

From Mesolithic to Motorway

The archaeology of the M1 (Junction 6a-10) Widening Scheme, Hertfordshire

by Dan Stansbie, Paul Booth, Andrew Simmonds,
Valerie Diez and Seren Griffiths

with contributions by

*Rebecca Bridgman, Lisa Brown, John Cotter, Rebecca Devaney, Denise Druce,
Luke Howarth, Nicholas Márquez-Grant, David Mullin, Rebecca Nicholson, Cynthia Poole,
Ian Scott, Ruth Shaffrey, Wendy Smith, Ben Stern, Lena Strid and Leo Webley*

Illustrations by

Daniel Bashford, Hannah Kennedy, Sophie Lamb, Sarah Lucas and Magdalena Wachnik

Oxford Archaeology Monograph No. 14

2012

Published by Oxford Archaeology as part of the Oxford Archaeology Monograph Series

Designed by Oxford Archaeology Graphics Office

Edited by Richard Gregory

Figure 1.1 contains Ordnance Survey data © Crown copyright and database right 2011

Figure 1.2 reproduced from the Ordnance Survey on behalf of the controller of Her Majesty's Stationery Office © Crown Copyright. Licence No. AL 1000005569

1996/11A-DMC. *Figure 1.3* is derived from digital data at 1:50,000 scale, provided under licence by British Geological Survey.© NERC

Front cover: Kiln 6825 at Junction 8N

This book is part of a series of monographs which can be bought from all good bookshops and internet bookshops. For more information visit www.oxfordarch.co.uk

© 2012 Oxford Archaeology

ISBN 978 0 904220 65 0

Typeset by Production Line, Oxford

Printed in Great Britain by Berforts Information Press, Eynsham, Oxford

Contents

List of Figures	xi
List of Tables.....	xv
Summary.....	xvii
Acknowledgements	xix

Chapter 1: Introduction *by Paul Booth*

SITE LOCATION, GEOLOGY AND TOPOGRAPHY.....	1
ARCHAEOLOGICAL AND HISTORICAL BACKGROUND	1
Lower Palaeolithic.....	1
Upper Palaeolithic and Mesolithic	2
Neolithic and early Bronze Age	2
Later prehistoric: middle-late Bronze Age and Iron Age	3
Late Iron Age	6
Roman	6
Saxon and medieval	8
Post-medieval and 20th century	9
THE PROJECT	9
MITIGATION: AIMS, METHODOLOGY AND ARCHIVE	10
Fieldwork methodology.....	11
Post-excavation methodologies.....	11
Archive.....	12

Chapter 2: Junction 8 Southbound *by Dan Stansbie*

SITE LOCATION	13
SUMMARY	13
NEOLITHIC AND EARLY BRONZE AGE ACTIVITY	13
Summary	13
Late Neolithic pit 5081	13
Possible Neolithic and early Bronze Age pits.....	13
<i>Pit 5064</i>	13
<i>Pits 5088, 5096, 5172 and 5226</i>	13
LATE BRONZE AGE-EARLY IRON AGE ACTIVITY.....	14
Summary	14
Pit group 7785.....	15
Pit group 7786.....	15
Pits 5094 and 5173, and tree-throw hole 5203.....	17
Pits 5006 and 5009	17
Post-built structures 5034 and 5189	17
Cremation burials 5066 and 5244	20
EARLY TO MIDDLE ROMAN ACTIVITY	21
Summary	21
Enclosure 5500	21
Ditch 5501	22
Quarry pits 5025, 5265 and 5155	23
MIDDLE-LATE ROMAN ACTIVITY	24
Pits 5269 and 5270	24

