

## 4 - Historical and Cultural – Archaeological Assessment



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- Chapter 1 – Desk-based archaeological assessment
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## 4 - Historical and Cultural – Archaeological Assessment

## **4.1 Introduction**

Archaeology, in particular the protection of buried archaeological remains has been raised throughout the consultation process as being significant in terms of potential impact of tree planting of the scale proposed through the Heartwood Forest project. Being close to St Albans, an area with a rich history of occupation back to the Iron age, St Albans then being known as Verlamion, and was followed by roman occupation becoming the second largest roman town in Britain known as Verulamium. St Albans and the surrounding area supported significant medieval and modern occupation and hence as a district, has significant archaeological potential for investigation.

To investigate the archaeological potential of the site, the Woodland Trust has worked closely with both Hertfordshire County Council's archaeologist and St Albans City and District Councils archaeologist and contracted David Hillelson BA, MIFA, director of The Heritage Network Ltd (*Registered with the Institute for Archaeologists as an Archaeological Organisation*) to develop a methodology for investigation, to present the findings, develop a modelling based approach and to develop mitigation strategies.

## **4.2 Methodology and rationale for investigations**

### ***Introduction***

The assessment of Cultural Heritage assets for the present project has broadly followed the provisions set out in Appendix 10 of *Preparing Environmental Statements for Planning Projects That Require Environmental Assessment* (HMSO 1995). This defines the three main components of *Cultural Heritage* as below-ground archaeology, historic buildings and historic landscapes.

The assessment has been based on a series of baseline surveys which have provided cumulative data leading to the design of a model of the archaeological potential of the study area, a prediction of the impacts of the proposed woodland planting scheme, and a strategy for the mitigation of the predicted impacts. The baseline surveys have included the following elements:

- Desk-based research (Volume 2, Part 1)
- Auger survey (Volume 2, Part 2)
- Magnetic susceptibility survey (Volume 2, Part 3)
- Trial trenching (Volume 2, Part 4)

### ***Desk-Based Research***

The aim of the desk-based research was to provide:

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- a comprehensive overview of the history of land use on and in the vicinity of the study area from readily accessible sources;
- an assessment by period of the risk that development of the study area would encounter above or below ground archaeological remains (including standing buildings) which could affect the design, layout or timetable of any such development;
- an assessment of the significance of such remains in relation to established regional research criteria,
- recommendations for field studies and trial excavations to characterise any identified archaeological risks, leading to the compilation of an appropriate mitigation strategy.

### **Field Survey Strategy**

On the basis of the desk-based research, a programme of further archaeological works was proposed, comprising both non-invasive and invasive surveys, in order to characterise or dismiss the suggested risks. Methods considered included:

- interpretation of existing LiDAR data and commissioning of a site-specific LiDAR survey;
- field-walking surveys across all areas which have been subject to recent cultivation in order to map the incidence of artefactual evidence by period and identify concentrations which might be indicative of settlement activity;
- geophysical surveys, using a combination of magnetic susceptibility scanning and high resolution magnetometry;
- earthwork surveys to define the extent and character of boundary and other features;
- tree and hedgerow surveys to date woodland and boundary features,
- trial trenching to characterise the type, date and state of survival of potential archaeological features, focused on areas confirmed as high risk following the programme of non-invasive survey.

The proposals were considered in consultation with the *Historic Environment Countryside Adviser* (HECA) of Hertfordshire County Council and the *St Albans District Archaeologist* (SADA), both consultees of the Forestry Commission as lead curatorial authority for the present project. It was established that that there was no existing LiDAR data covering the study area, despite earlier indications to the contrary. The technique was agreed to be of low value on areas subject to long-term ploughing and, as the present development proposals do not involve changes to the areas of existing woodland, the commissioning of a site-specific LiDAR survey was not considered to be necessary. On the same basis, and on the basis that no changes are proposed to existing hedgerows, the commissioning of earthwork surveys and tree/hedgerow surveys was not considered to be necessary.

Effective results from field-walking (or surface-collection surveys) are dependent on cultivated areas having been subject to normal ploughing, which inverts the soil and brings buried archaeological artefacts and other material evidence of human activity to the surface. It was

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confirmed that all the areas currently under cultivation had been subject to a regime of minimum tillage leading to extant surface archaeological materials becoming abraded and subject to travel away from their original point of deposition. Consequently, it was agreed that the results of any field-walking surveys would present a distorted image that was of reduced statistical value.

Without the benefit of the results of a field-walking survey, magnetic susceptibility sampling was accepted as a cost-effective method for investigating a large area and locating anomalies which might be of archaeological origin. In order to guide the geophysical survey away from areas which might have been masked by significant colluvial deposits at the bottom of slopes, which might be expected to provide additional protection to any buried archaeological remains, an auger survey was carried out in order to establish a series of soil profiles across the study area.

The results of the magnetic susceptibility sampling and of the auger survey were considered in tandem with the data collated in the desk-based research and with Historic Landscape Characterisation data held by Hertfordshire County Council and not available previously, in order to create a map of the study area defining areas of High, Medium and Low risk for the presence of buried archaeological remains or surface features which could affect the design, layout or timetable of the proposed development. This led to the proposal of a focused evaluation strategy intended to characterise the nature of the recorded anomalies and to investigate the possibility that potential features in apparently low risk areas might have been masked by unrecognised factors. The strategy combined the use of trial trenching on a sample area using a gridded layout of 50m long trenches, with trial trenching targeted on areas of potential highlighted in the desk-based research and by the magnetic susceptibility survey.

### 4.3 Baseline Survey Results

#### *Desk-Based Research*

The study considered statutory protected and designated areas, including Registered Ancient Woodlands, Scheduled Ancient Monuments and Areas of Archaeological Significance; entries on the County Historic Environment Record and District Urban Archaeological Database; cartographic and documentary records held by Hertfordshire Archives and Local Studies, and St Albans Abbey Archives; aerial photographs held by the National Monuments Record and the Cambridge University Unit for Landscape Modelling, and observations made in the course of a site walk-over.

The research established that the study area had lain in open farmland since at least the mediaeval period. Until the late 18<sup>th</sup> century it formed part of the common fields to the north of Sandridge, after which it was sub-divided into a number of smaller plots in individual ownership. By the late 19<sup>th</sup> century a number of field boundaries and wooded spinneys had been removed, probably to allow for steam ploughing. The present field pattern was largely established at that period.

The research concluded that the study area was located in an archaeologically significant landscape:

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- Crop-marks of round barrows and enclosures of probable later prehistoric date have been identified on the summit and upper slopes of the hill to the west of the modern B651, and in the fields to the east of the road.
- Several Roman roads are known to have crossed or skirted the area, including one which is followed by the modern Coleman Green Lane and another which runs along the western edge of the study area and which now forms part of the Sandridge parish boundary.
- Although no definite evidence for Iron Age or Roman occupation has been identified, it is possible that some of the crop-mark features noted on aerial photographs date to these periods.
- The probable outline of the small estate known as 'Hills', now called Hillend Farm, which was given by the Abbot of St Albans to the singing clerks, can also be traced on 19<sup>th</sup> century maps. It is located on the western side of the study area.

### ***Auger Survey***

Three transects were laid out in order to provide two soil profiles across the site, one running SE – NW and the other running NE – SW. Measurements were taken at 50m intervals. Transect 1 (points 1 – 42) ran for 2100m from National Grid Reference (NGR) 517588 210707 (c.215m E of no.49 Langley Grove, Sandridge) to NGR 515984 212062 (c.105m W of Round Wood); Transect 2 (points 43 – 62) ran for 950m from NGR 518022 212479 (355m N of Alban House, Nomansland Farm) to NGR 517405 211757 (525m E of Hillend Farm); Transect 3 (points 63 – 104) ran for 2100m from NGR 515489 210773 (160m ENE of Cheapside Farm) to NGR 516848 212374 (255m W of the car-park on Nomansland Common).

The survey recorded the depth, colour and nature of the topsoil (or plough-soil) and subsoil, and the colour and nature of the undisturbed drift geology. It established that there were no significant trends in the depths of the soils to indicate colluvial deposition. Transect 1 had an average depth of 0.39m with three isolated readings of more than 1m (points 10, 15 & 32); Transect 2 had an average depth of 0.40m with a group of readings of moderately greater depth on either side of Ferrers Lane (points 51 -56); Transect 3 had an average depth of 0.31m with an isolated reading of 0.68m at point 75, which has been interpreted as a possible archaeological feature.

### ***Magnetic Susceptibility Sampling (MS)***

The MS survey was undertaken using a Bartington MS2 instrument in combination with a MS2D field coil, with readings taken on 10m centres. The results were presented in graphical form with readings colour-coded from strongly negative (bright blue) to strongly positive (bright red), both of which categories are suggestive of non-natural origins, the values being so extreme that they may indicate relatively recent, possibly industrial/extractive human activity. Green represents the natural background and light blue may represent near surface geology possessing low MS. Settlement activity of any antiquity should lie within the orange range though the higher ground to the west of the study area overlies chalk and any MS enhancement caused by human activity in

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this area is likely to be less pronounced than on the gravels running SW – NE through much of the centre and east of the site.

Any large areas of MS enhancement following field boundaries and paths, or restricted areas of strong MS enhancement located adjacent to modern field boundaries or paths, are likely to indicate relatively modern activity associated with recent agricultural regimes.

The MS survey highlighted the following anomalies which were considered to be worthy of further investigation:

### *Area 1*

- Three linear targets are present at the northeast of fields B and C. The MS values of the linears are very strongly positive and very strongly negative, suggestive of relatively recent industrial/extractive activity.
- The extreme NE of Field C also shows strongly negative and weaker positive MS values, and more dispersed discrete areas of MS enhancement are evident at the west in Field A.

### *Area 2*

- A large area of MS enhancement is present at the north of Area 2, immediately west of the NE – SW aligned internal field boundary. It is relatively weakly enhanced but could indicate settlement activity.
- A large area of enhancement containing extremely strong positive values is present at the south centre of the area. The strength of the MS values suggests relatively recent industrial/extractive activity.
- A small number of other discrete areas of enhanced MS values are distributed across Area 2.

### *Area 3*

- An expansive area of enhanced MS is present adjacent to the western boundary of Field A. Some of the highest values immediately adjacent to the road are located at the entrance to the field. The enhanced MS may result from compaction of soils by agricultural vehicles entering and exiting the field.
- A NE – SW alignment of discrete strongly positive and strongly negative MS values are also present in Field A. As before this may suggest relatively recent industrial/extractive activity.
- Field B - a sub-circular area of MS enhancement correlates with the position of a sub-circular dark soil mark observed during survey fieldwork. It may define an infilled extraction pit or pond, although such a feature is not marked on recent mapping.
- Other than at the location of an area of extraction within field D, fields C and D show little if any enhancement.

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### Area 4

- Discrete areas of high negatives and positives are evident in the northern part of the area. Three discrete weakly enhanced MS areas and an area of background MS are present in the southern half of the area.

### Area 5

- Field A - Areas of enhancement are evident surrounding the crop-marks plotted in this field.
- Field B – A large area of enhanced MS is located along the western boundary of the field and a small area of enhancement is located near the sub-circular crop mark identified in the DBA.
- Field C - NE – SW aligned and parallel strips of enhanced MS are present and there are two strongly positive areas within broader areas of enhancement at the NE corner of the field.
- Fields D(i) and D(ii) – There is a small number of areas of enhancement within Field D(i), but Field D(ii) has a relatively uniform background MS.
- Field E(i) – The large, roughly N – S aligned area of enhanced MS at the west of the field correlates with the position of a topographic low and may define an area of deeper topsoil.
- Field E(ii) –Relatively uniform background MS values.
- Field E(iii) – Numerous areas of MS enhancement are present.
- Field F – The eastern half of the field contains a large number of areas of MS enhancement and other areas of MS enhancement are present in the western half of the field.
- Field G – There is a large area of MS enhancement at the east of the field.
- Field H (included within AAS 18) - The low negative MS values correlate in part with a former field boundary. There are areas of enhanced MS at the south-east and east of the field and a the large area of negative MS values at the west.

### ***Trial Trenching***

In order to characterise the defined archaeological potential of the proposed new forest, as defined by the desk-based research and in the MS sampling, ninety four trenches were excavated. As a large proportion of the area affected was under crop and access therefore restricted, the evaluation strategy adopted two approaches:

- *Sample Trenching* – across those areas where access was available, trial trenches representing a 1% sample by area, were excavated in a grid pattern across both areas of designated archaeological potential and areas which were apparently blank.

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- *Targeted Trenching* – across those areas where access was restricted, a programme of trial trenching targeted potential archaeological features shown on aerial photographs, on the HER and through magnetic susceptibility sampling.

All trenches measured 2m in width and 50m in length, and the ends of each trench were surveyed to twelve figure national grid references using commercial GPS related to a fixed base station.

As an additional control, a 12 litre sample of plough-soil from each end of every trench was sieved through a 5mm mesh to retrieve artefacts disturbed by plough action, in order to model the survival of unstratified archaeological material that might not derive from identifiable features or discrete deposits. All such finds, regardless of period, were collected, labelled and processed, and included with the artefactual assemblage from the site as a whole.

### *Sample Trenching*

Each sample trench was positioned on a grid, alternate trenches being laid out at right angles to one another in order to maximise the opportunities for identifying linear features. Although the positions of a number of trenches were adjusted to coincide with areas of archaeological potential identified in the desk-based research or from the MS sampling, the aim of this evaluation strategy was to consider equally areas of defined archaeological potential and areas which were apparently blank, in order to provide a model of archaeological survival which could be extended across the whole study area.

