the other. In total some 1,490 SMR entries fell within the study area and as part of the project each one of these was checked and updated where necessary. The entries range from single findspots up to the large ceremonial monuments in the area and the evidence of extensive field systems. The graphics record held by Wiltshire County Council is based on the transcription of aerial photographs, the core of which is the Royal Commission on the Historical Monuments of England's enhanced Aerial Photographic survey. It is seen, at present, as important that the project is utilising publicly available data on commercially available software to ensure maximum transferability to other geographic areas and computer platforms.

This core aerial photographic information has then been enhanced by the addition of data arising out of topographical, geophysical and excavation work, and further interpretation of aerial photographic surveys. All of these data are undergoing translation into the relevant format, point, line or area, for incorporation into the GIS dataset, which is causing a re-evaluation of the terminology used to categorise the individual monuments.

The data for the surface-collected worked flint were primarily sourced from the work undertaken for the Stonehenge Environs Project (Richards 1990). This data source was further enhanced by later field walking, in the main carried out by Wessex Archaeology, arising out of the evaluation of proposed road routes and locations for the siting of a new visitor centre for the monument, as may be inferred from distribution of the areas involved. A database was assembled of all occurrences of evaluation work, including surface collection, geophysical, auger and test pit data, in total some one hundred and seventeen individual occurrences. Excavation data were left out because of the small-scale nature of the majority of the work and the difficulties of presenting these data even at the scale of 1:10,000, although this issue will have to be addressed again during the development of the GIS.

All of this information was then translated into a sequence of four individual maps which show:

- a digitised database of the recorded archaeological sites (Plan 1)—the map shows

all of the 1,490 recorded archaeological sites together with an indication of their status, i.e. scheduled or not; this is backed up by the respective entries in the textual database

- the distribution of worked flint recovered from surface collection (Plan 2)—the density of flint recovered is shown by a tripartite division into high (Red), medium (Orange) and low (Yellow) and is expressed by 50 × 50 m quadrats. These ranges translate into above 35 items, 13–35 items and 1–12 items per quadrat respectively

- the range and physical extent of evaluation work that has been carried out (Plan 3)—the colours on the map indicate surface collection in green, geophysical survey in red, test pit evaluation in yellow and auger transects in blue. The differing components are accompanied by an individual database entry and may be expressed by type as this example shows

- areas of uncultivated grassland (Plan 4)—this has been included to give an indication as to why areas appear to be lacking in archaeological information, and could be regarded as a statement of ‘archaeological potential’.

The final objective of the project was to represent visually the archaeological ‘value’ or ‘worth’ of the landscape by a combination of the different datasets to produce a map on which there was a notional score or value for the known archaeological resource. It is a representation of the known archaeological resource and is in no way predictive. We thought for a considerable period about the reasons for producing such a map, being very aware that it could be perceived in a manner which was not meant; however we felt that in the end the advantages outweighed the disadvantages, a view that has been substantiated since the publication of the map.

To fulfil the final objective it was necessary to combine the two major sources of data available to the project, the first being the recorded archaeology databases and the second being the database arising from the extensive surface collection that has been undertaken over a number of years. The problem with having the two sources was to find a methodology that could combine the differing databases and especially to produce a meaningful graphical representation of the results.

As the basis for the scoring the whole of the study area was divided up into 50 m square quadrats, some 54,000 individual quadrats in total for the study area. Then the tripartite division of high, medium or low was apportioned to the individual quadrat by means of a computer program. The first attempted combination of the data was too simplistic and gave potentially erroneous results when plotted. When analysed the problems lay within the division of the differing datasets into high, medium or low categories and the method by which this score was combined for the individual quadrat.

The basis of the scores for the recorded archaeology dataset was a selection of the criteria to which values had been attributed during the Monuments Protection Programme rescheduling exercise. A re-evaluation of these selected MPP values showed that there was a potential combination of 21 scoring opportunities up to the maximum value of 45, and that these opportunities are not equally spread throughout the range 1–45. Thus the division into high, medium or low scores was adjusted to represent the first seven scored

opportunities and then the second seven and finally the third. All Scheduled Ancient Monuments were given a factor whereby they automatically were apportioned a maximum value, a reflection of the importance of such monuments in this landscape. For example there are in excess of 400 individually Scheduled Ancient Monuments in the World Heritage Site which have been grouped into some 90 clusters, mainly Bronze Age barrow groups such as those along the spine of Normanton Down to the south of Stonehenge.

A similar exercise to refine the division of the flint scores across the high, medium and low categories was undertaken; I have already given the values that we finalised upon earlier in the paper.

Discussions were held with colleagues and other organisations working within the landscape around Stonehenge and a more refined method of combining the scores was set upon. The two different values are combined in a computer program by using a matrix of 16 cells (Fig. 3) in which all of the cells were given a high, medium or low value and this was then apportioned to the individual quadrat and represented on the map by the different colours. This method has the benefit that it allows the individual quadrat score to reflect more accurately the 'value' of the known archaeology in question. Within this matrix it will be noted that it expresses a 'prejudice' in favour of the archaeological scores over the flint material, and the author takes responsibility for doing so!

It is in the production of this map (Plan 5) and the visual representation of the archaeological scores that I believe ground-breaking work has been undertaken by the team. This map has had other data, such as proposals for road routes, overlaid on it and when used in this way it has proved to be remarkably effective in communicating to non-

S I T E S C O R E	High	Red	Red	Red	Red
	Medium	Orange	Orange	Red	Red
	Low	Yellow	Yellow	Orange	Orange
	None	-	Yellow	Yellow	Orange
		None	Low	Medium	High
	FLINT SCORE				

Figure 3. Scoring matrix.

archaeologists the amount of archaeology in the landscape and therefore the sensitivity of this area (Blore *et al.* 1995, fig. 5).

Up until this point the work of the project had not encompassed elements relating to the 'setting' of the monument or of the wider landscape value as a whole, choosing to concentrate on the individual aspects of direct impact by development schemes. However, once we had come to terms with what monuments are in the landscape and where they are, it was necessary to remedy this by undertaking an analysis of the landscape, with especial reference to the intervisibility between Stonehenge, and surrounding monuments within the study area.