POST-MEDIEVAL ACTIVITY.....	24
Chapter 3: Junction 8 Northbound and minor sites to the north <i>by Dan Stansbie</i>	
JUNCTION 8 NORTHBOUND.....	27
Site location	27
Site layout	27
Late Iron Age-early Roman activity (50 BC-AD 70)	27
Summary	27
Ditches	27
Structures and pits.....	29
Early-middle Roman activity (AD43-200).....	30
Summary	30
Enclosures	30
Internal features, (pits, ovens and cremations).....	36
Enclosure 6150/6104.....	37
Internal features: corn dryer 6514	39
Features north of enclosure 7700	39
Late Roman activity (AD250-410).....	42
Medieval activity (late 12th-13th centuries).....	42
Summary	42
Phase 1 (?late 12th-13th centuries).....	43
Phase 2(late 12th-13th centuries)	45
BUNCEFIELD DEPOST WATCHING BRIEF	51
Site location	51
Summary	51
Pits 510, 516, 521 and 532	51
Ditch 506	51
JUNCTION 8 COMPOUND	51
Site location	51
Summary	51
Ditch 5513	54
Pit group 5550.....	54
Tree-throw hole 5530.....	54
JUNCTION 8 TARGETTED WATCHING BRIEF.....	55
Site location	55
Summary	55
Pit group 5750.....	55
Hollow-way 5610.....	55
Chapter 4: The Aubreys <i>by Paul Booth and Dan Stansbie</i>	
SITE LOCATION	57
SITE LAYOUT AND SUMMARY.....	57
STRATIGRAPHIC NARRATIVE.....	57
The Hillfort Ditch 27/261	57
Ditch 27	57
Ditch 261	57
Ditch 42/85.....	59
Gully, hollow and posthole group	59
Ditch/gully 6/20	60
Pits 13 and 211, and ditch terminus 216	60
Pit group 217.....	60
Pits 250 and 252, and ditch 236/238.....	60
PHASING	61

Chapter 5: Junction 9 by Andrew Simmonds

SITE LOCATION	63
ARCHAEOLOGICAL DESCRIPTION	63
Complex of features in the central part of the excavation	63
Mesolithic features	65
Late Neolithic pits	68
Later prehistoric activity	68
Late Iron Age and Roman agricultural activity.....	68
<i>The earliest phase of the field system (late Iron Age to early Roman).</i>	71
<i>Establishment of boundary ditches in the northern part of the excavation</i>	72
<i>Establishment of boundary ditches in the southern part of the excavation</i>	74
Early Roman period (AD 43-120)	74
<i>Enclosure defined by ditches 2740 and 2741</i>	74
<i>Curvilinear gullies (2595 and 2424) within the enclosure</i>	75
<i>Other features within the enclosure</i>	75
<i>Possible enclosure defined by ditch 2738</i>	75
<i>Linear boundary ditch 2490</i>	75
<i>Reorganisation of the boundaries in the southern part of the excavation.</i>	76
<i>Kiln/oven 2746</i>	76
<i>Post-built structure 2756 and other features associated with kiln/oven 2746</i>	78
Mid-Roman activity (c AD120-200)	79
<i>Modifications to the boundaries in the northern part of the settlement</i>	79
<i>Reorganisation of the boundaries in the southern part of the excavation.</i>	80
Mid-late Roman period (3rd-4th century).....	81
JUNCTION 9 WATCHING BRIEF	83

Chapter 6: Areas M, P and Junction 10 by Dan Stansbie

AREA M.....	85
Site location and summary	85
Phasing.....	85
Middle-late Iron Age activity	85
<i>Summary</i>	85
<i>Ditches 3008 and 3022, and gully 3024.</i>	85
<i>Pit 3034</i>	85
Early Roman activity.....	85
<i>Summary</i>	85
<i>Ditch 3052</i>	86
<i>Ditch/gully 3012</i>	86
<i>Trackway ditches 3004 and 3006</i>	87
<i>Ditches 3057, 3059 and 3061</i>	88
AREA P.....	88
Site location and summary	88
Ditches 4006, 4008, 4010 and 4012.....	88
Pits 4014 and 4018 and tree-throw hole 4004	88
Chronology and phasing	88
JUNCTION 10.....	90
Site location and summary	90
Quarry pit group 1004.....	90
Ditch 1046	90
Fenceline 1017.....	90
Other features.....	90