The location of each sample trench has been summarised in the following table:



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Trench no	Field	Orientation	Reason for trench location
B1	B	N-S	Across an area of high susceptibility readings
B2	B	E-W	Across an area of high susceptibility readings
B3	B	N-S	Across an area of high susceptibility readings
B4	B	E-W	Across a potentially blank area
B5	B	E-W	Across a potentially blank area
B6	B	N-S	Across a potentially blank area
B7	B	E-W	Across a potentially blank area
B8	B	N-S	Across a possible circular crop-mark
B9	B	N-S	Across a potentially blank area
B10	B	E-W	Across a potentially blank area
B11	B	N-S	Across a potentially blank area
B12	B	E-W	Across an area of high susceptibility readings
B13	B	N-S	Across an area of high susceptibility readings
B14	B	N-S	Across HER 4610
B15	B	E-W	Across an area of high susceptibility readings
B16	B	E-W	Across an area of high susceptibility readings
B17	B	N-S	Across a potentially blank area
B18	B	N-S	Across a potentially blank area
B19	B	E-W	Across an area of high susceptibility readings
B20	B	N-S	Across a potentially blank area
B21	B	N-S	Across a potentially blank area
B22	B	E-W	Across a potentially blank area
B23	C	E-W	Across an area of high susceptibility readings
B24	C	E-W	Across an area of low susceptibility readings
B25	C	N-S	Across an area of low susceptibility readings
B26	C	E-W	Across a potentially blank area
E1	Ei	N-S	Across a potentially blank area
E2	Ei	E-W	Across an area of high susceptibility readings
E3	Ei	N-S	Across an area of high susceptibility readings
E4	Ei	E-W	Across an area of high susceptibility readings
E5	Ei	N-S	Across a potentially blank area
E6	Ei	E-W	Across a potentially blank area
E7	Ei	N-S	Across a potentially blank area
E8	Ei	E-W	Across a potentially blank area
E9	Ei	N-S	Across an area of high susceptibility readings
E10	Ei	E-W	Across a potentially blank area
E11	Ei	N-S	Across an area of high susceptibility readings
E12	Ei	E-W	Across a potentially blank area
E13	Eii	NE-SW	Across an area of low susceptibility readings
E14	Eii	NW-SE	Across an area of low susceptibility readings
E15	Eiv	NW-SE	Across an area of high susceptibility readings
E16	Eiv	NE-SW	Across an area of high susceptibility readings
E17	Eiv	NW-SE	Across a potentially blank area
E18	Eiv	NE-SW	Across a potentially blank area

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### *Targeted Trenching*

The justification for the location of each targeted trench has been summarised in the following tables:

#### Area 1

Trench no	Field	Orientation	Reason for trench location
1	A	NW-SE	Across the line of discrete high and low MS readings
2	A	NE-SW	Across the line of discrete high and low MS readings
3	B	NW-SE	Across a linear of high MS reading
4	B	NW-SE	Across an area of low MS readings
5	B	NE-SW	Across Roman HER 11808
6	B	NW-SE	Across a linear of low MS reading
7	C	NW-SE	Across the line of discrete high and low MS readings
8	C	NE-SW	Across the line of discrete high and low MS readings
9	C	NE-SW	Across a linear of high MS reading
10	D	NW-SE	Across Roman to Post-mediaeval HER 13114

#### Area 2

Trench no	Field	Orientation	Reason for trench location
11	A	NW-SE	Across an area of high MS readings
12	A	NE-SW	Across an area of high MS readings
13	A	NW-SE	Across an area of high MS readings
14	A	NE-SW	Across an area of high MS readings
15	A	NE-SW	Across an area of high and low MS readings
16	A	NW-SE	Across an area of low MS readings
17	A	NE-SW	Across an area of very high MS readings

#### Area 3

Trench no	Field	Orientation	Reason for trench location
18	A	NW-SE	Across an area of high MS readings
19	A	NE-SW	Across an area of high MS readings
20	A	NE-SW	Across a possible circular crop-mark in an area of low MS readings
21	A	NW-SE	Across the line of discrete high and low MS readings
22	B	NE-SW	Across a circular feature with a high MS, possible pond, quarry, or archaeology
23	C	NW-SE	Across linear crop-marks
24	C	NE-SW	Across a possible circular crop-mark



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### Area 4

Trench no	Field	Orientation	Reason for trench location
25	A	NW-SE	Across an area of high and low MS readings
26	A	NE-SW	Across an area of high MS readings

### Area 5

Trench no	Field	Orientation	Reason for trench location
27	A	NE-SW	Across a possible circular crop-mark
28	A	NW-SE	Across an area of crop-marks
29	A	NE-SW	Across an area of crop-marks
30	A	NE-SW	Across a possible rectangular crop-mark
31	A	NW-SE	Across an area of high MS readings
32	C	NW-SE	Across a possible circular crop-mark
33	C	NW-SE	Across a possible circular crop-mark
34	C	N-S	Across a former field boundary in an area of high MS readings
35	Di	NE-SW	Across Neolithic/ Bronze Age HER 9770
36	Dii	NE-SW	Across Neolithic/ Bronze Age HER 7949
37	Dii	NW-SE	Across Neolithic/ Bronze Age HER 7948/ 7950
38	Eiii	NE-SW	Across an area of high MS readings
39	Eiii	NW-SE	Across an area of high MS readings
40	F	N-S	Across a possible circular crop-mark in an area of high MS readings
41	F	E-W	Across an area of high MS readings
42	F	E-W	Across a possible circular crop-mark in an area of high MS readings
43	F	NE-SW	Across an area of high MS readings
44	G	NW-SE	Across Neolithic/ Bronze Age HER 7954
45	G	N-S	Across an area of high MS readings
46	H	NW-SE	Across Neolithic/ Bronze Age HER 7953
47	H	NE-SW	Across Neolithic/ Bronze Age HER 7951
48	H	NE-SW	Across Prehistoric HER 6116 and Neolithic/ Bronze Age HER 7952
49	H	NW-SE	Across an area of low MS readings
50	H	NE-SW	Across an area of low MS readings

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### Results

A total of 17 of the sample trenches and 18 of the targeted trenches included archaeological features which were investigated further. Twenty of the trenches produced finds which enabled the features to be dated. The trenches with features have been summarised in the following table:

Trench	Area	Field	No. Features	Feature type	Finds	Feature Date
B2	5	B	1	Ditch	No	
B7	5	B	3	Two ditches and possible pit/ ditch terminal	Yes	Med / RB?
B8	5	B	2	Two ditches	No	
B13	5	B	1	Ditch	No	
B14	5	B	1	Ditch	No	
B15	5	B	2	Two ditches	No	
B16	5	B	1	Pit	Yes	P/Med, C18th
B19	5	B	1	Ditch	No	
B20	5	B	2	Ditch and pit	No	
B23	5	C	1	Ditch terminal	No	
B26	5	C	1	Pit	Yes	C3-4th AD
E8	5	Ei	13	Foundation ditches and demolition layers and pit	Yes	Mid/late IA - RB & Med
E11	5	Ei	2	Quarry and Gully	Yes	P/Med, C18th - 19th
E12	5	Ei	1	Quarry same as E1103	No	
E13	5	Eii	3	Ditches and trackway	Yes	Late Mesolithic to early BA
E16	5	Eiv	1	Ditch	Yes	Unknown
E17	5	Eiv	1	Ditch	No	
2	1	A	1	Pit	Yes	RB
7	1	C	2	Ditch and linear, pot in 702	Yes	Late BA / early to mid IA
10	1	D	2	Ditch and former hedge line	Yes	RB
11	2	A	1	Pit	Yes	Late Neolithic
13	2	A	1	Pit	Yes	Unknown
15	2	A	2	Layers	No	
24	3	C	1	Ditch	Yes	Early P/Med, late C17th to 18th
26	4	A	1	Ditch	No	
27	5	A	2	Ditch and quarry	No	

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Trench	Area	Field	No. Features	Feature type	Finds	Feature Date
28	5	A	5	Three ditches, trackway and quarry	Yes	late BA/early to mid IA, RB
29	5	A	1	Pit	No	
34	5	C	1	Ditch	Yes	Neolithic to early BA
36	5	Dii	1	Post hole	Yes	late BA/early to mid IA
37	5	Dii	1	Ditch	Yes	Mid to late BA
39	5	Eiii	1	Post hole	Yes	Neolithic
40	5	F	2	Pit and quarry	No	
42	5	F	1	Quarry	Yes	RB/ Med?
46	5	H	1	Quarry	Yes	RB and P/Med

A concordance of finds and features is set out in the following table:

Context	Type	Pot	CBM	An. Bone	Fe Obj	Flint	Burnt Flint	Coal	Spot Date
B701	Ditch fill		Yes						Med/RB?
B1601	Pit fill		Yes						P/Med: C18th
B2602	Pit fill	Yes	Yes						RB: 3rd – 4th C AD
E803	Ditch fill	Yes							Late IA: late C1st BC – 70 AD
E804	Ditch fill	Yes							Late IA: late C1st BC – 70 AD
E806	Ditch fill	Yes	Yes						RB: Mid 1st – Early/mid 2nd AD
E808	P/hole fill	Yes							RB or Med?
E810	Pit fill		Yes						RB
E814	Ditch fill	Yes	Yes						RB or Med?
E817	Layer	Yes	Yes						Mid-late IA to RB: It C1st/early C2nd AD
E819	Ditch fill	Yes	Yes						Mid-late IA to RB: It C1st/early C2nd AD
E821	Layer	Yes	Yes						RB: C1st-C2nd AD
E822	Layer		Yes						RB
E823	Layer	Yes							Med: C10th-12th AD
E824	Layer		Yes						RB
E1102	Gully fill		Yes						P/Med: C18th-19th
E1308	Layer					Yes			Late Mesolithic to

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Context	Type	Pot	CBM	An. Bone	Fe Obj	Flint	Burnt Flint	Coal	Spot Date
									early BA
E1310	Ditch fill					Yes	Yes		Mid to late BA
E1312	Layer					Yes			Late Mesolithic/early Neolithic
201	Fill		Yes						RB
704	Ditch fill	Yes							Late BA - early to middle IA
1003	Linear fill		Yes						RB
1102	Pit fill					Yes			Late Neolithic
1302	Pit fill					Yes			Unknown
2402	Ditch fill	Yes							P/Med: 17th to 18th
2802	Ditch fill		Yes	Yes	Yes				Late BA - early to middle IA
2804	Ditch fill	Yes							Late IA: 15BC – AD70
2806	Ditch fill		Yes				Yes		RB
2807	Ditch fill	Yes							RB
2808	Ditch fill	Yes		Yes					Late BA - early to middle IA
2811	Pit fill	Yes	Yes				Yes		Late IA: 20BC-70AD
3401	Ditch fill					Yes	Yes		Neolithic to early BA
3603	P/hole fill	Yes				Yes	Yes		Late BA - early to middle IA
3701	Ditch fill					Yes	Yes		Mid to late BA
3703	Natural fill					Yes			BA
3704	Ditch fill			Yes		Yes	Yes		BA
3705	Ditch fill					Yes	Yes		BA
3901	P/hole fill						Yes		Unknown
4201	Pit fill		Yes						RB / Med
4601	Pit fill	Yes	Yes		Yes		Yes	Yes	P/Med

A concordance of finds retrieved from sieving at either end of the evaluation trenches is set out in the following table:

Trench	Area	Field	X end: finds description	X end: date	Y end: finds description	Y end: date
B4	5	B	1 fragment of CBM	Late Med - early P/med	1 fragment of flint debitage	Unknown

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Trench	Area	Field	X end: finds description	X end: date	Y end: finds description	Y end: date
B8	5	B	1 fragment of CBM	Late Med - early P/med		
B9	5	B	1 iron object	Unknown		
B15	5	B	1 fragment of CBM	Late Med - early P/med		
B17	5	B	1 fragment of CBM	Late Med - early P/med		
B26	5	C			1 fragment of burnt flint and 1 fragment of CBM	RB
E6	5	Ei	1 fragment of flint debitage from a blade core:	Neolithic		
E9	5	Ei	1 pottery sherd and one fragment of burnt flint	RB		
E13	5	Eii	4 fragments of flint debitage & 1 frag of burnt flint	Unknown		
E18	5	Eiv			1 iron object	Unknown
6	1	B	1 fragment of animal bone	Unknown		
22	3	B			1 fragment of burnt flint	Unknown
31	5	A	3 fragments of CBM	RB?	1 pottery shard and 4 fragments of CBM	RB?
35	5	Di			2 fragments of burnt flint	Unknown
37	5	Dii	4 fragments of flint debitage & 1 frag of burnt flint	Bronze Age	1 fragment of burnt flint	Bronze Age

### *Discussion*

Of the 44 sample trenches, 17 included a total of 37 features considered to be of archaeological significance, ranging in date from the late Mesolithic to the 18<sup>th</sup> or 19<sup>th</sup> century. This number includes 17 ditches or gullies, five pits (or possible pits) and one quarry which appears to have extended over two trenches. The largest concentration of features and deposits occurred in Trench E8 which included foundation trenches, demolition layers and a pit with a date range



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spanning the mid/late Iron Age, Romano-British and mediaeval periods. This group has been interpreted as a possible farmstead.

Of the 50 targeted trenches, 18 included a total of 27 features considered to be of archaeological significance, ranging in date from the Neolithic to the post-mediaeval period. This number includes ten ditches or gullies, five pits, one post-hole, four quarries, two layers/deposits, a trackway and a former hedge-line. The largest concentration of features occurred in Trench 28 in Area 5 which included three ditches, a trackway and a quarry with a date range from the late Bronze Age to the Romano-British period.

The sieving of a sample of plough-soil from the end of each trench was intended to compensate for the lack of data available from field-walking by providing information about the presence of disturbed archaeological material in the overburden.

- One of the sample trenches, B4, produced material from both ends of the trench, and nine produced material from one end only. Of these eleven find-spots, four matched trenches with archaeological features and demonstrated similar date ranges (B8(X), B15(X), B26(Y), E13(X)), and one matched an area of high MS readings (E9(X)). The remaining six find-spots (B4(X&Y), B9(X), B17(X), E6(X), E9(X), E18(Y)) were in areas which were considered to be potentially blank.
- Of the targeted trenches, two produced material from both ends of the trench (31, 37) and three produced material from one end only. Of these seven find-spots, two matched a trench with archaeological features targeted on an HER entry, and demonstrated a similar date range (37), and one matched a trench targeted on an HER entry and demonstrated a similar date range (35). The remaining four find-spots matched trenches targeted on MS readings.