You have only to walk in the landscape to realise that there is a strong visual linking of views, both to and from Stonehenge, and also to and from other monuments, this leading to the description of the topography as the 'Stonehenge Bowl'. It is with this work that the project team came to link and interface directly with Land Use Consultants (Land Use Consultants 1995) who were employed to initiate the development of a basis for a management plan for the World Heritage Site, and this was to encompass the geographical, human and landscape perspectives of defining and then managing the area.

To carry out the computer-based visibility analysis it is first necessary to generate a surface terrain model; initially this was done by a ground modelling program but latterly as one of the functions of the GIS. Using digital contour information supplied by the Ordnance Survey a computer-generated surface terrain model was created of the Stonehenge Study area. Plan 6 uses the model as a background and it is relatively coarse in that the available contour height data are at 5 m vertical height intervals, and in the subtle landscape we are dealing with here it is possible to lose some fairly large and important monuments within that height interval.

The availability of refined contour height data from the detailed photogrammetric plotting of recent aerial photography currently ongoing for the terrain model being developed for the virtual reality project has now demonstrated the degree to which this model could be refined by better contour height data. This Virtual Reality model currently covers only the area immediately around Stonehenge; however it is at a resolution that will allow contour height intervals of less than one metre. These data will be added to and merged with the model in the GIS to allow the generation of more refined analysis in future, and hopefully be able to take into account the actual height of the monuments themselves.

To digress from the visibility aspects for one moment, the topographic model generated can be presented in a number of different ways. Plan 6 has a background with a light source in the north-west casting shadows to the south and east with the resultant model viewed from a position perpendicular to the study area. All of these aspects may be varied in relation to one another. In addition to this any of the aforementioned map data generated by the project may be overlain, such as this example using the recorded archaeology data, to demonstrate other ways of presenting the data. We are investigating scanning of recent aerial photographic coverage of the area and then draping this over

the model, or even including high resolution Russian satellite digital images, although these may encounter problems due to the capabilities of the machine being used and the large size of the resultant files.

To return to the visibility analysis, in addition to the site of Stonehenge, twelve surrounding archaeological sites within the study area were chosen, on the basis of their archaeological and landscape significance, to undergo a visibility analysis (Table 1).

The position of the individual grid reference point used was either the centre of the monument, or in the case of the barrow groups was to be the centre of the group. It is also assumed that the view is seen from a height of 2 m, although this can be varied. The areas of ground that are visible from these points are then expressed, by colour, in the same 50 × 50 m quadrats that have been used elsewhere within the project. As you will have noted the model currently does not take into account obstacles such as trees or buildings which would interrupt the view although this may be remedied in future developments of the digital terrain model.

The computer program is able to plot the topographical areas, in GIS terms a 'viewshed' analysis, that would be visible from each archaeological site. It was necessary to check these data by visiting the individual sites as it proved that we could, because of the relatively coarse contour data being used in the computer analysis, apparently lose, for example, the prominent barrows on Kings Barrow Ridge; this obviously necessitated some manual enhancement. This example of a viewshed, from Robin Hood's Ball (Plan 7), gives a representation of the frequently referred to 'Stonehenge Bowl', and also the strong influence that the river valleys of the Till and Avon play on this landscape.

Table 1. Locations of sites for intervisibility analysis

Site Name	OS Grid Reference
Bush Barrow	411655, 141300
Coneybury Hill	413450, 141390
Cursus Barrow Ridge	411850, 142800
Durrington Barrow Group	412800, 145198
Lake Barrow Group	410830, 140200
New Kings Barrow Group	413433, 142250
Old Kings Barrow Group	413700, 142950
Robin Hood's Ball	410200, 145900
Rollestone Camp Tumuli	409300, 144200
Stonehenge	412220, 142220
Vespasian's Camp	414600, 141620
Winterbourne Stoke Group	410200, 141750
Woodhenge	415050, 143350

Once we had generated the 13 individual viewshed analyses, these data were then combined into a 'composite' plot which represents the visual envelope for the study area. The colour used is an indication of the degrees of visibility and is divided into six class intervals (Plan 8). This scale is arrived at by counting the number of times the usual 50 × 50 m quadrat is visible from any of the chosen sites and then combined by grouping as shown. This indicates that the 'Stonehenge Bowl' would appear to be not one single entity but more of a series of nesting bowls set into the chalk plateau which then falls away into the river valleys to the east and west respectively.

This analysis demonstrates not only the very strong visual relationship between these primary archaeological sites with Stonehenge, but perhaps more importantly with each other. This analysis, whilst it undoubtedly reflects the interrelationship of the monuments to one another, is when combined with the recorded archaeological data, indicative of the concentration of the major prehistoric sites on ridge lines, and highlights the focal position of Stonehenge itself within this landscape.

In addition, this analysis allows for the superimposition of the other data generated by the project and therefore, for instance, an assessment to be made of how visible a proposed road route would be within the overall landscape (Plan 9).

It is apparent from this analysis that whilst confirming on-site observation of the prominent siting of barrow groups in particular in the landscape, there are ridge lines that are apparently equally as important visually which have no monuments on them, as those on which the prehistoric sites are concentrated. Comparison of these data with the 'scored archaeology' data gives an indication that visually prominent areas, such as the ridge which continues south of the A303 from New Kings Barrows towards Coneybury Henge, are areas which have a high surface-collected flint score, albeit the available data are far from being comprehensive. This, and it is no more than a personal working hypothesis, may be indicative of the areas within the landscape favoured for settled habitation during the long period within which the monument itself was curated and developed. This is suggested as a research theme which should be investigated in any further research that may be instigated within this landscape. It may actually give an indication where the peoples who built, modified and used Stonehenge and its surrounding monuments lived, a frequent question posed by visitors to the monument, to which at present there is no substantive answer and one which would undoubtedly assist the life of the site custodians.

Further enhancement of this composite visibility analysis will play a major part in the revision of any boundary for the Stonehenge World Heritage Site. This boundary revision which is seen as fundamental to the development of a management plan will have to encompass a number of differing factors or disciplines, including archaeology, that will be acceptable to all of the various parties who hold a stake in this particular landscape.