Chapter 7: The Finds

FLINT <i>by David Mullin and Rebecca Devaney</i>	91
Introduction	91
Methodology	91
Raw material	91
Condition	91
Technology and dating	91
The assemblage	92
<i>Area M</i>	92
<i>Area P</i>	92
<i>Borrow Pit Area</i>	92
<i>Junction 8N</i>	92
<i>Junction 8S</i>	92
<i>Junction 9</i>	93
Discussion	96
THE PREHISTORIC POTTERY <i>by Leo Webley and Lisa Brown</i>	99
Introduction	99
Methodology	99
Condition	99
Fabrics	99
Site assemblages	99
<i>Buncefield Depot</i>	99
<i>Junction 8S</i>	100
<i>Junction 8N</i>	100
<i>The Aubreys</i>	100
<i>Area M</i>	101
<i>Junction 9</i>	101
<i>Junction 10</i>	102
Discussion	102
<i>Distribution and provenance</i>	102
<i>Regional affinities</i>	102
Catalogue of illustrated sherds	102
THE LATE IRON AGE AND ROMAN POTTERY <i>by Dan Stansbie</i>	103
Introduction and methodology	103
Condition	103
Pottery from the evaluation	103
Pottery from Junction 9	104
Pottery from Junction 9 watching brief	106
Pottery from Junction 8N	106
Funerary Pottery from Junction 8N	108
<i>Catalogue of Funerary pottery</i>	108
Pottery from Junction 10 Borrow Pit Area	108
Pottery from The Aubreys	108
Pottery from Area M	108
Pottery from Area P	109
Discussion	109
<i>Junction 9</i>	109
<i>Junction 8N</i>	110
<i>Area M</i>	113
<i>Area P</i>	113
<i>Deposition/distribution</i>	113
<i>Functional analysis: pottery consumption and social stratification</i>	113

Contents

Catalogue of illustrated vessels	115
<i>Junction 8</i>	115
<i>Cremations 6289 and 6293</i>	117
<i>Site M</i>	117
<i>Junction 9</i>	117
Analysis of charred residue from a pot by gas chromatography-mass spectrometry (GC-MS)	
by <i>Ben Stern</i>	119
<i>Sample preparation</i>	119
<i>Instrumental (GC-MS)</i>	119
<i>Results (GC-MS)</i>	120
MEDIEVAL POTTERY by <i>John Cotter</i>	121
<i>Junction 8N</i>	121
<i>Introduction and methodology</i>	121
<i>Date and nature of the assemblage</i>	121
<i>Pottery fabrics</i>	121
<i>Pottery and dating in relation to the site</i>	128
Conclusions	130
<i>Junction 8 targeted watching brief</i>	131
<i>Junction 8 Compound</i>	131
Catalogue of illustrated vessels	131
Analysis of a glazed ceramic sherd by <i>Rebecca Bridgman</i>	135
<i>Introduction</i>	135
<i>Methodology</i>	135
<i>Results</i>	135
<i>Observed inclusions</i>	135
THE CERAMIC BUILDING MATERIAL AND FIRED CLAY by <i>Cynthia Poole</i>	136
Introduction and methodology	136
The fabrics	136
<i>The Roman fabrics</i>	136
<i>The fired-clay fabrics</i>	137
<i>The medieval/post-medieval fabrics</i>	137
<i>Moulding sand</i>	137
Discussion of the fabrics	137
Forms and function	138
<i>The Roman tile</i>	138
<i>The medieval and post-medieval tile</i>	142
The fired clay	142
The sites	143
<i>Junction 8N</i>	143
<i>Junction 8S</i>	143
<i>Junction 9</i>	144
<i>The Aubreys</i>	144
<i>Areas B and T</i>	144
<i>Areas E and F</i>	144
<i>Area M</i>	145
<i>Area P</i>	145
<i>Area S (Junction 10)</i>	145
<i>Area V</i>	145
<i>Area W (Buncefield Depot)</i>	145
Discussion	145
Catalogue of illustrations	147
WORKED STONE by <i>Ruth Shaffrey</i>	157