The information from the trenches was largely inconclusive in respect of the MS data but confirmed the conclusions of the desk-based research with regard to the general nature of the archaeological landscape.

### ***Cumulative Conclusions***

The results of the desk-based research have demonstrated that the study area forms a well established archaeological landscape transected by roads and trackways, with known activity dating from the prehistoric period to the 19<sup>th</sup> century (see Figure 4.1). Find-spots and sites recorded on the HER, and an examination of historic aerial photographs of the study area, suggested areas of archaeological potential which were worthy of further investigation. The Magnetic Susceptibility sampling proposed additional areas of archaeological potential.

The established potential was tested by targeted trial trenches which confirmed the presence of archaeological features or deposits in 36% of the trenches. If the data from the sieving is factored in, the incidence of archaeological remains increases to 46%. As a control, further trial trenches, laid out in a fixed grid-pattern to provide a 1% sample, were excavated in a limited number of fields on the western side of the study area which were not under cultivation at the time.

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Archaeological features and deposits were present in approximately 39% of these trenches, the incidence of archaeological remains increasing to 55% when the sieving data is factored in.

The cumulative conclusion of the baseline surveys must be that evidence for archaeological activity across the study area is extensive, but that the activity is likely to be of low density and of variable significance. The archaeological activity across the study area has been summarised in the following table:

Feature Number	Type	HER	NMR	Aerial Photo	Evaluation Trench
1	Roman road crop-mark	1108			
2	Roman road	4617			
3	Iron Age Beech Bottom Dyke		1043146		
4	Roman road	4601			
5	Anglo-saxon burials	1626			
6	Roman coin found with road		362158		
7	Roman coins find	13114			
8	Roman metal find	n/a	n/a		
9	Roman metal find	n/a	n/a		
10	Roman metal find	n/a	n/a		
11	Roman metal find	n/a	n/a		
12	Roman metal find	n/a	n/a		
13	Roman metal find	n/a	n/a		
14	Neolithic and Bronze Age flints	9770			
15	Crop-marks			RAF/CPE/UK/1965 RP:3298	
16	Crop-marks			RAF/CPE/UK/1965 RP:3298	
17	Cluster of curvli-linear crop-marks			RAF/CPE/UK/1965 RP:3298	
18	Sub-circular crop-mark			RAF/CPE/UK/1779 RP:3424	
19	Sub-circular crop-mark			RAF/CPE/UK/1779 RP:3424	
20	Sub-circular crop-mark			RAF/58/1690/F22: 0053	
21	Sub-circular crop-mark			RAF/58/1690/F22: 0053	
22	Sub-circular crop-mark			RAF/58/1690/F22: 0053	
23	Sub-circular crop-mark			RAF/CPE/UK/1779 RP:3461	
24	Crop-marks			RAF/CPE/UK/1779 RP:3460	
25	Crop-marks			RAF/CPE/UK/1779 RP:3460	
26	Iron Age settlement and Roman building	9912			
27	Crop-marks			RAF/CPE/UK/1779 RP:3460	
28	Cluster of sub-circular and square crop-marks			RAF/CPE/UK/1779 RP:3460	

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Feature Number	Type	HER	NMR	Aerial Photo	Evaluation Trench
29	Crop-marks			RAF/CPE/UK/1779 RP:3158	
30	Sub-circular crop-mark	7949			
31	Sub-circular crop-mark	7948/ 7950			
32	Linear magnetic susceptibility results	n/a	n/a		
33	Linear magnetic susceptibility results	n/a	n/a		
34	Linear magnetic susceptibility results	n/a	n/a		
35	Linear magnetic susceptibility results	n/a	n/a		
36	Broadly linear magnetic susceptibility results	n/a	n/a		
37	Sub-circular crop-mark	7953			
38	Sub-circular crop-mark	7954			
39	Sub-circular crop-mark	7951			
40	Sub-circular crop-mark	7952			
41	Sub-circular crop-mark	6116			
42	possible tile kiln, gravel quarry	9774			
43	Site of village pound	13512			
44	Roman metal find	n/a	n/a		
45	Roman metal find	n/a	n/a		
46	Roman metal find	n/a	n/a		
47	Crop-mark	6007			
48	Site of mediaeval manor	9871			
49	Hill End mediaeval farm	13514			
50	Post-mediaeval farmhouse Nomansland Farm	13511			
51	Prehistoric crop-mark	7947			
52	Prehistoric crop-mark enclosure	7956			
53	Post-mediaeval Beech Hyde Farm	9424			
54	Site of windmill	9749			
55	Site of 'Pest house'	9731			
56	Site of Post-mediaeval school	13513			
57	Mediaeval house	9512			
58	Mediaeval Sandridge village	2629			
59	Post-mediaeval Malt House	9911			
60	Sandridge mediaeval church	985			
61	Post-mediaeval Workhouse and three Wells	10012, 10014- 10016			
62	Post-mediaeval shop	7270			
63	Site of Post-mediaeval Maltings	6886			
64	Brick letter box	5308			
65	Post-mediaeval Brick Kilns	7011			
66	Possible civil war cannon balls found	10454			

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Feature Number	Type	HER	NMR	Aerial Photo	Evaluation Trench
67	Post-mediaeval coin hoard found	652			
68	Post-mediaeval farmhouse West End Farm	13397			
69	Mesolithic flints	649			
70	Neolithic flints	1801			
71	Palaeolithic flints	648			
72	Possible henge crop-mark	6009			
73	Enclosure crop-mark	6009			
74	Neolithic axe find	9771			
75	Possible Iron Age crop-marks		362193		
76	Concentration of Neolithic and Bronze Age flints	9767			
77	Blank evaluation trench				B1
78	Evaluation trench with undated evidence				B2
79	Blank evaluation trench				B3
80	Evaluation trench with Post-mediaeval evidence				B4
81	Blank evaluation trench				B5
82	Blank evaluation trench				B6
83	Evaluation trench with undated evidence				B7
84	Evaluation trench with Post-mediaeval evidence				B8
85	Evaluation trench with undated evidence				B9
86	Blank evaluation trench				B10
87	Blank evaluation trench				B11
88	Blank evaluation trench				B12
89	Evaluation trench with undated evidence				B13
90	Evaluation trench with undated evidence				B14
91	Evaluation trench with Post-mediaeval evidence				B15
92	Evaluation trench with Post-mediaeval evidence				B16
93	Evaluation trench with Post-mediaeval evidence				B17
94	Blank evaluation trench				B18
95	Evaluation trench with undated evidence				B19
96	Evaluation trench with undated evidence				B20
97	Blank evaluation trench				B21
98	Blank evaluation trench				B22
99	Evaluation trench with undated evidence				B23
100	Blank evaluation trench				B24
101	Blank evaluation trench				B25

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Feature Number	Type	HER	NMR	Aerial Photo	Evaluation Trench
102	Evaluation trench with Roman evidence				B26
103	Blank evaluation trench				E1
104	Blank evaluation trench				E2
105	Blank evaluation trench				E3
106	Blank evaluation trench				E4
107	Evaluation trench with undated evidence				E5
108	Evaluation trench with pre Iron Age evidence				E6
109	Blank evaluation trench				E7
110	Evaluation trench with Roman and mediaeval evidence				E8
111	Evaluation trench with Roman evidence				E9
112	Blank evaluation trench				E10
113	Evaluation trench with Post-mediaeval evidence				E11
114	Evaluation trench with undated evidence				E12
115	Evaluation trench with pre Iron Age evidence				E13
116	Blank evaluation trench				E14
117	Evaluation trench with pre Iron Age evidence				E15
118	Evaluation trench with pre Iron Age evidence				E16
119	Evaluation trench with Roman evidence				E17
120	Evaluation trench with undated evidence				E18
121	Blank evaluation trench				1
122	Evaluation trench with Roman evidence				2
123	Blank evaluation trench				3
124	Blank evaluation trench				4
125	Blank evaluation trench				5
126	Evaluation trench with undated evidence				6
127	Evaluation trench with pre Iron Age evidence				7
128	Blank evaluation trench				8
129	Blank evaluation trench				9
130	Evaluation trench with Roman evidence				10
131	Evaluation trench with pre Iron Age evidence				11
132	Blank evaluation trench				12
133	Evaluation trench with undated evidence				13
134	Blank evaluation trench				14

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Feature Number	Type	HER	NMR	Aerial Photo	Evaluation Trench
135	Evaluation trench with undated evidence				15
136	Blank evaluation trench				16
137	Blank evaluation trench				17
138	Blank evaluation trench				18
139	Blank evaluation trench				19
140	Evaluation trench with post-mediaeval evidence				20
141	Blank evaluation trench				21
142	Evaluation trench with undated evidence				22
143	Blank evaluation trench				23
144	Evaluation trench with Post-mediaeval evidence				24
145	Blank evaluation trench				25
146	Evaluation trench with undated evidence				26
147	Evaluation trench with undated evidence				27
148	Evaluation trench with Iron Age evidence				28
149	Evaluation trench with undated evidence				29
150	Blank evaluation trench				30
151	Evaluation trench with Roman evidence				31
152	Blank evaluation trench				32
153	Blank evaluation trench				33
154	Evaluation trench with pre Iron Age evidence				34
155	Evaluation trench with undated evidence				35
156	Evaluation trench with pre Iron Age evidence				36
157	Evaluation trench with pre Iron Age evidence				37
158	Blank evaluation trench				38
159	Evaluation trench with pre Iron Age evidence				39
160	Evaluation trench with undated evidence				40
161	Blank evaluation trench				41
162	Evaluation trench with undated evidence				42
163	Blank evaluation trench				43
164	Blank evaluation trench				44
165	Blank evaluation trench				45
166	Evaluation trench with Roman evidence				46
167	Blank evaluation trench				47
168	Blank evaluation trench				48
169	Blank evaluation trench				49
170	Blank evaluation trench				50



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#### 4.4 Modelling Strategy

##### *Introduction*

The combined results of the baseline surveys have demonstrated a high level of archaeological potential across the study area, and have allowed a number of defined sites to be characterised, notably a Romano-British farmstead in Field E(i) of Area 5. The baseline surveys have been limited, however, by restrictions on access so that conclusions for the study area as a whole can only be drawn in general terms.

Sufficient data is available, nevertheless, to design a model of the likely incidence and significance of archaeological sites across the study area, and to use this to design a mitigation strategy which can be linked to the planting scheme. The available data can be subdivided into three classes each of which can be scored in order to build the model:

- *Definitive data*            Evidence from the desk-based research and magnetic susceptibility sampling, as modified by the targeted trial trenching  
   Evidence from the sample trenches  
   Evidence from sieving
- *Influencing factors*        Topography  
   Hydrology  
   Geomorphology
- *Modifying factors*         Regional patterns of settlement  
   Later land use (leading to erosion, truncation or total destruction)  
   Significance, as defined by Regional Research Agenda

To provide a framework for the model, the study area has been divided into 441 numbered squares aligned on the national grid, each measuring 1 hectare, this being considered the optimum scale given the size of the site, the nature of the development and the predicted density of archaeological remains.

##### *Scoring Methodology*

###### *Trench Scores*

In the first instance, scores were calculated for all the trial trenches, with values being assigned for the presence or absence of archaeological features and artefacts (0 or 1), and for the date range of those features and artefacts (1 to 4 according to rarity). The trenches were also scored according to the significance of the archaeological data (on a scale of -1 to 6) taking into account the quality and importance of the evidence in relation to regional research agenda. All of the values were added together for each trench to provide a *Trench Score* to be used in the scoring of the model squares.





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The scoring criteria for the trial trenches have been summarised in the following table:

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	Criteria	Absent	Present
Features and artefacts	Artefacts recovered from the sieved samples	0	1
	Unstratified artefacts recovered from the trench	0	1
	Archaeological features within the trench	0	1
	Artefacts recovered from trench features	0	1
Dating	Palaeolithic to the Neolithic (Period 1)	0	4
	Bronze Age to the Iron Age (Period 2)	0	3
	Romano-British (Period 3)	0	2
	Anglo-Saxon (Period 4)	0	3
	Mediaeval (Period 5)	0	1
	Post-mediaeval period (Period 6)	0	0
	Modern (Period 7)	0	0
Significance	High	5 or 6	
	Moderate	3 or 4	
	Low	1 or 2	
	Negligible	0	
	Uncertain	-1	

### Model Squares

For each of the model squares, *Definitive*, *Influencing* and *Modifying* factors were scored and the cumulative scores added to the Trench Score (where applicable), as illustrated in the following table:

Type	Criteria	No	Yes
Definitive factors	Trench score	0 to 14	
	Presence of a 'blank' evaluation trench	0	-2
	Presence of a crop-mark from aerial photographs	0	2
	Presence of a record from the HER	0	4
	An area adjacent (50m either side) to a linear feature such as a road or track	0	3
	Within a defined Archaeological Area	0	3
	Influencing factors	Within a 150m radius of a known water source	0
Soils suitable for cereals, permanent grassland and woodland. (582a)		0	2
Below 90m OD contour		0	0
Between 90 and 100m OD contours		0	1
Between 100 and 110m OD contours		0	2
Between 110 and 120m OD contours		0	3
Above 120m OD contours		0	4
Modifying factors	Evidence of quarrying	0	-1
	Presence of modern services	0	-2

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This has enabled a table of scores to be drawn up by model square (see Figure 4.2). In the table that follows, the column labelled Background Conditions represents the scores for the Influencing data taken on their own where Poor represents a score of 0 to 3, Fair represents a score of 4 to 6, and Good represents a score of 7 to 9. The data has been included as a comparator indicating the general potential of the square based on landscape criteria alone.