Conclusions

To conclude, although emphasis has been put upon the management aspects to which this project contributes, and the topical references to the issues relating to the roads have been kept at a minimum, it must not be forgotten that the creation and dissemination of this resource has a tremendous research potential. Indeed, and it has perhaps been lost in the current politicised climate, that to get this far with the project has in itself been a major research project. This project and the recently published monograph on the Twentieth Century Excavations at Stonehenge (Cleal *et al.* 1995) will, no doubt, combine to rekindle archaeological interest in both the monument itself and perhaps more importantly the surrounding landscape in which it sits. It is my personal wish, and I hope that this is reflected in English Heritage's expressed wish, that archaeological research will form a fundamental element of the management plan for the World Heritage Site and it is more than credible that this project will be a major contributor to this research.

Acknowledgements

It is a pleasure to thank the work of the Central Archaeology Service staff who have contributed to the project, especially Frances Blore, Miles Hitchen and Nick Burton who have shouldered most of the work to date. Without the contribution to the project made by Roy Canham and the staff at Wiltshire County Museum and Library Service it would not have developed so far in the timescale it has. The project as a whole has benefited from the advice of an English Heritage working party and the many and varied discussions with fellow professionals who have interests in the landscape of Stonehenge.

References

- BLORE, F.A., HITCHEN, M. and VALLENDER, J. 1994: *Archaeological Assessment of the Stonehenge World Heritage Site and its Surrounding Landscape* (London, Central Archaeology Service, English Heritage) (circulated typescript report).
- BLORE, F.A. and HITCHEN, M. 1995: *An Assessment of the Impact of the Alternative Routes of the A303 Amesbury to Bewick Down Improvement on the Recorded Archaeological Resource* (London, Central Archaeology Service, English Heritage) (circulated typescript report).
- CLEAL, R.M.J., WALKER, K.E. and MONTAGUE, R. 1995: *Stonehenge in its Landscape: Twentieth Century Excavations* (London, Engl. Heritage Archaeol. Rep. 10).
- LAND USE CONSULTANTS 1995: *Stonehenge World Heritage Site, Landscape and Planning Study* (London) (circulated typescript report).
- RICHARDS, J. 1990: *The Stonehenge Environs Project* (London, Hist. Build. Monuments Comm. Archaeol. Rep. 16).

ALEX BAYLISS, CHRISTOPHER BRONK RAMSEY and F. GERRY McCORMAC

Dating Stonehenge

As part of the recent research programme on the twentieth-century excavations at Stonehenge (Cleal *et al.* 1995), a series of nearly fifty new radiocarbon determinations was commissioned. A chronological model of the site has been developed which combines the evidence of the radiocarbon measurements with the stratigraphic sequences recovered during excavation. This has enabled much more precise estimates of dates of archaeological interest to be calculated.

A number of points of archaeological and scientific interest have been raised by this programme of work; in particular the importance and complexities of archaeological taphonomy are seen as crucial. Some of the choices which were encountered when building the model are also discussed. Above all this work is seen as both analytical and interpretative, and will inevitably be modified as more data become available, different questions are asked, and different interpretative frameworks adopted.

DAVE BATCHELOR

Mapping the Stonehenge World Heritage Site

This paper describes the work of the Central Archaeology Service in creating an integrated and dynamic database that encompasses geographic and textual data from a number of disparate sources. It will concentrate on the physical and cultural landscape that surrounds Stonehenge rather than the monument itself.