Summary	147
Junction 8N	147
<i>Roman</i>	147
<i>Medieval</i>	148
<i>Discussion</i>	148
Junction 9.....	148
Catalogue of illustrated items.....	149
ROMAN COINS by Paul Booth.....	151
METALWORK by Ian Scott	152
Junction 9.....	152
<i>Catalogue of illustrated finds</i>	156
Junction 8N.....	157
<i>Catalogue of illustrated finds</i>	158
Evaluation	159
<i>Catalogue of selected finds</i>	159
GLASS by Ian Scott	159
Introduction	159
Evaluation trenches	159
Junction 8N and Junction 8 watching brief	159
Junction 9 excavations	161
<i>Middle-late Roman contexts</i>	161
<i>Late Roman contexts</i>	161
<i>Unstratified glass</i>	161
Conclusions.....	161
Catalogue of illustrated sherds.....	161
SLAG by Luke Howarth.....	161
Summary of the material	161
Chapter 8: Environmental evidence	
MAMMAL AND BIRD BONES by Lena Strid	163
Introduction	163
Methodology.....	163
Preservation	163
Junction 8N: Roman assemblage	164
Junction 8N: medieval assemblage	164
Junction 9: Roman assemblage.....	165
Discussion.....	168
CHARRED PLANT REMAINS by Wendy Smith.....	168
Introduction	168
Method.....	168
Results	170
Discussion.....	170
<i>Crop-processing by-products vs. products in Roman samples</i>	170
<i>Weed/wild plants in the Roman samples</i>	181
<i>Oat and brome: a tolerated impurity or a crop in its own right?</i>	181
<i>Comparison of Roman M1 assemblages with other Hertfordshire Roman assemblages</i>	181
<i>Medieval CPR</i>	182
Conclusions.....	182
THE WOOD CHARCOAL by Denise Druce.....	182
Introduction	182
Methodology.....	182
Results	183

Contents

<i>Neolithic</i>	184
<i>Bronze Age</i>	184
<i>Late Bronze Age-early Iron Age</i>	184
<i>Late Iron Age-early Roman</i>	185
<i>Middle Roman</i>	185
<i>Late Roman</i>	185
<i>Medieval</i>	186
Conclusion	186
THE CREMATED HUMAN BONE <i>by Nicholas Márquez-Grant</i>	186
Introduction	186
Methods	186
Results	187
<i>Weight and skeletal part representation</i>	187
<i>MNI, sex and age determination</i>	188
<i>Non-metric traits</i>	188
<i>Palaeopathology</i>	188
<i>Fragmentation</i>	188
<i>Colour</i>	188
Discussion	189
Chapter 9: Radiocarbon dating <i>by Seren Griffiths, Dan Stansbie and Rebecca Nicholson</i>	
INTRODUCTION	191
SAMPLING	191
RESULTS	193
Calibrations	193
Bayesian modelling	193
The samples and their stratigraphic relationships	195
<i>Mesolithic negative features</i>	195
<i>Later Neolithic and later activity</i>	196
<i>Deposit formation and interpretation</i>	196
Junction 8S	196
<i>Human and animal cremations</i>	196
DISCUSSION AND INTERPRETATION	196
Mesolithic activity	196
Chapter 10: Overview <i>by Dan Stansbie, Paul Booth and Seren Griffiths</i>	
LATE MESOLITHIC ACTIVITY <i>by Seren Griffiths and Dan Stansbie</i>	199
The landscape context	199
6th- and 5th-millennium pit sites in England and Wales	199
Site layout and organisation	199
Subsistence and economy	200
Scalene microlith chronology	200
Wider social networks	202
EARLY NEOLITHIC ACTIVITY <i>by Dan Stansbie</i>	202
LATER NEOLITHIC AND EARLY BRONZE AGE ACTIVITY <i>by Dan Stansbie</i>	204
The landscape	204
Site organisation	204
Subsistence and economy	205
LATER PREHISTORIC ACTIVITY <i>by Dan Stansbie</i>	205
Distribution of evidence	205
Site organisation	205
Site economies and diet	206

Ritual and burial practices.....	206
Wider social networks	206
LATE IRON AGE AND ROMAN ACTIVITY <i>by Dan Stansbie and Paul Booth</i>	207
Settlement pattern	207
Site layout, function and organisation	208
Agricultural economy and diet.....	210
Ritual and burial practices.....	211
Wider networks	211
MEDIEVAL ACTIVITY <i>by Dan Stansbie</i>	212
The landscape.....	212
Junction 8N: settlement layout, function and organisation	212
Junction 8 Compound and targeted watching brief.....	213
Structural components	213
Agricultural economy, diet and status.....	214
The settlement in the wider landscape.....	215
Bibliography	217
Index.....	227