Square	Archaeological Potential	Colour	Background Conditions	Archaeological Evidence
1	Medium	Orange	Fair	Crop-mark evidence of a Roman road and double ditches [1]
2	Medium	Orange	Fair	Crop-mark evidence of a Roman road and double ditches [1]
3	High	Magenta	Good	Close to crop-mark evidence of a Roman road and double ditches [1] and on possible route of Iron Age Dyke [3]. Linear magnetic susceptibility results [33]
4	High	Magenta	Good	On possible route of Iron Age Dyke [3] Linear magnetic susceptibility results [33]
5	Medium	Orange	Good	Crop-marks to the north [29]
6	Low	Blue	Poor	Partly inside Archaeological Area AAS17 of Normansland Common
7	Low	Blue	Poor	No archaeological evidence
8	Low	Blue	Fair	No archaeological evidence
9	Low	Blue	Fair	No archaeological evidence
10	Medium	Orange	Fair	Crop-mark evidence of a Roman road and double ditches [1]
11	High	Magenta	Good	Close to crop-mark evidence of a Roman road and double ditches [1] and on possible route of Iron Age Dyke [3] Linear magnetic susceptibility results [33]
12	High	Magenta	Good	Close to possible route of Iron Age Dyke [3]
13	Medium	Orange	Good	Evaluation trench 6 which was blank [126], Crop-marks to the north [29]
14	Medium	Orange	Good	No archaeological evidence
15	Medium	Orange	Poor	Evaluation trench 7 contained a ditch and linear with pottery dating from the late Bronze/ early Iron Age [127]
16	Low	Blue	Fair	No archaeological evidence
17	Medium	Orange	Poor	Partly inside Archaeological Area AAS17 of Normansland Common, on a possible route of prehistoric trackway from evaluation trench 28 [148]
18	Medium	Orange	Poor	Partly inside Archaeological Area AAS17 of Normansland Common, close to the possible route of prehistoric trackway from evaluation trench 28 [148]
19	Low	Blue	Poor	Partly inside Archaeological Area AAS17 of Normansland Common
20	Low	Blue	Poor	Partly inside Archaeological Area AAS17 of Normansland Common
21	Low	Blue	Poor	Partly inside Archaeological Area AAS17 of Normansland Common

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Square	Archaeological Potential	Colour	Background Conditions	Archaeological Evidence
22	Low	Blue	Poor	Partly inside Archaeological Area AAS17 of Normansland Common
23	Low	Blue	Poor	Partly inside Archaeological Area AAS17 of Normansland Common
24	Medium	Orange	Poor	Supposed site of Anglo-Saxon burials [5]
25	Low	Blue	Poor	Evaluation trenches 1, which was blank [121], and 2 with a quarry pit with Roman finds [122]
26	Low	Blue	Fair	Evaluation trench 1, which was blank
27	Medium	Orange	Fair	Close to crop-mark evidence of a Roman road and double ditches [1] and possible route of Iron Age Dyke [3]
28	Medium	Orange	Fair	Crop-mark evidence of a Roman road and double ditches [1] and on possible route of Iron Age Dyke [3]. Evaluation trench 3 was blank [123]. Linear magnetic susceptibility results [33]
29	Medium	Orange	Fair	Close to crop-mark evidence of a Roman road and double ditches [1] and possible route of Iron Age Dyke [3]. Evaluation trench 4 was blank [124]
30	Medium	Orange	Fair	Linear magnetic susceptibility results [32]
31	Low	Blue	Fair	No archaeological evidence
32	Medium	Orange	Fair	Evaluation trenches 7 which contained a ditch and linear with pottery dating from the late Bronze/early Iron Age [127], and 8 was blank [128]
33	Low	Blue	Fair	Close to Roman road [2]. Evaluation trench 8 was blank [128]
34	Medium	Orange	Poor	On the route of a Roman road [4]
35	Low	Blue	Poor	On a possible route of prehistoric trackway from evaluation trench 28 [148]
36	Medium	Orange	Fair	On a possible route of prehistoric trackway from evaluation trench 28 [148]
37	Medium	Orange	Fair	Crop-marks [28]. Close to a possible route of prehistoric trackway from evaluation trench 28 [148]
38	Medium	Orange	Fair	Crop-marks [28].
39	Low	Blue	Fair	No archaeological evidence
40	Medium	Orange	Fair	Partly inside Archaeological Area AAS17 of Normansland Common
41	Low	Blue	Poor	Partly inside Archaeological Area AAS17 of Normansland Common
42	Low	Blue	Poor	Partly inside Archaeological Area AAS17 of Normansland Common
43	Low	Blue	Poor	Partly inside Archaeological Area AAS17 of Normansland Common
44	Medium	Orange	Poor	Supposed site of Anglo-Saxon burials [5]
45	High	Magenta	Fair	Evaluation trench 2 had a quarry pit with Roman finds [122]
46	Medium	Orange	Fair	No archaeological evidence
47	High	Magenta	Good	Close to possible route of Iron Age Dyke [3].
48	High	Magenta	Good	Crop-mark evidence of a Roman road and double ditches [1]. Linear magnetic susceptibility results [33]
49	High	Magenta	Good	Crop-mark evidence of a Roman road and double ditches [1]
50	Low	Blue	Fair	Linear magnetic susceptibility results [32]

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Square	Archaeological Potential	Colour	Background Conditions	Archaeological Evidence
51	Low	Blue	Fair	Linear magnetic susceptibility results [32]
52	Medium	Orange	Fair	Linear magnetic susceptibility results [32]. Close to Roman road [2].
53	High	Magenta	Fair	On the route of a Roman road [2]
54	Medium	Orange	Poor	On the route of a Roman road [4]. Broadly linear magnetic susceptibility results [36]
55	Medium	Orange	Poor	On the route of a Roman road [4]. Evaluation trench B1 was blank [77]. Broadly linear magnetic susceptibility results [36]
56	Low	Blue	Fair	Broadly linear magnetic susceptibility results [36]
57	Medium	Orange	Fair	Sub-circular crop-mark [28].
58	High	Magenta	Fair	Crop-marks [28]. Close to a possible route of prehistoric trackway from evaluation trench 28 [148]
59	Very High	Red	Fair	Crop-marks [28]. Evaluation trench 28 had three ditches and a trackway dating from the late Bronze/early Iron Age [148]
60	High	Magenta	Fair	Crop-marks [28]. On the possible route of prehistoric trackway from evaluation trench 28 [148]. Evaluation trench 31 had possible Roman finds [151]
61	Medium	Orange	Fair	Crop-marks [28]. Evaluation trench 30 was blank [150]
62	Low	Blue	Fair	No archaeological evidence
63	Low	Blue	Poor	Partly inside Archaeological Area AAS17 of Normansland Common
64	Low	Blue	Poor	No archaeological evidence
65	Low	Blue	Poor	Partly inside Archaeological Area AAS17 of Normansland Common
66	Low	Blue	Poor	Partly inside Archaeological Area AAS17 of Normansland Common
67	Low	Blue	Poor	Partly inside Archaeological Area AAS17 of Normansland Common
68	Low	Blue	Poor	No archaeological evidence
69	Low	Blue	Poor	No archaeological evidence
70	Low	Blue	Poor	No archaeological evidence
71	Medium	Orange	Fair	No archaeological evidence
72	Medium	Orange	Fair	Close to crop-mark evidence of a Roman road and double ditches [1] and on possible route of Iron Age Dyke [3]. Linear magnetic susceptibility results [32]
73	Medium	Orange	Fair	Close to crop-mark evidence of a Roman road and double ditches [1] and possible route of Iron Age Dyke [3].
74	Low	Blue	Fair	No archaeological evidence
75	Low	Blue	Fair	Linear magnetic susceptibility results [32]
76	Medium	Orange	Fair	Close to Roman road [2]. Linear magnetic susceptibility results [32]
77	High	Magenta	Fair	On route of Roman road [2]. Linear magnetic susceptibility results [32]
78	High	Magenta	Fair	On route of Roman road [2].
79	High	Magenta	Poor	On route of Roman road [4]. Broadly linear magnetic susceptibility results [36]

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Square	Archaeological Potential	Colour	Background Conditions	Archaeological Evidence
80	Medium	Orange	Fair	On route of Roman road [4]. Evaluation trench B3 was blank [79]. Broadly linear magnetic susceptibility results [36]
81	Medium	Orange	Fair	Close to route of Roman road [4]. Evaluation trench B2 had an undated ditch [78]. Broadly linear magnetic susceptibility results [36]
82	Low	Blue	Fair	No archaeological evidence. Existing woodland
83	Low	Blue	Fair	No archaeological evidence
84	Medium	Orange	Fair	Crop-marks [28].
85	High	Magenta	Fair	Crop-marks [28]. Evaluation trench 29 had an undated pit [149]. Close to a possible route of prehistoric trackway from evaluation trench 28 [148]
86	High	Magenta	Fair	Crop-marks [28]. On the possible route of prehistoric trackway from evaluation trench 28 [148]. Evaluation trench 31 had possible Roman finds [151]
87	High	Magenta	Fair	Crop-marks [28]. On the possible route of prehistoric trackway from evaluation trench 28 [148]. Evaluation trench 31 had possible Roman finds [151]
88	Low	Blue	Fair	No archaeological evidence
89	Low	Blue	Fair	No archaeological evidence
90	Low	Blue	Poor	Evaluation trench 25 was blank [145]
91	Low	Blue	Poor	Partly inside Archaeological Area AAS17 of Normansland Common
92	Low	Blue	Poor	Partly inside Archaeological Area AAS17 of Normansland Common
93	Low	Blue	Poor	Partly inside Archaeological Area AAS17 of Normansland Common
94	Low	Blue	Poor	No archaeological evidence
95	Low	Blue	Poor	No archaeological evidence
96	Low	Blue	Poor	No archaeological evidence
97	High	Magenta	Poor	Close to possible route of Iron Age Dyke [3].
98	Medium	Orange	Fair	Mediaeval Nomansland farm
99	Medium	Orange	Fair	No archaeological evidence
100	Low	Blue	Fair	Close to Roaman road [2]
101	High	Magenta	Fair	On route of Roman road [2]. Linear magnetic susceptibility results [32]
102	High	Magenta	Fair	On route of Roman road [2]. Linear magnetic susceptibility results [32]
103	Medium	Orange	Fair	Close to route of Roman road [2]. Linear magnetic susceptibility results [32]
104	Medium	Orange	Poor	Close to Roaman road [4]. Broadly linear magnetic susceptibility results [36]
105	High	Magenta	Poor	On route of Roman road [4]. Broadly linear magnetic susceptibility results [36]
106	Low	Blue	Fair	Close to route of Roman road [4]. Evaluation trench B3 was blank [79]. Broadly linear magnetic susceptibility results [36]
107	Medium	Orange	Fair	Possible crop-marks. Evaluation trench B4 had late mediaeval/ post med CBM find [80]
108	Medium	Orange	Fair	Evaluation trench B4 had late mediaeval/ post med CBM find [80]

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Square	Archaeological Potential	Colour	Background Conditions	Archaeological Evidence
109	Low	Blue	Fair	No archaeological evidence
110	Medium	Orange	Fair	No archaeological evidence
111	Medium	Orange	Fair	No archaeological evidence
112	High	Magenta	Fair	Close to a possible route of prehistoric trackway from evaluation trench 28 <b>[148]</b>
113	Low	Blue	Fair	No archaeological evidence
114	Low	Blue	Fair	No archaeological evidence
115	Low	Blue	Poor	No archaeological evidence
116	Low	Blue	Poor	Evaluation trench 26 had an undated ditch <b>[146]</b>
117	Low	Blue	Poor	No archaeological evidence
118	Low	Blue	Poor	No archaeological evidence
119	Low	Blue	Poor	No archaeological evidence
120	Low	Blue	Poor	No archaeological evidence
121	Medium	Orange	Poor	Close to possible route of Iron Age Dyke <b>[3]</b> .
122	Low	Blue	Poor	No archaeological evidence
123	High	Magenta	Poor	Evaluation trench 10 had a Roman ditch and former hedge line <b>[130]</b> . Close to the Roman road <b>[2]</b> . Roman coins found <b>[7]</b>
124	High	Magenta	Poor	Evaluation trench 10 had a Roman ditch and former hedge line <b>[130]</b> . On the route of the Roman road <b>[2]</b> . Roman coins found <b>[7]</b>
125	Medium	Orange	Poor	On route of Roman road <b>[2]</b> .
126	Medium	Orange	Fair	Close to route of Roman road <b>[2]</b> . Linear magnetic susceptibility results <b>[32]</b>
127	High	Magenta	Fair	On the route of Roman road <b>[4]</b> . Evaluation trench B13 had an undated ditch <b>[89]</b> . Broadly linear magnetic susceptibility results <b>[36]</b>
128	High	Magenta	Good	On the route of Roman road <b>[4]</b> . Evaluation trench B12 was blank <b>[88]</b> . Broadly linear magnetic susceptibility results <b>[36]</b>
129	Medium	Orange	Good	Evaluation trench B11 was blank <b>[87]</b> . Broadly linear magnetic susceptibility results <b>[36]</b>
130	Low	Blue	Fair	Evaluation trench B9 had an undated iron object <b>[85]</b> , trench B10 was blank <b>[86]</b>
131	Low	Blue	Fair	Evaluation trench B6 was blank <b>[82]</b>
132	Low	Blue	Fair	Evaluation trench B5 was blank <b>[81]</b>
133	Medium	Orange	Fair	No archaeological evidence
134	Medium	Orange	Fair	No archaeological evidence
135	Medium	Orange	Fair	No archaeological evidence
136	Low	Blue	Fair	No archaeological evidence
137	Low	Blue	Poor	No archaeological evidence
138	Low	Blue	Poor	No archaeological evidence
139	Low	Blue	Poor	No archaeological evidence
140	High	Magenta	Poor	Evaluation trench 11 had a late Neolithic pit <b>[131]</b> , trench 12 was blank <b>[132]</b>
141	Medium	Orange	Poor	Evaluation trench 11 had a late Neolithic pit <b>[131]</b> .
142	Medium	Orange	Poor	Close to possible route of Iron Age Dyke <b>[3]</b> .
143	Medium	Orange	Poor	On possible route of Iron Age Dyke <b>[3]</b> .
144	Medium	Orange	Poor	Close to Roman road <b>[2]</b>
145	High	Magenta	Poor	On route of Roman road <b>[2]</b>
146	High	Magenta	Poor	On route of Roman road <b>[2]</b>
147	High	Magenta	Fair	On route of Roman road <b>[4]</b> . Broadly linear magnetic susceptibility results <b>[36]</b>