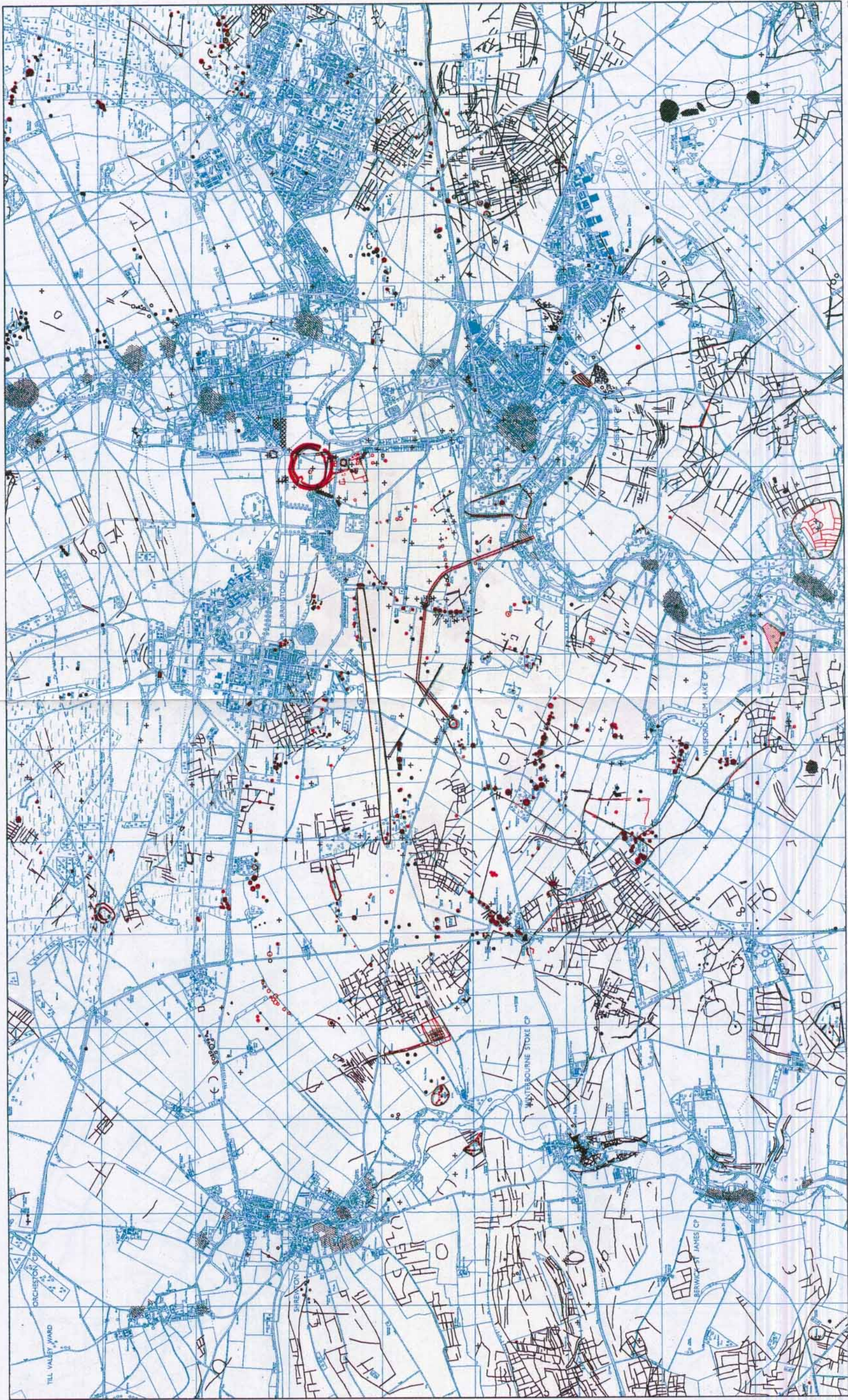
A. DAVID and A. PAYNE

Geophysical surveys within the Stonehenge landscape: a review of past endeavour and future potential

The techniques of archaeological geophysics now have a very widespread currency in British archaeology. Those most commonly in use, magnetometry and resistivity surveying, can be particularly effective for the mapping of the buried outlines of domestic, industrial and funerary sites from later prehistory until the present day. Given the pre-eminent reputation of Stonehenge and its surroundings it is perhaps surprising that such techniques have not been used more exhaustively to explore the area for hidden detail. However, in recent years, fuelled both by research initiatives and the modern pressures now affecting this World Heritage Site, geophysical survey has indeed been applied with increasing determination. This paper provides an overview of this recent work, both at Stonehenge itself and at neighbouring sites, and will confront both its present limitations as well as its future potential.

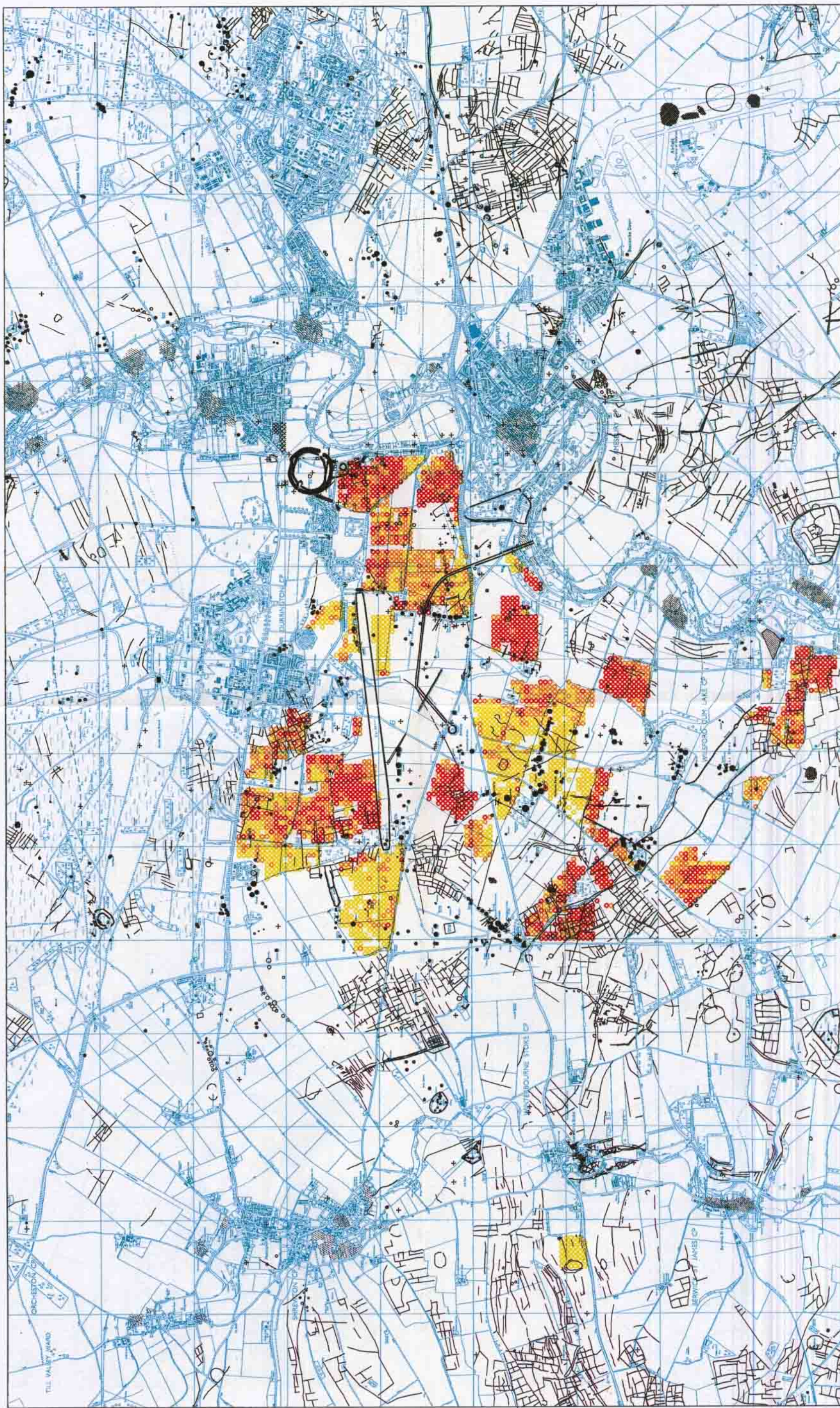
PLAN 1

RECORDED ARCHAEOLOGY



-  Scheduled Ancient Monuments
 -  Burial mounds
 -  Ring ditches
 -  Ploughed round barrows
 -  Findsspots
 -  Prehistoric/Roman settlement
 -  Medieval settlement
 -  Aerial photograph transcriptions
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WORKED FLINT FROM FIELD SURFACE COLLECTION