List of Figures

1.1	Site location	2
1.2	Location of sites and evaluation trenches	4-5
1.3	Geology	7
2.1	Junction 8S, plan of all features .....	.14
2.2	Junction 8S, plan of Neolithic and early Bronze Age activity .....	.15
2.3	Junction 8S, detail plans and sections of late Neolithic and early Bronze Age pits .....	.16
2.4	Junction 8S, detail plans and sections of late Neolithic and early Bronze Age pits .....	.17
2.5	Junction 8S, late Bronze Age-early Iron Age activity .....	.18
2.6	Junction 8S, detail plan and sections of pit group 7785 .....	.19
2.7	Junction 8S, detail plan and sections of pit group 7786 and gully 5450 .....	.20
2.8	Junction 8S, detail plan and sections of structure 5034 .....	.21
2.9	Junction 8S, detail plan and sections of structure 5189 .....	.22
2.10	Junction 8S, detail plans of cremation burials 5066 and 5244, and profile of cremation burial 5066 .....	.22
2.11	Junction 8S, Roman activity .....	.23
2.12	Junction 8S, sections of quarry pits 5025, 5265 and 5155 .....	.24
2.13	Junction 8S, detail plan and section of pit 5269 .....	.24
2.14	Junction 8S, post-medieval activity .....	.25
3.1	Junction 8N, plan of all features .....	.28
3.2	Junction 8N, late Iron Age-early Roman activity .....	.29
3.3	Junction 8N, detail plan of ditch and post-line 7676, postholes 112213 and 112211, and beam-slot 7229 .....	.30
3.4	Junction 8N, detail plan and sections of beam-slot 7229 and pit 6780, and sections of ditch 7187 .....	.31
3.5	Junction 8N, early-middle Roman activity .....	.32
3.6	Enclosure complex at the south-eastern end of Junction 8N .....	.33
3.7	Sections of features associated with the enclosure complex at the south-eastern end of Junction 8N .....	.34
3.8	Junction 8N, detailed plan and sections of pit group 7065 .....	.35
3.9	Junction 8N, detail plans of ovens 7259 and 7335, and section of oven 7259 .....	.36
3.10	Junction 8N, detail plans and profiles of cremation burials 6289 and 6293 .....	.37
3.11	Junction 8N, detail plan and section of corn dryer 6514 .....	.38
3.12	Junction 8N, detail plan and section of quarry pit 7081 .....	.39
3.13	Junction 8N, late Roman activity .....	.40
3.14	Junction 8N, detail plans and sections of pit scatter 6799 and pit 6864 .....	.41
3.15	Junction 8N, medieval activity .....	.42
3.16	Junction 8N, medieval phase 1 plan of all features .....	.43
3.17	Junction 8N, detail plan and section of oven/kiln 6585 .....	.44
3.18	Junction 8N, medieval phase 2 plan of all features .....	.44
3.19	Junction 8N, detail plan of structure 6961 .....	.46
3.20	Junction 8N, sections of features forming structure 6961 .....	.48
3.21	Junction 8N, post-built structure 6961, looking north-east .....	.49
3.22	Junction 8N, detail plan and section of limekiln 6825 .....	.50
3.23	Junction 8N, limekiln 6825, looking south-west .....	.50
3.24	Buncefield Depot Watching Brief, late Bronze Age-early Iron Age features, with sections .....	.52
3.25	Junction 8 Compound, medieval features, with sections .....	.53
3.26	Junction 8 targeted watching brief, Roman and medieval activity, with sections .....	.54
4.1	The Aubreys, plan of all features .....	.58
4.2	The Aubreys, detail plan of the hillfort ditch and northern feature group .....	.58
4.3	The Aubreys, sections through the hillfort ditch and pit groups .....	.59
4.4	The Aubreys, detail plan of the hillfort ditch and southern pit group .....	.60