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Square	Archaeological Potential	Colour	Background Conditions	Archaeological Evidence
148	Very High	Red	Good	Close to Roman road [2]. Evaluation trench B14 had an undated ditch [90]. Broadly linear magnetic susceptibility results [36]. Ancient woodland
149	Medium	Orange	Good	Ancient woodland
150	Medium	Orange	Good	Ancient woodland
151	Medium	Orange	Good	Evaluation trench B9 had an undated iron object [85]. Ancient woodland
152	High	Magenta	Fair	Crop-mark [23]. Evaluation trench B7 had two ditches and possible pit dating from either mediaeval or Roman period [83]. Trench B8 had two undated ditches and a late mediaeval/ early post-mediaeval CBM find [84]
153	Medium	Orange	Fair	No archaeological evidence
154	High	Magenta	Fair	Concentration of Neolithic and Bronze Age flints [14]. Evaluation trench 35 had two undated burnt flints [155]
155	Medium	Orange	Fair	No archaeological evidence
156	Medium	Orange	Fair	No archaeological evidence
157	Low	Blue	Poor	No archaeological evidence
158	Low	Blue	Poor	No archaeological evidence
159	Low	Blue	Poor	No archaeological evidence
160	Low	Blue	Poor	Evaluation trench 12 was blank [132]
161	Low	Blue	Poor	Evaluation trench 13 had an undated pit [133], trench 14 was blank [134]
162	Medium	Orange	Poor	Close to possible route of Iron Age Dyke [3].
163	Medium	Orange	Poor	On possible route of Iron Age Dyke [3].
164	High	Magenta	Poor	On route of Roman road [2]
165	High	Magenta	Fair	On route of Roman road [4]. Broadly linear magnetic susceptibility results [36]
166	High	Magenta	Poor	On the route of Roman road [4]. Evaluation trench B15 had two undated ditches and a late mediaeval/ early post-mediaeval CBM find [91]
167	High	Magenta	Good	Close to Roman road [4]. Broadly linear magnetic susceptibility results [36]. Ancient woodland
168	Medium	Orange	Good	Ancient woodland
169	Medium	Orange	Good	Ancient woodland
170	Medium	Orange	Good	Ancient woodland
171	High	Magenta	Fair	Crop-mark [23]. Trench B8 had two undated ditches and a late mediaeval/ early post-mediaeval CBM find [84]
172	Medium	Orange	Fair	No archaeological evidence
173	Medium	Orange	Fair	No archaeological evidence
174	Medium	Orange	Fair	No archaeological evidence
175	Medium	Orange	Fair	No archaeological evidence
176	Medium	Orange	Fair	No archaeological evidence
177	Medium	Orange	Fair	On the possible route of prehistoric trackway from evaluation trench 28 [148].
178	Low	Blue	Poor	On the possible route of prehistoric trackway from evaluation trench 28 [148].
179	Low	Blue	Poor	No archaeological evidence
180	Low	Blue	Poor	No archaeological evidence
181	Low	Blue	Poor	No archaeological evidence



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Square	Archaeological Potential	Colour	Background Conditions	Archaeological Evidence
182	Low	Blue	Poor	Evaluation trenches 14 [134] and 16 [136] were both blank
183	High	Magenta	Poor	On possible route of Iron Age Dyke [3]. Evaluation trench 15 had undated layers [135].
184	Medium	Orange	Poor	On possible route of Iron Age Dyke [3]. Close to Roman road [2]
185	High	Magenta	Poor	On route of Roman road [2]
186	Low	Blue	Fair	No archaeological evidence
187	Medium	Orange	Good	No archaeological evidence
188	High	Magenta	Good	Close to Roman road [4]. Broadly linear magnetic susceptibility results [36]
189	Very High	Red	Good	On route of Roman road [4]. Evaluation trench B16 had a post-mediaeval quarry pit [92]. Broadly linear magnetic susceptibility results [36]
190	High	Magenta	Good	Close to route of Roman road [4]. Evaluation trench B16 had a post-mediaeval quarry pit [92]. Trench B17 had a late mediaeval/ early post-mediaeval CBM find [93]
191	Medium	Orange	Good	Evaluation trench B18 was blank [94]. Ancient woodland
192	Medium	Orange	Good	Ancient woodland
193	High	Magenta	Good	Evaluation trench B24 was blank [100]. Trench B23 had an undated ditch terminus [99]. Ancient woodland
194	High	Magenta	Good	Evaluation trench B23 had an undated ditch terminus [99]
195	Medium	Orange	Fair	No archaeological evidence
196	Medium	Orange	Fair	No archaeological evidence
197	Medium	Orange	Fair	No archaeological evidence
198	Medium	Orange	Fair	No archaeological evidence
199	Medium	Orange	Fair	No archaeological evidence
200	Medium	Orange	Fair	No archaeological evidence
201	Medium	Orange	Fair	No archaeological evidence
202	Medium	Orange	Fair	Close to the possible route of prehistoric trackway from evaluation trench 28 [148].
203	Medium	Orange	Poor	On the possible route of prehistoric trackway from evaluation trench 28 [148].
204	Medium	Orange	Poor	On the possible route of prehistoric trackway from evaluation trench 28 [148].
205	Medium	Orange	Poor	Close to the possible route of prehistoric trackway from evaluation trench 28 [148].
206	Low	Blue	Poor	No archaeological evidence
207	Medium	Orange	Poor	Close to possible route of Iron Age Dyke [3].
208	Medium	Orange	Poor	On possible route of Iron Age Dyke [3]. Close to Roman road [2]
209	High	Magenta	Poor	Close to possible route of Iron Age Dyke [3]. On the route of Roman road [2]
210	Low	Blue	Fair	Evaluation trench E1 was blank [103]
211	Low	Blue	Good	Evaluation trench E2 was blank [104]
212	Medium	Orange	Good	On route of Roman road [4]. Evaluation trench B22 was blank [98]

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Square	Archaeological Potential	Colour	Background Conditions	Archaeological Evidence
213	High	Magenta	Good	Close to Roman road [4]. Evaluation trench B22 was blank [98]. On the possible route of prehistoric trackway from evaluation trench E13 [115]. Broadly linear magnetic susceptibility results [36]
214	High	Magenta	Good	Close to Roman road [4]. Evaluation trench B21 was blank [97]. On possible route of prehistoric trackway from evaluation trench E13 [115].
215	High	Magenta	Good	Evaluation trench B19 had an undated ditch [95]. Trench B20 had an undated ditch and pit [96]. Close to possible route of prehistoric trackway from evaluation trench E13 [115].
216	Medium	Orange	Good	Evaluation trench B18 was blank [94]. Ancient woodland
217	Medium	Orange	Good	Evaluation trench B25 was blank [101]. Ancient woodland
218	Medium	Orange	Good	No archaeological evidence
219	Medium	Orange	Fair	No archaeological evidence
220	Medium	Orange	Fair	No archaeological evidence
221	Very High	Red	Fair	Evaluation trench 34 had a ditch dating from the Neolithic to early Bronze Age [154]
222	Medium	Orange	Fair	No archaeological evidence
223	Very High	Red	Fair	Evaluation trench 37 had a ditch dating from the mid to late Bronze Age and Bronze Age flints [157]
224	Very High	Red	Fair	Sub-circular crop-mark [30]. Evaluation trench 36 had a pit dating from the late Bronze Age to mid Iron Age [156].
225	Medium	Orange	Fair	No archaeological evidence
226	Medium	Orange	Fair	No archaeological evidence
227	Low	Blue	Fair	No archaeological evidence
228	Low	Blue	Fair	No archaeological evidence
229	Low	Blue	Fair	No archaeological evidence
230	Low	Blue	Poor	No archaeological evidence
231	Medium	Orange	Poor	Close to the possible route of prehistoric trackway from evaluation trench 28 [148].
232	Medium	Orange	Poor	On the possible route of prehistoric trackway from evaluation trench 28 [148]. Linear magnetic susceptibility results [34]. Evaluation trench 17 was blank [137]
233	Low	Blue	Poor	On the possible route of prehistoric trackway from evaluation trench 28 [148]. Linear magnetic susceptibility results [34]. Evaluation trench 17 was blank [137]
234	Medium	Orange	Poor	Close to the possible route of prehistoric trackway from evaluation trench 28 [148]. Linear magnetic susceptibility results [34]
235	High	Magenta	Poor	On the route of Iron Age Dyke [3]. Close to Roman road [2]. Called 'Money Pit Field'. Linear magnetic susceptibility results [35]
236	High	Magenta	Poor	On the route of Iron Age Dyke [3]. On route of Roman road [2]. Called 'Money Pit Field'. Linear magnetic susceptibility results [35]
237	High	Magenta	Poor	On route of Roman road [2]
238	Low	Blue	Fair	No archaeological evidence
239	Low	Blue	Good	Evaluation trench E3 was blank [105]

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Square	Archaeological Potential	Colour	Background Conditions	Archaeological Evidence
240	High	Magenta	Good	On the route of Roman road [4]
241	Very High	Red	Good	On the route of Roman road [4]. On possible route of prehistoric trackway from evaluation trench E13 [115].
242	High	Magenta	Good	On possible route of prehistoric trackway from evaluation trench E13 [115]. Evaluation trench E7 was blank [109]
243	Very High	Red	Good	Trench B20 had an undated ditch and pit [96]. On possible route of prehistoric trackway from evaluation trench E13 [115].
244	Very High	Red	Good	Trench B26 had a Roman pit and Roman CBM [102]. On possible route of prehistoric trackway from evaluation trench E13 [115]. Ancient woodland
245	Very High	Red	Good	Trench B26 had a Roman pit and Roman CBM [102]. Sub-circular crop-mark [22]. Evaluation trench B25 was blank [101]
246	Medium	Orange	Good	No archaeological evidence
247	Medium	Orange	Fair	Evaluation trench 32 was blank [152]. Sub-circular crop-mark [22]
248	Medium	Orange	Fair	No archaeological evidence
249	Medium	Orange	Fair	Partly inside Archaeological Area AAS18 covering prehistoric crop-marks
250	Medium	Orange	Fair	Partly inside Archaeological Area AAS18 covering prehistoric crop-marks
251	Very High	Red	Fair	Partly inside Archaeological Area AAS18 covering prehistoric crop-marks. Evaluation trench 37 had a ditch dating from the mid to late Bronze Age and Bronze Age flints [157]
252	Very High	Red	Fair	Evaluation trench 37 had a ditch dating from the mid to late Bronze Age and Bronze Age flints [157]. Sub-circular crop-mark [31]
253	Medium	Orange	Fair	No archaeological evidence
254	Medium	Orange	Fair	Roman metal find [12]
255	Low	Blue	Fair	No archaeological evidence
256	Low	Blue	Fair	No archaeological evidence
257	Low	Blue	Poor	No archaeological evidence
258	Low	Blue	Poor	Evaluation trench 43 was blank [163]
259	Low	Blue	Poor	No archaeological evidence
260	Medium	Orange	Poor	Close to the possible route of prehistoric trackway from evaluation trench 28 [148].
261	Medium	Orange	Poor	On the possible route of prehistoric trackway from evaluation trench 28 [148]. Linear magnetic susceptibility results [34]. Linear magnetic susceptibility results [35]
262	High	Magenta	Poor	Evaluation trench 18 was blank [138]. On the possible route of prehistoric trackway from evaluation trench 28 [148]. One route of Iron Age Dyke [3]. Close to Roman Road [2]. Called 'Money Pit Field'. Linear magnetic susceptibility results [35]
263	Medium	Orange	Poor	Evaluation trench 18 was blank [138]. One route of Iron Age Dyke [3]. On route of Roman Road [2]. Called 'Money Pit Field'. Linear magnetic susceptibility results [35]

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Square	Archaeological Potential	Colour	Background Conditions	Archaeological Evidence
264	High	Magenta	Poor	Close to route of Iron Age Dyke [3]. On route of Roman Road [2]. Roman metal find [8]
265	Low	Blue	Poor	No archaeological evidence
266	Low	Blue	Poor	No archaeological evidence
267	Low	Blue	Poor	No archaeological evidence
268	Low	Blue	Poor	No archaeological evidence
269	Low	Blue	Fair	No archaeological evidence
270	High	Magenta	Fair	On the route of Roman road [4]. Evaluation trench E4 was blank [106]. Trench E9 had Roman pottery and burnt flint finds [111]
271	Very High	Red	Good	On the route of Roman road [4]. Evaluation trench E5 had vitrified stone find [107]
272	Very High	Red	Good	Close to the route of Roman road [4]. Evaluation trench E6 had a Neolithic flint find [108]. Trench E11 had post-mediaeval quarry and a gully [113]
273	High	Magenta	Good	Close to possible route of prehistoric trackway from evaluation trench E13 [115]. Evaluation trench E7 was blank [109]. Trench E12 had a post-mediaeval quarry [114]
274	Very High	Red	Good	On the route of prehistoric trackway from evaluation trench E13 [115]. Evaluation trench E8 had a structure with foundation ditches, demolition layers and a pit dating from mid/ late Iron Age to early Roman, with evidence of further activity in the mediaeval period [110].
275	Very High	Red	Good	Evaluation trench E13 had ditches and a trackway dating from late Mesolithic to early Bronze Age [115]
276	High	Magenta	Good	On the route of prehistoric trackway from evaluation trench E13 [115].
277	Medium	Orange	Fair	Close to the route of prehistoric trackway from evaluation trench E13 [115].
278	Medium	Orange	Fair	No archaeological evidence
279	High	Magenta	Fair	Evaluation trench 33 was blank [153]. Sub-circular crop-mark [20]
280	High	Magenta	Fair	Partly inside Archaeological Area AAS18 covering prehistoric crop-marks.
281	Medium	Orange	Fair	Partly inside Archaeological Area AAS18 covering prehistoric crop-marks. Evaluation trench 49 was blank [169]
282	Medium	Orange	Fair	Partly inside Archaeological Area AAS18 covering prehistoric crop-marks.
283	Medium	Orange	Fair	Partly inside Archaeological Area AAS18 covering prehistoric crop-marks.
284	Low	Blue	Fair	No archaeological evidence
285	High	Magenta	Fair	Roman metal find [13]. Evaluation trench 40 had an undated pit and quarry [160]
286	Low	Blue	Fair	No archaeological evidence
287	Low	Blue	Poor	No archaeological evidence
288	Low	Blue	Poor	Evaluation trench 43 was blank [163]
289	Low	Blue	Poor	Evaluation trench 43 was blank [163]
290	Low	Blue	Poor	No archaeological evidence
291	Low	Blue	Poor	Linear magnetic susceptibility results [35]