20

15

10

05000



Worked flint
high density

Worked flint
medium density

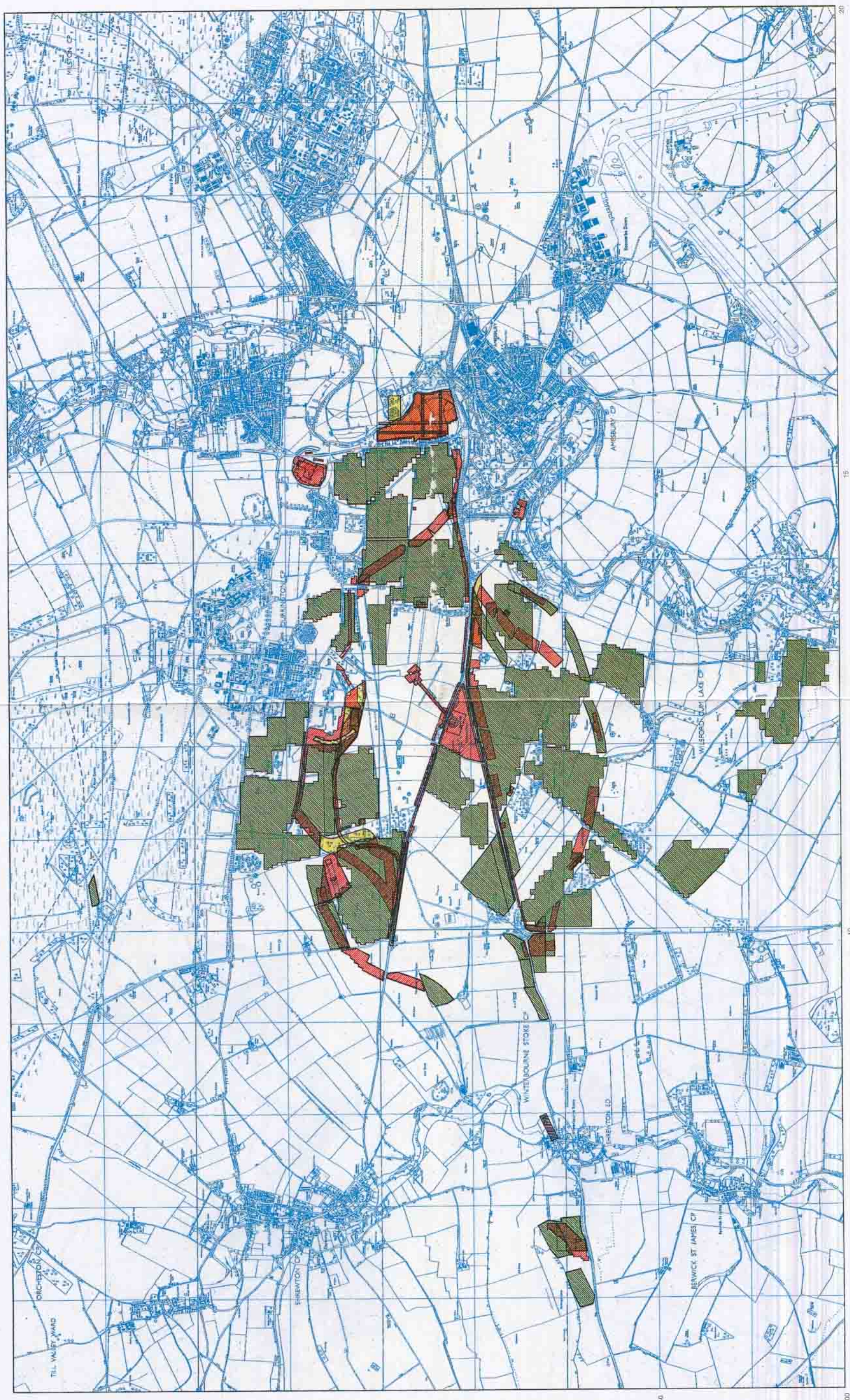
Worked flint
low density

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PLAN 3

SURVEY AND EVALUATION AREAS



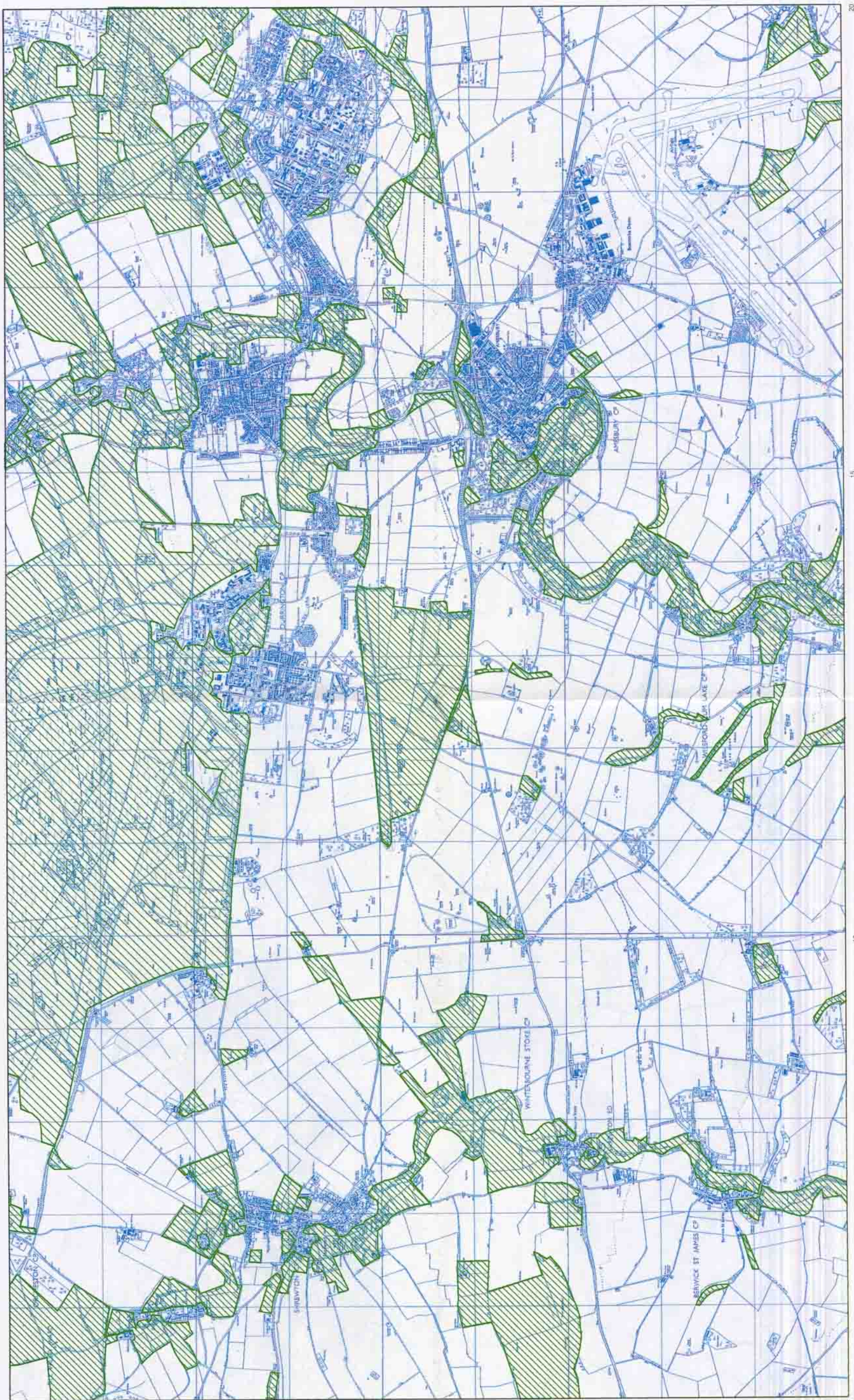
45
40
36000
10
15
20

Field surface collection
Geophysical
Test pits
Auger