5.1	Junction 9, all archaeological features	.64
5.2	Junction 9, view to the south along the northern part of the excavation	.65
5.3	Junction 9, prehistoric pits being excavated in the southern part of the excavation	.65
5.4	Junction 9, plan of the main concentration of prehistoric pits in the central area of the excavation	.66
5.5	Junction 9, plan of the northern group of prehistoric pits	.67
5.6	Junction 9, late Mesolithic pit 2090, viewed from the north-east	.68
5.7	Junction 9, detailed plans and sections of Mesolithic pits 2064, 2090, 2094, 2096, 2100, 2110 and 2316	.69
5.8	Junction 9, detailed plans and sections of gullies attributed to the late Mesolithic period	.70
5.9	Junction 9, detailed plans and sections of pits attributed to the late Neolithic period	.71
5.10	Junction 9, late Iron Age and Roman activity (northern end of Junction 9)	.72
5.11	Junction 9, late Iron Age and Roman activity (southern end of Junction 9)	.73
5.12	Sections of late Iron Age-early Roman boundary ditches	.74
5.13	Sections of early Roman boundary ditches	.76
5.14	Junction 9, kiln 2746, viewed from the north-east	.77
5.15	Junction 9, detail plan of kiln 2746 and associated features	.77
5.16	Junction 9, section of kiln 2746	.78
5.17	Junction 9, section of kiln 2746, viewed from the south-east	.78
5.18	Junction 9, sections of structure 2756	.79
5.19	Junction 9, section of early Roman waterhole 2309	.80
5.20	Junction 9, the 2nd-century circular enclosure at the southern end of the excavation, viewed from the south-west	.80
5.21	Sections through the ditches of the 2nd-century circular enclosure at the southern end of the excavation	.81
5.22	Sections of late Roman boundary ditches	.81
5.23	Section of late Roman well 2004	.82
5.24	Late Roman boundary ditch 2490, viewed from the south-west	.82
6.1	Site M, mid-late Roman activity, with sections	.86
6.2	Site P, early-mid Roman activity, with sections	.87
6.3	Junction 10, plan of all features	.89
7.1	The flint	.97
7.2	Prehistoric pottery	.101
7.3	Late Iron Age-early Roman functional vessel class (%)	.104
7.4	Early Roman functional vessel class (%)	.104
7.5	Middle Roman functional vessel class (%)	.104
7.6	Late Roman functional vessel class (%)	.105
7.7	Roman functional vessel class (%)	.105
7.8	Late Iron Age and Roman pottery from Junction 8	.116
7.9	Late Iron Age and Roman pottery from cremations 6289 and 6293	.117
7.10	Late Iron Age and Roman pottery from Site M	.117
7.11	Late Iron Age and Roman pottery from Junction 9	.118
7.12	Late Iron Age and Roman pottery from Junction 9	.119
7.13	Analysis of charred residue from a pot recovered from context 2041	.120
7.14	Medieval pottery	.132
7.15	Medieval pottery	.133
7.16	Medieval pottery	.134
7.17	Photomicrograph taken in plane polarised light, area 1023x768µm	.135
7.18	Ceramic building material and fired clay	.146
7.19	Worked Stone	.149
7.20	Puddingstone Flakes	.150
7.21	Puddingstone Flakes	.151
7.22	Metalwork from Junction 9	.155
7.23	Metalwork from Junction 9	.156
7.24	Metalwork from Junction 8N	.158
7.25	Glass	.160
8.1	Relative proportions of plant remain categories in late Iron Age/early Roman-late Roman samples from all sites	.169
8.2	Relative proportions of plant remain categories from medieval samples from Junction 8N	.170

List of Figures

9.1	Probability distributions from the M1	191
9.2	Probability distributions from the M1 and predictive modelling of six simulated 'Mesolithic' radiocarbon results	194
9.3	Probability distributions of dates from the site model A	194
9.4	Probability distribution for the duration of Mesolithic activity at the site	197
9.5	The site model B, excluding NZA-32800	197
9.6	Probability distribution for the duration of Mesolithic activity at the site	197
10.1	Probability distributions associated with scalene triangle assemblages	201
10.2	Probability distributions for estimated first and last use of scalene microliths	201
10.3	The duration of use of scalene triangles as calculated from the parameters shown in Figure 10.1	202