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Square	Archaeological Potential	Colour	Background Conditions	Archaeological Evidence
292	High	Magenta	Poor	On route of Iron Age Dyke [3] and close to Roman road [2]. Linear magnetic susceptibility results [35]
293	High	Magenta	Poor	On route of Iron Age Dyke [3] and Roman road [2]. Linear magnetic susceptibility results [35]. Evaluation trench 19 was blank
294	High	Magenta	Poor	Close to route of Iron Age Dyke [3] and on route of Roman road [2]. Linear magnetic susceptibility results [35]
295	Low	Blue	Poor	No archaeological evidence
296	Low	Blue	Poor	No archaeological evidence
297	Low	Blue	Poor	No archaeological evidence
298	Low	Blue	Poor	No archaeological evidence
299	Low	Blue	Poor	Evaluation trench 22 had a burnt flint find [142]
300	Low	Blue	Poor	No archaeological evidence
301	Very High	Red	Fair	On the route of Roman road [4]. Evaluation trench E9 had Roman pottery and burnt flint finds [111]
302	Medium	Orange	Fair	Close to the route of Roman road [4]. Evaluation trench E10 was blank [112]
303	Medium	Orange	Fair	Evaluation trench E11 had post-mediaeval quarry and a gully [113]
304	Low	Blue	Fair	Evaluation trench 38 was blank [158]
305	Low	Blue	Fair	Evaluation trench E14 was blank [116]
306	Medium	Orange	Fair	Evaluation trench E14 was blank [116]. Close to possible route of prehistoric trackway from evaluation trench E13 [115].
307	Medium	Orange	Fair	Close to possible route of prehistoric trackway from evaluation trench E13 [115].
308	Medium	Orange	Fair	On the route of possible route of prehistoric trackway from evaluation trench E13 [115].
309	Medium	Orange	Fair	On the route of possible route of prehistoric trackway from evaluation trench E13 [115].
310	High	Magenta	Fair	Close to possible route of prehistoric trackway from evaluation trench E13 [115]. Partly inside Archaeological Area AAS18 covering prehistoric crop-marks.
311	Medium	Orange	Fair	Evaluation trench 50 was blank [170]. Partly inside Archaeological Area AAS18 covering prehistoric crop-marks.
312	Medium	Orange	Fair	Evaluation trench 50 was blank [170]. Inside Archaeological Area AAS18 covering prehistoric crop-marks.
313	Medium	Orange	Fair	Inside Archaeological Area AAS18 covering prehistoric crop-marks.
314	High	Magenta	Fair	Crop-mark [37]. Evaluation trench 46 had a quarry with Roman CBM and post-mediaeval finds [166]. Partly inside Archaeological Area AAS18 covering prehistoric crop-marks.
315	High	Magenta	Fair	Evaluation trench 46 had a quarry with Roman CBM and post-mediaeval finds [166]. Partly inside Archaeological Area AAS18 covering prehistoric crop-marks.
316	Low	Blue	Fair	Evaluation trench 40 had an undated pit and quarry [160]. Trench 41 was blank [161]. Crop-mark [19]
317	Low	Blue	Fair	Trench 41 was blank [161]

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Square	Archaeological Potential	Colour	Background Conditions	Archaeological Evidence
318	Low	Blue	Poor	No archaeological evidence
319	Low	Blue	Poor	No archaeological evidence
320	Low	Blue	Poor	No archaeological evidence
321	Low	Blue	Poor	No archaeological evidence
322	High	Magenta	Poor	Site of tile kiln and gravel pit [42]. On route of Iron Age Dyke [3] and close to Roman road [2]. Linear magnetic susceptibility results [35]
323	High	Magenta	Poor	On route of Iron Age Dyke [3] and Roman road [2]. Linear magnetic susceptibility results [35]
324	High	Magenta	Poor	Close to route of Iron Age Dyke [3] and on route of Roman road [2]. Linear magnetic susceptibility results [35]. Roman metal find [8]
325	Low	Blue	Poor	Evaluation trench 20 had some unstratified post med pottery sherds and possible Roman CBM [140].
326	Low	Blue	Poor	No archaeological evidence
327	Low	Blue	Poor	No archaeological evidence
328	Low	Blue	Poor	No archaeological evidence
329	Low	Blue	Poor	No archaeological evidence
330	Low	Blue	Poor	Evaluation trench 22 had a burnt flint find [142]
331	Low	Blue	Poor	No archaeological evidence
332	High	Magenta	Fair	On route of Roman road [4]
333	Medium	Orange	Fair	No archaeological evidence
334	Medium	Orange	Fair	No archaeological evidence
335	Low	Blue	Fair	Evaluation trench 38 was blank [158]
336	Medium	Orange	Fair	No archaeological evidence
337	Medium	Orange	Fair	No archaeological evidence
338	Medium	Orange	Fair	No archaeological evidence
339	Medium	Orange	Fair	Close to the route of prehistoric trackway from evaluation trench E13 [115].
340	Medium	Orange	Fair	On the route of prehistoric trackway from evaluation trench E13 [115]. Ancient woodland
341	High	Magenta	Fair	On the route of prehistoric trackway from evaluation trench E13 [115]. Partly inside Archaeological Area AAS18 covering prehistoric crop-marks. Ancient woodland
342	High	Magenta	Fair	On the route of prehistoric trackway from evaluation trench E13 [115]. Partly inside Archaeological Area AAS18 covering prehistoric crop-marks. Ancient woodland
343	High	Magenta	Fair	Close to the route of prehistoric trackway from evaluation trench E13 [115]. Inside Archaeological Area AAS18 covering prehistoric crop-marks.
344	Medium	Orange	Fair	Evaluation trench 48 was blank [168]. Crop-marks [40] and [41]. Inside Archaeological Area AAS18 covering prehistoric crop-marks.
345	Low	Blue	Fair	Evaluation trench 47 was blank [167]. Crop-mark [39]. Inside Archaeological Area AAS18 covering prehistoric crop-marks.
346	Low	Blue	Fair	Evaluation trench 44 was blank [164]. Partly inside Archaeological Area AAS18 covering prehistoric crop-marks.
347	Low	Blue	Fair	Evaluation trench 44 was blank [164]. Crop-mark [38]

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Square	Archaeological Potential	Colour	Background Conditions	Archaeological Evidence
348	Low	Blue	Poor	Evaluation trench 42 had a quarry with CBM dating from either the mediaeval or Roman periods <b>[162]</b>
349	Low	Blue	Poor	Evaluation trench 42 had a quarry with CBM dating from either the mediaeval or Roman periods <b>[162]</b> . Crop-mark <b>[18]</b>
350	Low	Blue	Poor	No archaeological evidence
351	Low	Blue	Poor	No archaeological evidence
352	High	Magenta	Poor	Village pound <b>[43]</b> . On route of Iron Age Dyke <b>[3]</b> and to Roman road <b>[2]</b> .
353	High	Magenta	Poor	On route of Iron Age Dyke <b>[3]</b> and to Roman road <b>[2]</b> .
354	High	Magenta	Poor	Close to route of Iron Age Dyke <b>[3]</b> and on route of Roman road <b>[2]</b> .
355	Medium	Orange	Poor	Crop-marks <b>[17]</b> . Evaluation trench 20 had some unstratified post med pottery sherds and possible Roman CBM <b>[140]</b> .
356	Medium	Orange	Poor	Crop-marks <b>[15]</b> and <b>[17]</b> . Evaluation trench 20 had some unstratified post med pottery sherds and possible Roman CBM <b>[140]</b> . Trenches 21 <b>[141]</b> and 23 <b>[143]</b> were blank
357	Low	Blue	Poor	No archaeological evidence
358	Low	Blue	Poor	No archaeological evidence
359	Low	Blue	Poor	No archaeological evidence
360	Low	Blue	Poor	No archaeological evidence
361	Low	Blue	Poor	No archaeological evidence
362	Medium	Orange	Good	No archaeological evidence
363	Medium	Orange	Fair	No archaeological evidence
364	Medium	Orange	Fair	No archaeological evidence
365	Medium	Orange	Fair	No archaeological evidence
366	Very High	Red	Fair	Evaluation trench 39 had a post hole possibly dating to the Neolithic and unstratified late Neolithic flint fragment <b>[159]</b>
367	Medium	Orange	Fair	No archaeological evidence
368	Medium	Orange	Fair	Ancient woodland
369	Medium	Orange	Fair	Ancient woodland
370	Medium	Orange	Fair	Close to the route of prehistoric trackway from evaluation trench E13 <b>[115]</b> . Ancient woodland
371	High	Magenta	Fair	On the route of prehistoric trackway from evaluation trench E13 <b>[115]</b> . Partly inside Archaeological Area AAS18 covering prehistoric crop-marks. Ancient woodland
372	High	Magenta	Fair	On the route of prehistoric trackway from evaluation trench E13 <b>[115]</b> . Partly inside Archaeological Area AAS18 covering prehistoric crop-marks. Ancient woodland
373	High	Magenta	Fair	Close to the route of prehistoric trackway from evaluation trench E13 <b>[115]</b> . Inside Archaeological Area AAS18 covering prehistoric crop-marks.
374	Medium	Orange	Fair	Inside Archaeological Area AAS18 covering prehistoric crop-marks.
375	Low	Blue	Poor	Partly inside Archaeological Area AAS18 covering prehistoric crop-marks.
376	Low	Blue	Poor	No archaeological evidence
377	Low	Blue	Poor	No archaeological evidence

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Square	Archaeological Potential	Colour	Background Conditions	Archaeological Evidence
378	Low	Blue	Poor	No archaeological evidence
379	Low	Blue	Poor	No archaeological evidence
380	Medium	Orange	Poor	Roman metal find [11]. On route of Iron Age Dyke [3] and Roman road [2].
381	High	Magenta	Poor	On route of Iron Age Dyke [3] and Roman road [2].
382	High	Magenta	Poor	Close to route of Iron Age Dyke [3] and Roman road [2].
383	Low	Blue	Poor	No archaeological evidence
384	Medium	Orange	Poor	Evaluation trench 24 had a post-mediaeval ditch. Crop-marks [17]
385	Medium	Orange	Poor	Evaluation trench 24 had a post-mediaeval ditch [144]. Trench 23 was blank [143]. Crop-marks [17] and [16]
386	Low	Blue	Poor	No archaeological evidence
387	Low	Blue	Poor	No archaeological evidence
388	Low	Blue	Poor	No archaeological evidence
389	Low	Blue	Poor	No archaeological evidence
390	Low	Blue	Poor	No archaeological evidence
391	Medium	Orange	Good	No archaeological evidence
392	Medium	Orange	Fair	No archaeological evidence
393	Medium	Orange	Fair	No archaeological evidence
394	Medium	Orange	Fair	No archaeological evidence
395	Medium	Orange	Fair	No archaeological evidence
396	Medium	Orange	Fair	No archaeological evidence
397	Low	Blue	Fair	No archaeological evidence
398	High	Magenta	Fair	Evaluation trench E15 had unstratified pottery and flints dating from late Bronze Age to Iron Age [117]. Ancient woodland
399	Low	Blue	Fair	Ancient woodland
400	High	Magenta	Fair	Close to the route of prehistoric trackway from evaluation trench E13 [115]. Ancient woodland. Partly inside Archaeological Area AAS18 covering prehistoric crop-marks.
401	High	Magenta	Fair	On the route of prehistoric trackway from evaluation trench E13 [115]. Ancient woodland. Partly inside Archaeological Area AAS18 covering prehistoric crop-marks.
402	High	Magenta	Fair	On the route of prehistoric trackway from evaluation trench E13 [115]. Inside Archaeological Area AAS18 covering prehistoric crop-marks.
403	High	Magenta	Fair	On the route of prehistoric trackway from evaluation trench E13 [115]. Partly inside Archaeological Area AAS18 covering prehistoric crop-marks.
404	Medium	Orange	Poor	Close to the route of prehistoric trackway from evaluation trench E13 [115].
405	Low	Blue	Poor	Evaluation trench 45 was blank [165]
406	Low	Blue	Poor	No archaeological evidence
407	Low	Blue	Poor	No archaeological evidence
408	Low	Blue	Poor	No archaeological evidence
409	Low	Blue	Poor	No archaeological evidence
410	Low	Blue	Poor	No archaeological evidence
411	Low	Blue	Poor	No archaeological evidence



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Square	Archaeological Potential	Colour	Background Conditions	Archaeological Evidence
412	Low	Blue	Poor	No archaeological evidence
413	Low	Blue	Poor	No archaeological evidence
414	Low	Blue	Poor	No archaeological evidence
415	Low	Blue	Poor	No archaeological evidence
416	Low	Blue	Poor	No archaeological evidence
417	Medium	Orange	Fair	No archaeological evidence
418	Medium	Orange	Fair	No archaeological evidence
419	Medium	Orange	Fair	No archaeological evidence
420	Medium	Orange	Fair	No archaeological evidence
421	Medium	Orange	Fair	No archaeological evidence
422	Low	Blue	Fair	No archaeological evidence
423	High	Magenta	Fair	Evaluation trench E16 had an undated ditch and unstratified pottery sherds and flints dating from the late Bronze Age to Iron Age <b>[118]</b> . Trench E17 had an undated ditch and unstratified pottery sherd dating to the early Roman period <b>[119]</b>
424	Medium	Orange	Fair	Evaluation trench E17 had an undated ditch and unstratified pottery sherd dating to the early Roman period <b>[119]</b> . Trench E18 had an undated iron object <b>[120]</b> . Ancient woodland
425	Medium	Orange	Fair	Evaluation trench E18 had an undated iron object <b>[120]</b> . Ancient woodland. Partly inside Archaeological Area AAS18 covering prehistoric crop-marks.
426	High	Magenta	Fair	On the route of prehistoric trackway from evaluation trench E13 <b>[115]</b> . Partly inside Archaeological Area AAS18 covering prehistoric crop-marks.
427	High	Magenta	Poor	On the route of prehistoric trackway from evaluation trench E13 <b>[115]</b> .
428	Medium	Orange	Poor	On the route of prehistoric trackway from evaluation trench E13 <b>[115]</b> . Evaluation trench 45 was blank <b>[165]</b>
429	Medium	Orange	Poor	Close to the route of prehistoric trackway from evaluation trench E13 <b>[115]</b> .
430	Low	Blue	Poor	No archaeological evidence
431	Low	Blue	Poor	No archaeological evidence
432	Low	Blue	Poor	No archaeological evidence
433	Low	Blue	Poor	No archaeological evidence
434	Low	Blue	Poor	No archaeological evidence
435	Medium	Orange	Poor	Roman metal find <b>[10]</b> .
436	Low	Blue	Fair	No archaeological evidence
437	Medium	Orange	Fair	Evaluation trench E18 had an undated iron object <b>[120]</b> . Ancient woodland.
438	Medium	Orange	Fair	Partly inside Archaeological Area AAS18 covering prehistoric crop-marks.
439	High	Magenta	Poor	On the route of prehistoric trackway from evaluation trench E13 <b>[115]</b> . Close to route of Iron Age Dyke <b>[3]</b> and on route of Roman road <b>[2]</b> .
440	Low	Blue	Poor	No archaeological evidence
441	Low	Blue	Poor	No archaeological evidence



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The incidence of Low, Medium, High and Very High scores in the table is summarised below. A total of 165 squares contained no archaeological evidence.