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PLAN 4

UNCULTIVATED GRASSLAND AREAS



138,000 138,000 138,000

45 40 10 15 20

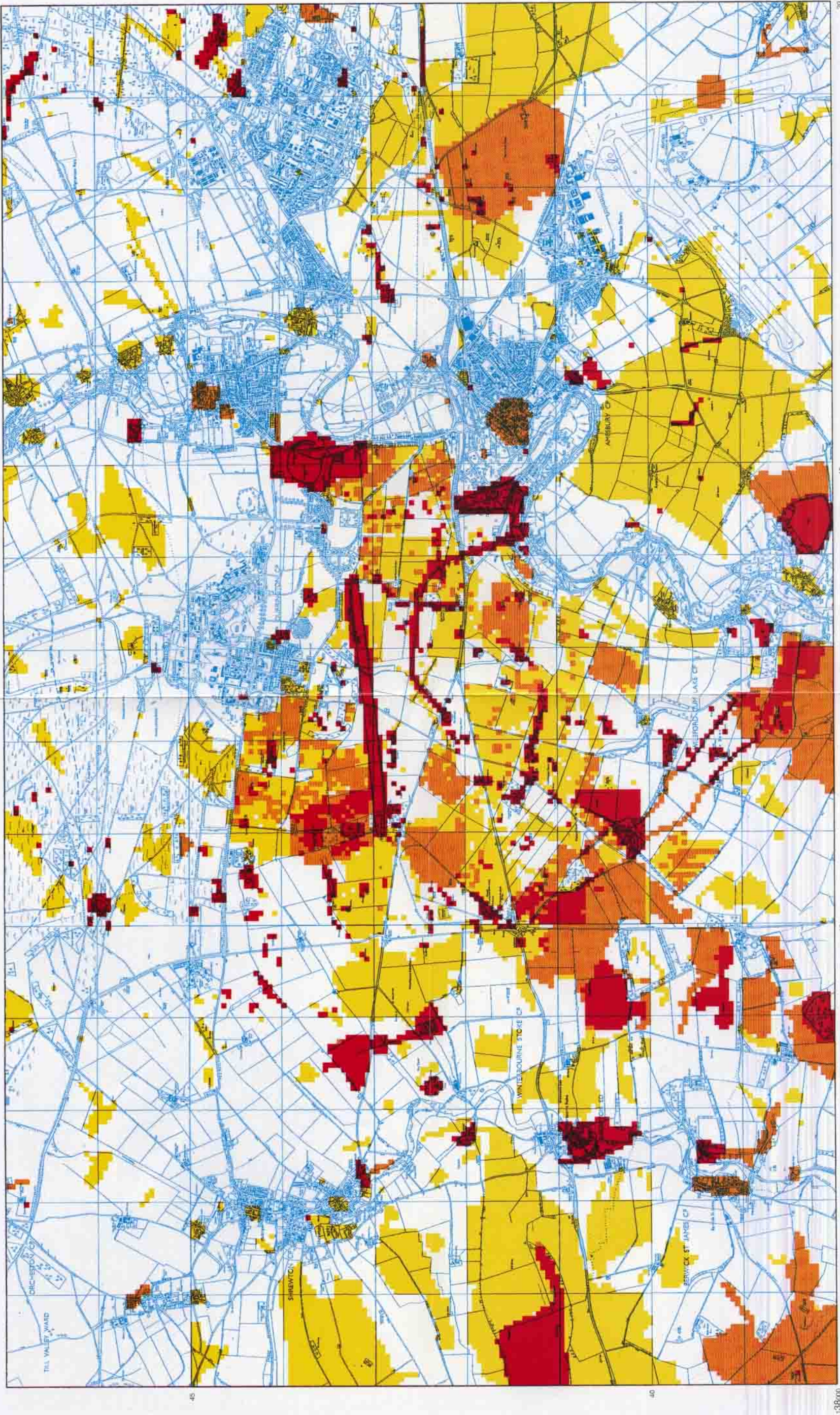
0 50 100 150m

Land not cultivated for at least the past twenty years

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SCORED ARCHAEOLOGY



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PLAN 6