List of Tables

1.1	M1 sites listed in geographical order from north to south (based on Atkins 2006, section 4.2.3)	10-11
3.1	Details of structure 6961	47
7.1	Summary of flint by excavation area	92
7.2	Pits containing flint from Junction 9	93
7.3	Microliths from pits at Junction 9	94
7.4	Contents of Mesolithic pits from Junction 9 with more than 30 worked flints	95
7.5	Mesolithic pit assemblage composition (%)	96
7.6	Prehistoric pottery fabric descriptions	99
7.7	Quantification of prehistoric pottery fabrics (sherd count and weight) by site	100
7.8	Evaluation late. Late Iron Age and Roman pottery	103
7.9	Junction 9. Late Iron Age and Roman pottery	106
7.10	Junction 9 Watching Brief. Late Iron Age and Roman pottery	106
7.11	Junction 8. Late Iron Age and Roman pottery by sherd count and weight	107
7.12	The Aubreys. Late Iron Age and Roman pottery	108
7.13	Area M. Late Iron Age and Roman pottery	109
7.14	Area P. Late Iron Age and Roman pottery	109
7.15	Late Iron Age-early Roman vessel class by feature type (%EVE). All sites	111
7.16	Early Roman vessel class by feature type (%EVE). All sites	112
7.17	Middle Roman vessel class by feature type (%EVE). All sites	112
7.18	Late Roman vessel class by feature type (%EVE). All sites	112
7.19	Junction 9 functional vessel class by phase (EVEs)	114
7.20	Junction 9 functional vessel class by phase (EVEs)	114
7.21	Site M functional vessel class by phase (EVEs)	115
7.22	Site P functional vessel class by phase (EVEs)	115
7.23	Quantification of medieval pottery fabrics from Junction 8N	121
7.24	Breakdown of medieval pottery quantities in pit 6406	129
7.25	Medieval pottery totals from the Junction 8 targeted watching brief site	131
7.26	Quantification by count/weight (g) of CBM forms by site	138
7.27	Comparison of imbrex, tegula, brick and flat-tile thickness showing the numbers of tiles within each size grade	139
7.28	Tegulae flange sizes by type	140
7.29	Summary of tegula cutaway types and sizes (the C1 and A3 cutaways were all recorded on incomplete flanges and may be parts of composite A3/C1 type)	140
7.30	Total fragment count and numbers of contexts producing worked stone	147
7.31	Roman coins	152-3
7.32	Junction 9. Metalwork assemblage by function and phase	153
7.33	Junction 9. Personal finds by type, phase and context	153
7.34	Junction 9. Nails by phase and context	154
7.35	Junction 8N. Metalwork assemblage by function and phase	157
7.36	Junction 8N. Hobnails by phase and context	157
7.37	Evaluation. Metalwork assemblage by function and context	158
7.38	Glass type by site and phase and context	159
7.39	Junction 9. Glass type by phase and context	159
7.40	Summary description of slag	162
7.41	Residues retained for metalworking debris	162
8.1	Number of identified bones/taxa in the M1 assemblages	163
8.2	Preservation level for bones from the M1 assemblage	164
8.3	Junction 8N, Roman assemblage. Anatomical distribution of all species, including NISP, MNI and weight	164
8.4	Junction 8N, medieval assemblage. Anatomical distribution of all species, including NISP,	

	MNI and weight	165
8.5	Number of identified bones/taxa in the Junction 9, Roman assemblages	165
8.6	Junction 9, Roman assemblage. Anatomical distribution of all species, including NISP, MNI and weight	166
8.7	Junction 9, Roman assemblage. Cattle epiphyseal fusion	166
8.8	Junction 9, Roman assemblage. Sheep/goat epiphyseal fusion	166
8.9	Junction 9, Roman assemblage. Pig epiphyseal fusion	166
8.10	Junction 9, Roman assemblage. Dental analysis of cattle, using Halstead (1985)	167
8.11	Junction 9, Roman assemblage. Dental analysis of sheep/goat, using Payne (1973)	167
8.12	Measurements of sheep/goat bones from Junction 9 and from late Iron Age-early Roman sites in the ABMAP database	167
8.13	Greatest length of horse metacarpal at Junction 9 and from late Iron Age-early Roman sites in the ABMAP database	167
8.14	Late Iron Age-early Roman/late Roman CPR	171-7
8.15	Summary statistic for late Iron Age-early Roman/late Roman CPR	178
8.16	CPR from medieval deposits	179-80
8.17	Summary statistics for medieval samples	180
8.18	Charcoal analyses. Neolithic, Bronze Age and late Bronze Age-early Iron Age samples	183
8.19	Charcoal analyses. Late Iron Age-early Roman and mid-Roman samples	183
8.20	Charcoal analyses. Late Roman and medieval samples	184
8.21	Summary of cremated human bone	187
8.22	Summary of weights for each of the human cremated bone deposits	187
8.23	Percentage of bone fragments larger than 10mm, between 4mm and 10mm, and smaller than 4mm	188
9.1	Radiocarbon data	192-3
10.1	Comparative radiocarbon data	203-4