	<b>Low</b>	<b>Medium</b>	<b>High</b>	<b>V. high</b>
No. of squares	169	164	90	18
% of site	38	37	20	4

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### ***Limitations to the Modelling Approach***

Although the model utilises a variety of datasets to determine the risk of encountering archaeology across the study area, the limitations of the modelling approach need to be taken into consideration before conclusions are drawn. These limitations include:

- *Evaluation Sample.* Information from the evaluation was vital to the model, but represents a statistically small sample of the study area as a whole. Conclusions drawn on this basis must be treated with caution.
- *Historic Environment Record.* The data contained in the county HER represents only the extent of available information and some of the information may not be accurate. It is not a definitive list of all the archaeological sites that may be in the landscape.
- *Environment.* Micro-environments may exist on the site, such as pockets of favourable soils or natural springs, which might be expected to influence archaeological activity, but which have not been recorded.
- *Extent.* The model cannot illustrate the size or extent of the archaeological elements which have influenced the scoring for the individual hectare squares.
- *Scoring.* The scoring system has been guided by professional judgement within the limitations of the available data. The model should be used as a guide only and cannot be seen as definitive assessment of the presence or absence of archaeological remains.
- *Damage.* The identification of a site in one or more dataset does not presuppose the quality of its survival.

In this context, further investigation may be considered necessary, in consultation with the *Historic Environment Countryside Adviser* (HECA) of Hertfordshire County Council and the *St Albans District Archaeologist* (SADA), before planting schemes proceed (see Mitigation Strategy, below).

#### 4.5 Impact of Woodland Creation Scheme

##### *Detrimental factors associated with tree planting*

A number of factors associated with tree planting, which might be considered to have a detrimental effect on the archaeological resource have been considered, and their impact graded. These include the planting process, root growth, chemical and mineral degradation, changes in hydrology, activity of soil biota, soil erosion, and activities associated with woodland management (see Crow 2004).

##### *Planting*

Deep ploughing, or the practice of inversion, can have a significant impact on buried archaeological remains when the soil cover is thin. The Forestry Commission's *Forests and Archaeology Guidelines* (1995) state that no area identified for archaeological conservation should be ploughed, ripped or scarified. In the case of the present study area, unless additional archaeological investigation is carried out to dismiss the identified archaeological potential, this principle should extend to the whole site.

Care should be taken with managing heavy vehicle movements across the site for either delivery of stock or mechanical planting, to avoid soil erosion or rutting.

On balance, significant physical damage to archaeological remains through the direct action of tree planting is unlikely to occur as the ground disturbance is minimal.

##### *Root growth*

The interactions of tree roots with the archaeological resource depend on many factors such as the nature of the archaeological remains, soil composition, depth of overburden, underlying geology, woodland density, management regime, tree age and species.

Root systems fall into the following broad categories:

- *Taproot*: where a strong main root descends vertically from the underside of the trunk. Examples include English oak, Scots pine and silver fir.
- *Heart root*: where both large and smaller roots descend diagonally from the trunk. Examples include birch, beech, larch, lime and Norway maple.
- *Surface root*: where large horizontal, lateral roots extend just below the soil surface, from which small roots branch down vertically. Examples include ash, aspen, Norway spruce and white pine.

While a taproot system may be desirable for stabilising banks, surface or heart roots tend to have more lateral growth and may, therefore, be less intrusive on archaeological deposits.

Planting nursery-grown stock, where it has been subjected to undercutting or transplanting, is considered to be less detrimental to archaeological deposits than direct sowing. One of the

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primary functions of both these processes is to remove any taproots and thus stimulate more lateral growth.

Genetic influences on rooting habits do exist, but the dominant effect on rooting structure will be environmentally based. For all tree species, the vast majority of roots will occur in the uppermost metre of soil. It is unusual for roots to penetrate to a depth greater than 2m, with 80-90% found within the top 0.60m of the soil profile.

The lateral spread of roots varies greatly between species, ranging from 2-3m to greater than 10m. Asymmetrical root systems are not uncommon and may result from variations in the soil environment or topographical features such as slopes.

Many buried archaeological remains have a high nutrient content and constitute attractive loci for biological activity. While such remains will not actively attract root growth, if such a deposit were randomly encountered by tree roots, they would be likely to exploit it, especially if surrounded by a less-fertile soil environment.

Artefacts, such as flint fragments, can become incorporated into growing tree roots inevitably resulting in displacement and loss of archaeological information.

In the case of buried structures, such as walls, tree roots will generally attempt to grow around them. However, as root growth tends to follow the path of least resistance, roots can become enmeshed with the fabric. This may help to consolidate the remains but should the tree be uprooted, extensive damage to the buried remains is likely.

### *Chemical and mineral degradation to artefacts*

Buried archaeological artefacts are diverse in their chemical composition. Some are of organic origin, e.g. bone, shell, pollen, plant debris and animal remains, others are of mineral origin, e.g. flint, ceramics, glass, metal and masonry.

The interaction of archaeological artefacts and the biochemistry of the deposits in which they lie is poorly understood. The survival of archaeological artefacts is primarily influenced by their own chemical composition, and that of the surrounding soil matrix.

Artefacts can be at risk from chemical dissolution but the rates will be determined by their solubility and the soil horizon chemistry. Chemical effects on the archaeological resource due to the application of either herbicides or fertilisers are difficult to assess but it should be noted that the majority of the study area has already been subject to the application of such chemicals as a result of modern intensive farming practices.

Although tree cover will affect the immediate archaeological environment by providing a higher degree of shade, reduced wind speed, increased humidity and reduced temperature fluctuation relative to the surrounding open areas, it is unclear how or whether this might affect the archaeological resource. Mineral weathering rates are dependent upon soil type, temperature, horizon chemistry, water content, microbial activity, vegetation type and root exudates.

### *Hydrology*

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Drainage will have a greater effect on soil water content when compared to tree growth or vegetation type. However, some species of trees have a higher demand for water from the surrounding soil than others. Tree litter can contribute to higher water retention in the upper soils.

Soils with a large clay content are at risk of shrinking and cracking, whereas the structure of free-draining sands and gravels will be comparatively unaffected by prolonged drying. It is generally accepted that only soils with at least 35% sand can be considered non-shrinkable. The soils encountered within the study area are a diverse mixture of silty clays with numerous local pockets of chalk and sandy gravel.

Shrinkage of the soil can lead to a greater level of aeration of the soil horizon, allowing roots to penetrate deeper. However, even on drained soils, tree roots will not descend indefinitely in pursuit of water, and a maximum depth will be reached according to the level aeration of the soil and type of geology.

It should be noted that grass and agricultural crops are very efficient at competing for moisture, and the changes arising from the woodland planting scheme may not, therefore, be significant.

### *Soil biota*

There is little conclusive data on the complex relationship between woodland, soils and biota. In some circumstances tree litter can promote the presence of biota that may have an effect on buried remains. Earthworms are likely to have the biggest impact of any invertebrate on archaeological remains; worms that cast on the surface will move soil from below an artefact and deposit it above, thus resulting in the gradual burial through the *worm sorted layer*.

Ants generally build their nests in areas which receive good sunlight and thus are more common in open areas of grassland or under broken canopy. However, they also build heaps of fine soil above ground which may incorporate small artefacts. It has been suggested that ant activity may be responsible for the uniform fill often found in archaeological post-holes.

The effect of soil biota on the archaeological resource is not considered likely to change significantly as a result of woodland planting.

### *Erosion*

Woodland can help to stabilise soil erosion, but can also promote some destructive factors.

Rain is one of the most efficient causal forces of soil erosion, and tree canopies can provide an element of shelter. Tree cover also decreases the efficiency of wind erosion to soils by reducing wind speed and filtering out any wind-borne soil particles.

The use of species that favour a more vertical root system, such as oak, may be beneficial in the stabilisation of earth banks, whereas surface rooting trees may minimise surface soil erosion or be used to avoid deeper archaeology.

The presence of woodland can promote colonies of burrowing animals, either in the woodland or its fringes, such as rabbits, moles, voles, mice, foxes and badgers.

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Overgrazing by livestock or deer can cause surface erosion. The extent of damage will relate to population densities and whether the site contains any point at which they may congregate, e.g. for shelter. Soil erosion and rutting can also occur where visitor numbers or 'off road' vehicle movements are likely to be high.

Surface scatters of archaeological finds without any protection are unlikely to survive in areas of significant erosion/rutting and any near-surface artefacts/ecofacts are also at risk.

### *Woodland Management*

As the proposed scheme is not a commercial woodland, the impact from woodland felling and extraction is likely to be minimal. The preferred method of tree removal on archaeological sites is manual felling by chainsaw to reduce the likelihood of vehicular ground disturbance. Where heavy machinery is used, the soil beneath is at risk from physical damage such as compaction, displacement and erosion unless suitably protected

Risk of windthrow should be managed in archaeologically sensitive areas, to reduce the risk of significant destruction of buried remains.

Although a diversity of root responses has been observed following coppicing, in some species dieback has produced soil channels left by decayed roots which were subsequently reoccupied by new ones when growth was re-established. This could mean minimal disturbance for any subsoil archaeology. In some species, such as birch, root activity was reduced for several years following coppicing.

### **Summary**

The potential detrimental effects of the woodland planting scheme are summarised in the table below:

<b>Identified Factor</b>	<b>Activity</b>	<b>Impact on scatter finds</b>	<b>Impact on buried remains</b>	<b>Impact on buried artefacts</b>
Planting	Inversion	<i>High</i>	<i>High</i>	<i>High</i>
	Vehicle movements	<i>Low</i>	<i>Medium</i>	<i>Medium</i>
	Planting	<i>Low</i>	<i>Low</i>	<i>Low</i>
Root growth	Direct sowing	<i>Medium</i>	<i>High</i>	<i>Medium</i>
	Nursery stock	<i>Medium</i>	<i>Medium</i>	<i>Low</i>
Artefact degradation	Herbicides and fertilisers	<i>Negligible</i>	<i>Negligible</i>	<i>Low</i>
	Changes to environment	<i>Negligible</i>	<i>Negligible</i>	<i>Low</i>
Hydrology	Soil shrinkage	<i>Negligible</i>	<i>Negligible</i>	<i>Low</i>
Soil biota	Worms/ants	<i>Low</i>	<i>Low</i>	<i>Negligible</i>
Erosion	Human activity	<i>Medium</i>	<i>Medium</i>	<i>Low</i>
	Animal activity	<i>Medium</i>	<i>Medium</i>	<i>Low</i>
Management	Manual felling	<i>Low</i>	<i>Low</i>	<i>Low</i>



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	Mechanical felling	High	High	High
	Coppicing	Low	Medium	Low

The overall key advantages and disadvantages of the woodland scheme to the archaeological resource can be summarised as follows:

### *Advantages*

- Takes land out of intensive farming practice.
- Consolidates and adds to the overburden, providing added protection and reducing wind erosion.
- Acts as a barrier to quarrying and other intrusive activities, such as metal detecting.

### *Disadvantages*

- With only a relatively thin cover of overburden archaeological remains are likely to be damaged by root growth, and the subsequent loss of archaeological information.
- Promotion of burrowing animals.
- Increase in visitors and vehicle movements causing soil erosion.
- Changes in hydrology can negatively affect the survival of artefacts.
- Restricts any future archaeological investigation.

### **Impact Assessment for Current Scheme**

Eighteen activities associated with the present scheme have been recognised as having a possible impact on the archaeological resource. The magnitude of this impact has been scored from 1 to 4, as follows:

- (1) minimal impact on buried archaeological remains
- (2) possible impact on buried archaeological remains, but no significant loss of archaeological information
- (3) potential for damage and significant loss of archaeological features and information
- (4) potential for total loss of archaeological resource

The following table lists the activities and their impacts, scored in relation to the archaeological potential of any given area. A score of 3 or 4 indicates that mitigation of the impact is likely to be required.