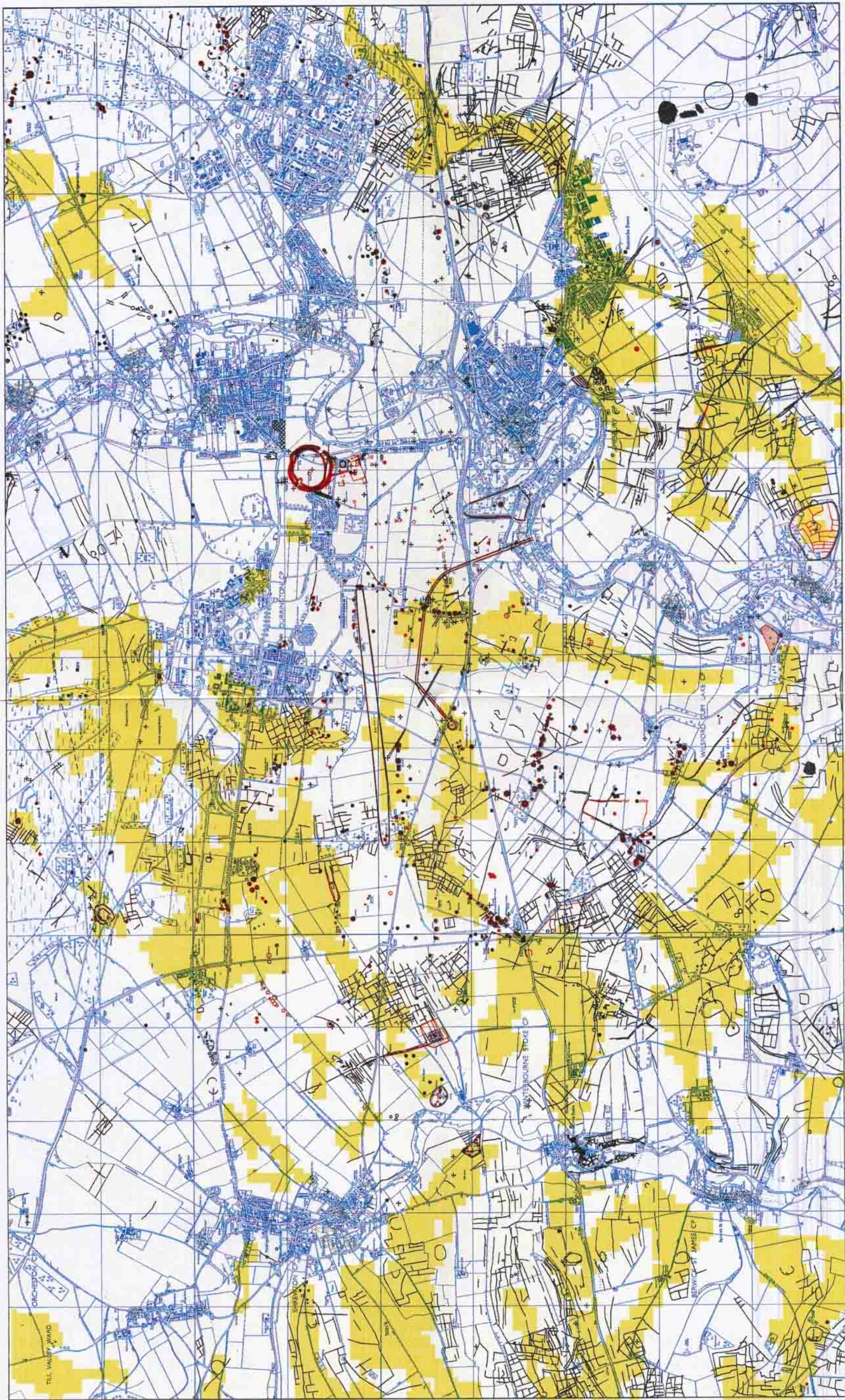
DIGITAL TERRAIN MODEL WITH RECORDED ARCHAEOLOGY



- Scheduled Ancient Monuments
- Burial mounds
- Ring ditches
- Ploughed round barrows
- Finds spots
- Prehistoric/Roman settlement
- Medieval settlement
- Aerial photograph transcriptions

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VIEWSHED FROM ROBIN HOODS BALL