Summary

A programme of archaeological work was undertaken by Oxford Archaeology in advance of engineering works to relieve congestion along the M1 between Junctions 6a to 10, a length of about 15km, stretching roughly south to north from a point east of Hemel Hempstead to just south of Luton, on the Bedfordshire border. The work was commissioned by Atkins Heritage, acting on behalf of Balfour Beatty/Skanska Joint Venture who undertook the M1 widening scheme for the Highways Agency.

Significant remains of prehistoric, Roman and medieval date were encountered. Important evidence for late Mesolithic and early Neolithic activity, including pit features, was recovered from Junction 9. Later prehistoric evidence was less concentrated; ephemeral features adjacent to The Aubreys hillfort were poorly dated, but cremation burials and scattered features of late Bronze Age date came from Junction 8 Southbound, which also produced probable Iron Age features, with other evidence of this period coming from Junction 8

Northbound and the adjacent Buncefield Depot site. The most widespread evidence was from the late Iron Age and Roman periods. Significant settlement-related features of this date occurred at Junction 8 Northbound and Junction 9, and to a lesser extent at the intervening Site M. Ditched trackways and enclosures were characteristic of all these sites, and further probable trackway ditches were present at Site P. Structural evidence was minimal, except for hearths and ovens, and the sites seem to have been of fairly low status and concerned with mixed agriculture. The evidence for earlier Roman occupation was generally stronger than that for the late Roman period. At Junction 8 Northbound, however, an east-west trackway seems to have survived as a landscape feature and in the 12th and 13th centuries was adjoined by a ditched enclosure containing a post-built structure. A few medieval features were also encountered in areas just to the north of Junction 8 Northbound, but were otherwise absent, nor were any significant post-medieval features found.

Acknowledgements

Oxford Archaeology would like to thank Balfour Beatty/Skanska Joint Venture who funded the archaeological programme, and particularly Liam McGirl, Steve Gray and Steve Todd for their help. The work was expedited by Andrew Holmes of Atkins Heritage and was also monitored by Simon West for St Albans District Council.

At Oxford Archaeology the project was initiated by Richard Brown. The evaluation and excavation fieldwork stages were managed by Valérie Diez, with supervision in the field by Ross O'Maolduin and Austin Ainsworth. The main members of the fieldwork team were Michael Baddiel, Veronica Bisio, Rosie Blackwell, Abigail Brown, Ralph Brown, Jessica Bryan, Peter Burge, Gaylin Carter, Lawrence Coalter, Robert Cole, Sharon Cook, Mike Donnelly, Patrick Dresch, Mark Gibson, Rebecca Griffin, Kat Grindley, Mike Kershaw, Laura King, Neil Lambert, Sarah Lane, Steve Laurie-Lynch, Laura Maccalman, Roberta Marziani, Bryan Mathews, Rowan Mcalley, Janice Mcleish, Hefin Meara, Chris Naisbit, Sam

Oates, Lucy Offord, John Onraet, Hugo Pinto, Emily Plunkett, Russel Prost, Sophie Prost, C Ross, Mark Stedman, Alexandra Stevenson, Peter Stock, Dan Watkeys, Dan Wheeler, Victoria Wilkinson, Kate Woodley and Alistair Zochowski. The work of the post-excavation assessment and analysis and reporting stages was managed by Paul Booth, and the majority of the post-excavation analysis was undertaken by Andrew Simmonds and Dan Stansbie. Support was provided by Leigh Allen (finds management), Rebecca Nicholson (environmental management), Louise Loe (osteology management) and Nicola Scott (archive management). Thanks are owed to all the specialists and illustrators for their contributions, and to Anna Hodgkinson for work on the CAD drawings

Ros Niblett kindly read and commented on a draft of the publication report, offering many helpful insights for which the authors are extremely grateful. Duncan Garrow read and commented on the Mesolithic and Neolithic part of the discussion.