Activity	Impact	Magnitude of Impact by Archaeological Potential			
		Low	Med	High	V.High
Woodland	Root damage & changes to soil horizon	1	2	3	4
Orchards	Root damage & changes to soil horizon	1	2	3	4

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Activity	Impact	Magnitude of Impact by Archaeological Potential			
		Low	Med	High	V.High
New hedgerows	Some root damage	1	1	2	3
Scrub areas	None	1	1	1	1
Grassland	None	1	1	1	1
Wild flower meadows	None	1	1	1	1
Pathways	Erosion of overburden over time	1	1	1	2
Surfaced access routes	Ground Reduction. Compaction	1	2	2	3
Access road	Ground Reduction & Compaction	1	2	3	4
Carpark	Ground Reduction & Compaction	1	2	3	4
Surfaced bike/horse routes	Ground Reduction & Compaction	1	2	2	3
Unsurfaced bike/horse routes	Erosion of overburden over time	1	1	2	2
Ponds	Ground Reduction & changes in hydrology	1	2	3	3
Fencing	Limited Ground Reduction.	1	1	2	2
Landscaping	Ground Reduction	1	2	3	3
Drainage and services	Ground Reduction	1	2	2	3
Auxiliary furniture. signage, bins, seating etc.	Limited Ground Reduction	1	1	2	2
'Off road' vehicle movements	Erosion, compaction and rutting of the ground	1	2	3	4

### *Risk to archaeology in the future*

Some of the activities defined above will only have an effect on the archaeological resource at the time that they are implemented. Others may be considered to have a continuing impact on the archaeological resource. Although there is lack of suitable research data to allow the effects of woodland planting on buried archaeology over a long period of time to be definitively assessed, the following table provides a broad indication, where '0' indicates *No significant change over time* and '+' indicates *Increasing potential damage over time*. The scores assume that the open areas are managed and surfaced elements are maintained over time.

Activity	Time (Years)		
	0-10	11-40	41 +
Woodland	+	+	+
Orchards	+	+	+
New hedgerows	+	+	0
Scrub areas	0	0	0
Grassland	0	0	0
Wild flower meadows	0	0	0
Pathways	0	+	+

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Surfaced access routes	0	0	0
Access road	0	0	0
Carpark	0	0	0
Surfaced bike/ horse routes	0	0	0
Unsurfaced bike/ horse routes	0	+	+
Ponds	0	0	0
Fencing	0	0	0
Landscaping	0	0	0
Drainage and services	0	0	0
Auxiliary furniture: signage, bins, seating etc.	0	0	0
'Off road' vehicle movements	+	+	+

### *Risk to the landscape setting*

It is considered that the scheme will have a negligible affect on the setting of the surrounding historic environment.

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### 4.6 Mitigation measures

The model of archaeological potential discussed in Section 4.3, above, defines areas of *Very High*, *High*, *Medium* and *Low* potential. The areas of *High* and *Very High* potential have been identified on the basis of definitive data, and the archaeological remains in these areas, represented by small discrete clusters of cut features, such as post holes and pits, are considered to be more vulnerable to loss of information than more robust (though no less significant) features that extend beyond the limits of the site, such as Roman roads. These vulnerable areas are identified on the following table:

Trench	Features	Square
11	Pit	140
28	Three ditches, trackway	59
29	Pit	85
B20	Ditch and pit	243
B26	Pit	244, 245
34	Ditch	221
36	Post hole	224
37	Ditch	223, 252
E8	Foundation ditches and demolition layers and pit	274
E13	Ditches and trackway	275
39	Post hole	366

The preferred mitigation strategy for these areas must be preservation in situ by avoiding tree planting and any other destructive activities. Shrub and flower planting may be acceptable where disturbance does not exceed that of the present *minimum tillage* farming regime. The alternative strategy would be *preservation by record* involving the archaeological clearance of the sensitive areas before the start of the planting programme. Either strategy might require further investigation work in order to define the extent of these areas.

The areas classified as being of *Medium* and *Low* potential have been identified on the basis of the defined modelling criteria which are subject to the stated limitations. It may be necessary to test the effectiveness of the model by further investigation, which might involve a combination of field-walking, geophysics and trial trenching, before an appropriate mitigation strategy can be adopted. It is expected that such decisions would be made in consultation with the *Historic Environment Countryside Adviser* (HECA) of Hertfordshire County Council and the *St Albans District Archaeologist* (SADA), in advance of each season of proposed planting.

In general, the appropriate mitigation strategy for areas confirmed as being of *Medium* potential would be the adoption of a reduced planting density, while *Low* potential areas could be planted at the maximum approved density.

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### ***Mitigation options for destructive activities***

In ideal circumstances, all activities having a potential impact on the archaeological resource could be mitigated by design. Where this is not possible because of the nature or location of the works, then further investigative work may be required to clarify the extent of the impact. This may in turn lead to the adoption of mitigation measures before the activity is allowed to proceed. The mitigation options for each class of destructive activity are defined in the following table:

Activity	Mitigation by design	Evaluate archaeological risk	Implement archaeological mitigation
	<b><i>Preferred option</i></b>	<b><i>Alternative option</i></b>	
Deep ploughing	<i>Avoid deep ploughing</i>	<i>Yes</i>	<i>Watching brief</i>
Soil inversion	<i>Avoid inversion</i>	<i>Yes</i>	<i>Watching brief</i>
Hedgerows	<i>Existing hedgerows should be maintained and managed. New hedgerows planted in low /negligible areas of potential</i>	<i>No</i>	<i>Watching brief</i>
Ground reduction less than 0.20m	<i>Vegetation strip only, use geo-textile matting and build up</i>	<i>No</i>	<i>Watching brief</i>
Ground reduction between 0.20 and 0.50m	<i>Vegetation strip only, use geo-textile matting and build up</i>	<i>Yes</i>	<i>Watching brief in small areas. Open area excavation for larger areas</i>
Ground reduction 0.50m+	<i>Vegetation strip only, use geo-textile matting and build up</i>	<i>Yes</i>	<i>Watching brief in small areas. Open area excavation for larger areas</i>
Limited intrusion e.g. post-holes for signs/ fencing	<i>Keep the number of intrusive holes to a minimum</i>	<i>No</i>	<i>Watching brief</i>
Creating bunds/banks	<i>To avoid compaction, keep landscape features below 2m in height</i>	<i>Yes</i>	<i>Watching brief in small areas. Open area excavation for larger areas</i>
'Off road' vehicle movements	<i>Limit access</i>	<i>N/A</i>	<i>N/A</i>

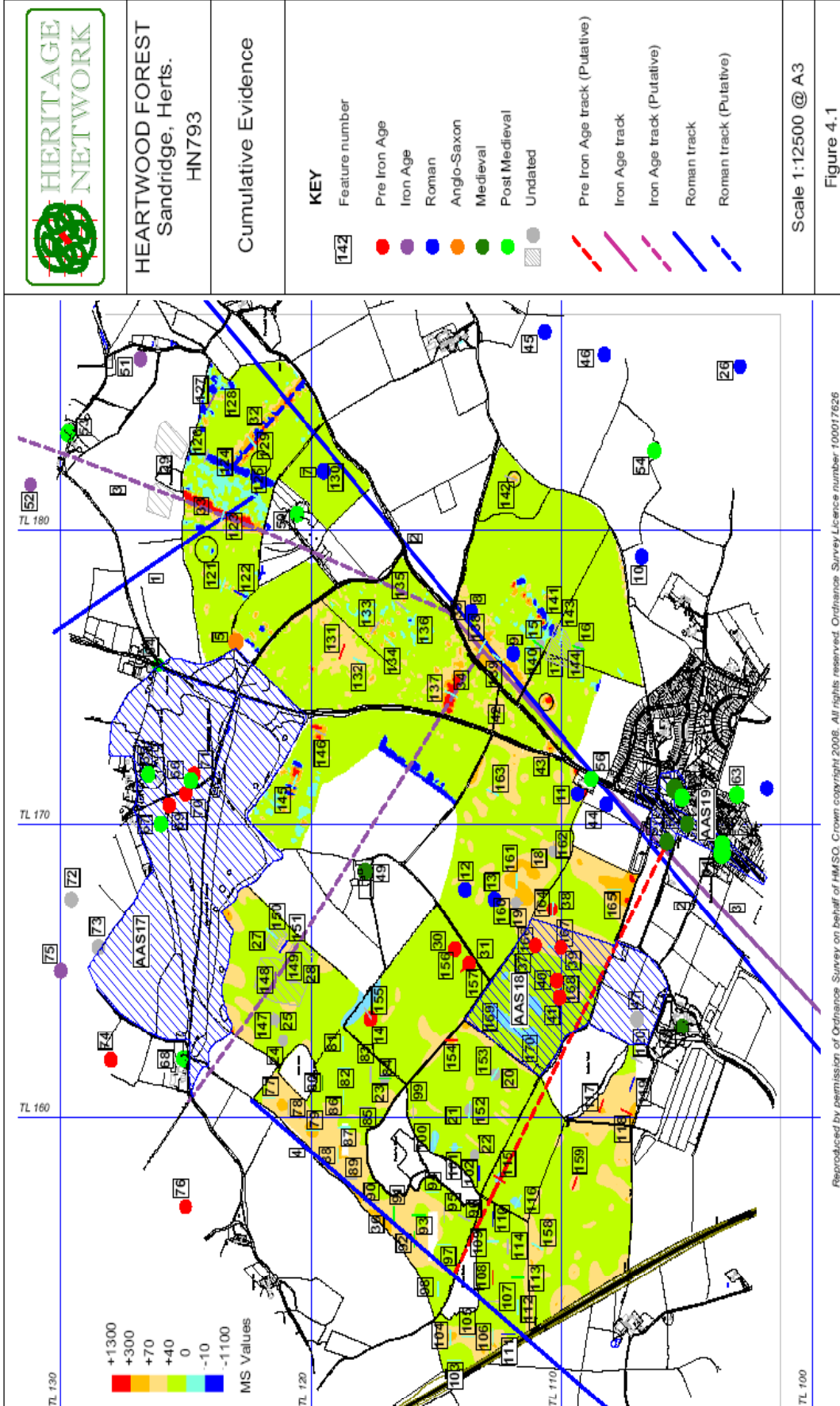


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### 4.7 References

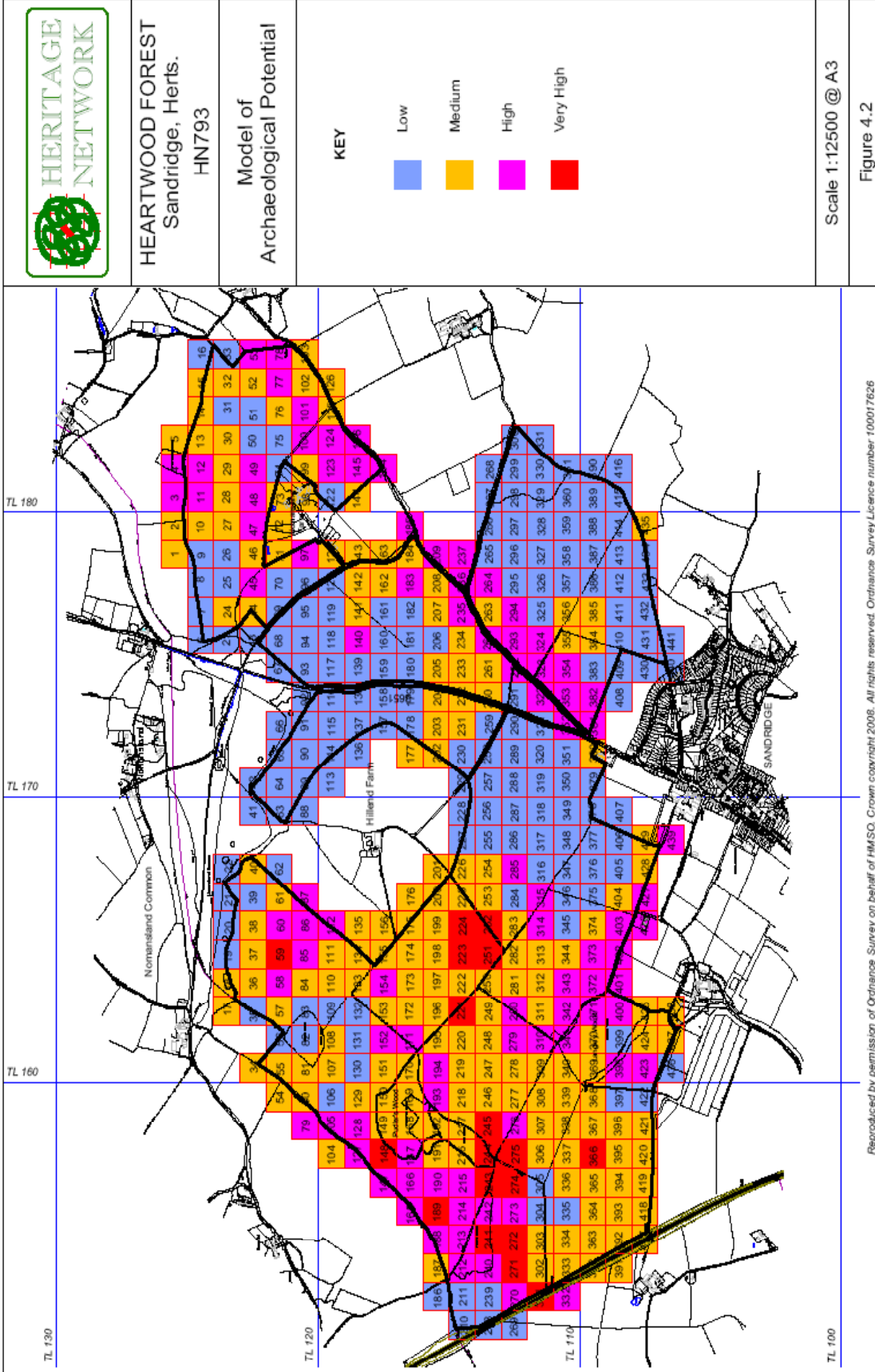
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## 4.8 Figures



4-1 Cumulative evidence

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4-2 Model of archaeological potential