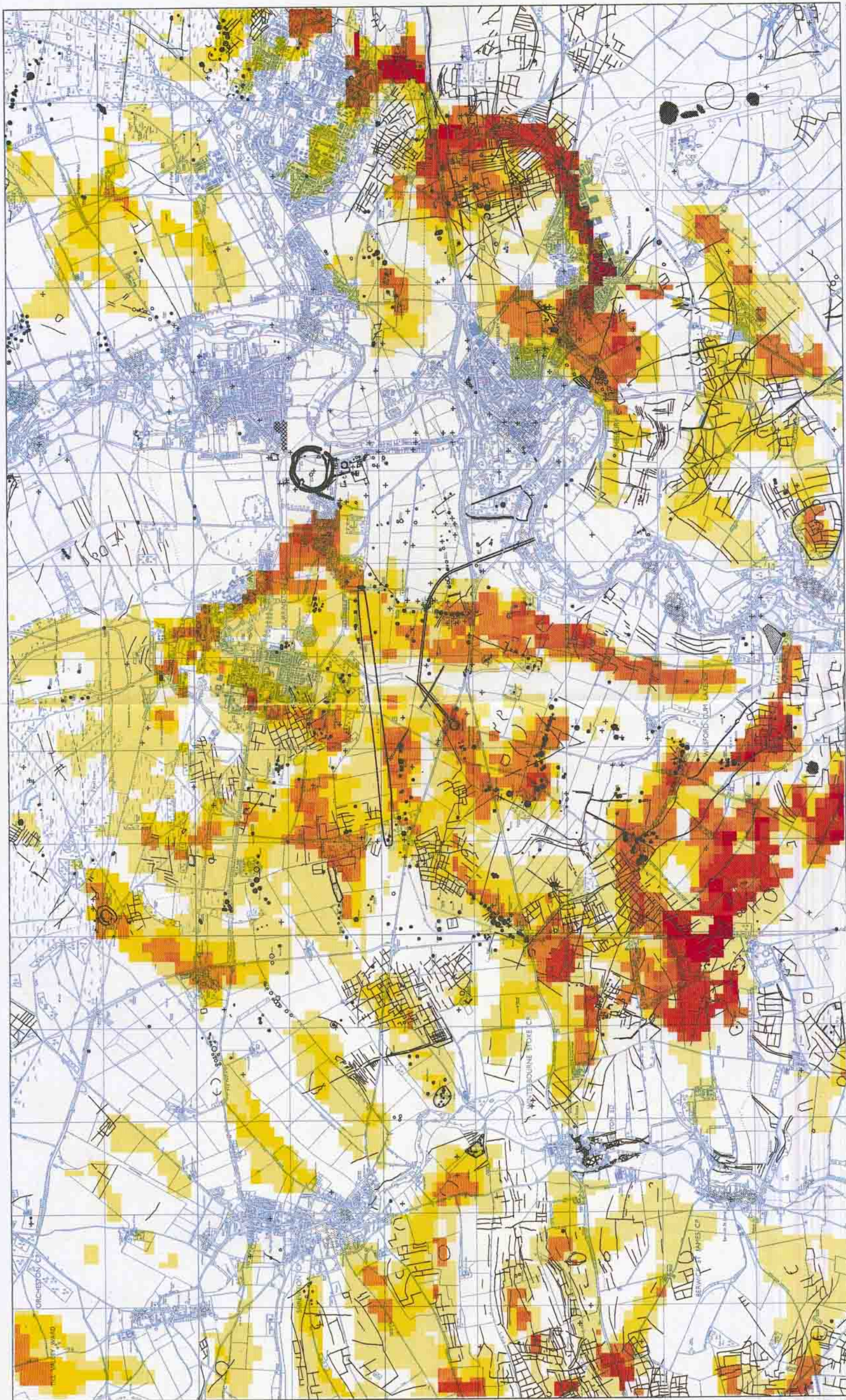


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- Scheduled Ancient Monuments
- Burial mounds
- Ring ditches
- Ploughed round barrows
- Findspots

- Prehistoric/Roman settlement
- Medieval settlement
- Aerial photograph transcriptions
- Areas visible from Robin Hood's Ball (410200, 145900) at a height of 2m

COMPOSITE VIEWSHED ANALYSIS

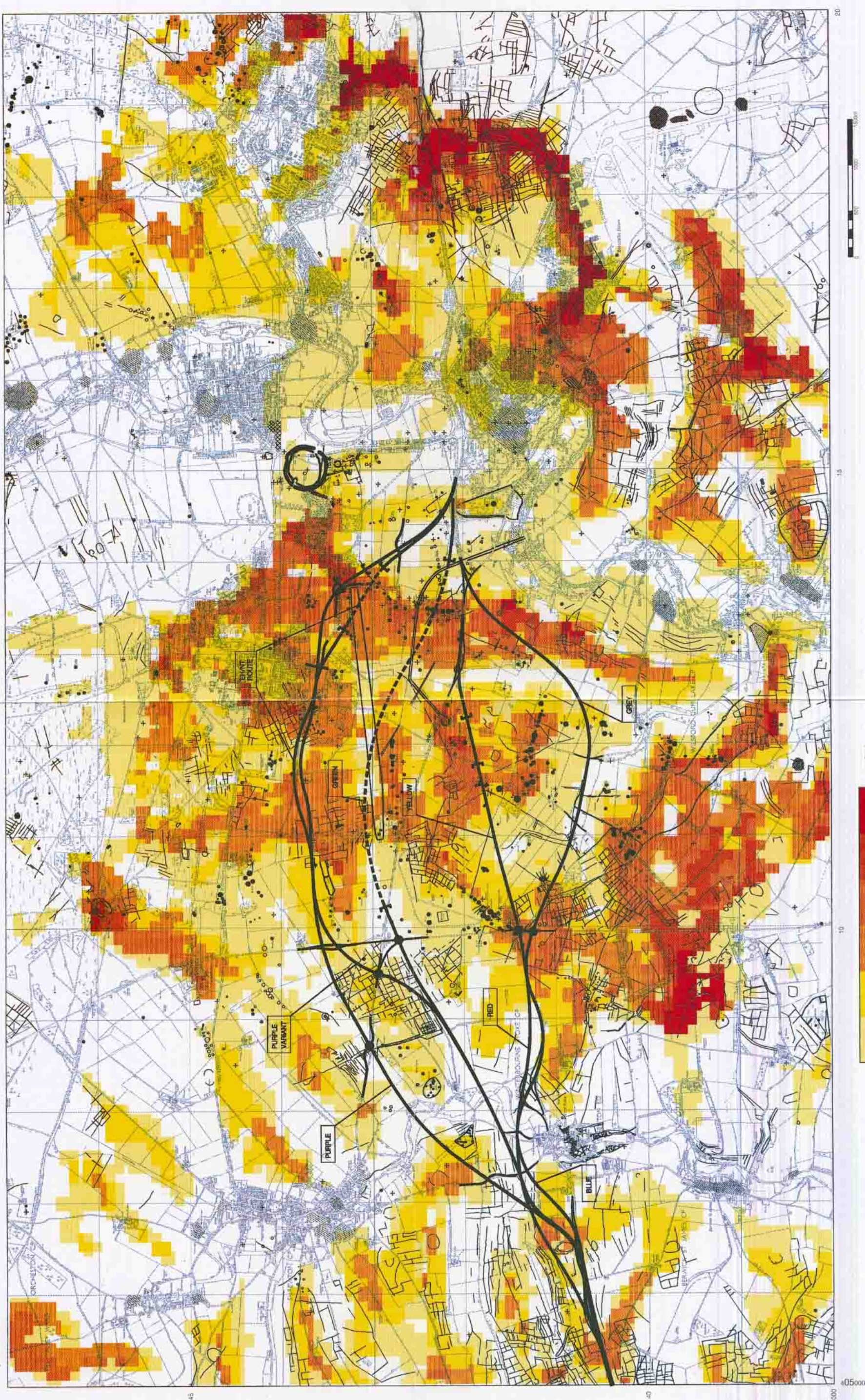


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COMPOSITE VISIBILITY ANALYSIS

PLAN 9



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