

APPENDIX 9: ASSESSMENT OF CHARRED PLANT REMAINS & CHARCOAL

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1. Introduction

- 1.1 This assessment reports on environmental samples taken during excavations at ARC SSR 99, ARC STPP 99 and ARC 330 8. Fifty-three environmental samples were taken. Fifty samples were bulk samples and were processed by flotation. The remaining samples were column samples. Seven of the bulk samples produced flots. The purpose of the study of this material was to gain further information about the contemporary environment and landscape and possible economic activities, for example, crop processing.

2. Methodology

- 2.1 Fifty samples were processed using a Siraf type flotation tank. Residues were collected in a 1mm mesh and flots were collected in a 250-micron mesh. Flots and residues were dried prior to scanning. Residues were scanned by eye. Environmental remains and artefacts (such as burnt flint, brick or tile fragments) were collected and transferred to the relevant specialists. Flots and plant remains recovered from the residues were examined in more detail using a low powered stereo microscope.
- 2.2 The modes of preservation, species diversity and abundance of organic remains in each sample were recorded on sheets then entered into the Oracle MoLAS/MoLSS database and transferred to the RLE Datasets. Full sample details are given below.

3. Quantifications

Preservation

- 3.1 Charring or waterlogging preserved the plant remains in these samples. The quality of preservation was generally poor. Full details of these samples are given in the tables below. For ARC SSR 99 plant remains were present in eleven out of 23 samples with low numbers of poorly preserved grain present in seven samples. For ARC STP 99 plant remains were present in nine of the 25 bulk samples with seven of those sampled producing flots.

Recording

- 3.2 The quantities of remains were estimated and recorded in the following manner: -

For charred remains
+ = 1-10
++ = 11-50
+++ = 51-100
++++ = 101-1000
1000+ = >1000.

For waterlogged remains

+ = 0-5
++ = 6-10
+++ = 11+

4. Provenance

South of Station Road (ARC SSR 99)

4.1 Ten of these samples were Roman and one was Iron Age/Roman. Identifiable fragments of charred wood were present in low numbers in four of the samples. These were Roman ditch fill samples <6>, <2> and <4>, and a Roman sample from a demolition layer, sample <19>. Seven of these samples were pot-dated as Romano-British; <7>, <8>, <16>, <17>, <19>, <20> and <21>. One was provisionally dated as Iron Age/Roman, sample <23>.

4.2 The richest sample was sample <7> ([35] sg 114) from the oven feature. This sample was pot dated as early Roman. The flot and residue contained moderate numbers of poorly preserved charred wheat (*Triticum* spp.) grains. The flot also contained low numbers of chaff fragments, glumes, charred seeds, campion (*Silene* sp.) and plantain (cf. *Plantago* sp.). In addition there were uncharred seeds including goosefoot (*Chenopodium* spp.) and sedge (*Carex* sp.).

Temple East of Springhead (ARC STP 99)

4.3 Of the 25 samples, 16 were dated as Neolithic to Early Bronze Age, eight samples were technically undated and one was modern. Identifiable fragments of charred wood were present in the residues of <2> <4> <9> <15> and the flots of <16> <17> and <23>. Samples <2> and <15> were undated and <23> was modern.

4.4 Low numbers of poorly preserved charred grain were present in the residues of <2>, <4> and <10>. A charred weed seed, bedstraw (*Galium* sp.) was recovered from sample <15>.

4.5 Uncharred root and moss fragments were present in the flots.

Watching brief - New Barn Road (ARC 330 98)

4.6 No flots were produced from these samples. The only plant remains were low to moderate quantities of charred wood fragments in samples <83> and <87>.

5. Conservation

5.1 Sample ARC SSR 99 <7> should be retained for further analysis. Sub-samples of identifiable charred wood fragments (larger than 5mm³ in size) from ARC STP 99 <2> <4> <9> <15> <16> <17> and ARC 330 98 <83> should be saved and stored dry prior to further analysis.

6. Comparative material

- 6.1 The richest remains in this zone came from an early Roman oven feature (<7> [35] sg 114 g 18) from ARC SSR 99. These may be compared with charred plant remains from Roman sites in along the CTRL route, particularly those at West of Northumberland Bottom (Area 330 Zone 3) but also with other samples in Kent such as Lullingstone near Orpington (Arthur 1974; Metcalf and Doherty 1974) and Keston in Bromley (Hillman 1991; Straker 1999).

7. Potential for further work

- 7.1 It is recommended that further work be carried out on sample <7> from ARC SRR 99. This sample has the most potential to provide detail information about cereal cultivation.
- 7.2 Identifiable fragments of charred wood were found in the following samples provisionally dated as pre-historic or undated:-
- ARC STP 99 <2> <4> <9> <15> <16> and <17>
 - ARC 330 98 <83>
- 7.3 The wood samples which can be firmly dated as prehistoric should be identified for the information about landscape and fuel use.
- 7.4 The flot sample will be examined using a stereo-microscope with magnifications of between 10 and 40 times. Modern seed and cereal reference collections and reference manuals (eg Anderberg 1994, Berijinck 1947 and Berggren 1969,1981) will be used.
- 7.5 Charred wood will be examined using an epi-luminating microscope. Diagnostic features will be recorded and the wood identified using an atlas of microscopic wood anatomy (Schweingruber 1978).
- 7.6 Plant remains will be identified as closely as their level of preservation allows. Quantities of uncharred remains and charred wood fragments will be estimated and charred remains will be counted. This data will be recorded onto record sheets and transferred to the MoLAS/MoLSS Botanical ORACLE database.
- 7.7 Additional work:
- Identification and recording of the contents in one dry flot
 - Identification of charred wood in 7 samples
 - Table creation and data analysis
 - Report Writing
 - Editing and Archiving

8. Bibliography

- Arthur, J,R,B, 1974 “Carbonised Grain from Granary.” in Meates G, W, *The Roman Villa at Lullingstone Kent*. Kent Archaeological Society Monograph Series No. 3 page 318
- Anderberg, A-L, 1994: *Atlas of Seeds Part 4: Resedaceae - Umbelliferae*. Swedish Museum of Natural History, Stockholm
- Beijerinck, W., 1947: *Zadenatlas der Nederlandsche Flora*. Veenman and Zonen, Wageningen
- Berggren, G, 1969: *Atlas of Seeds Part 2: Cyperaceae*. Swedish Museum of Natural History, Stockholm
- Berggren, G., 1981: *Atlas of Seeds Part 3: Saliaceae- Crucifereae*. Swedish Museum of Natural History
- Hillman,G, 1991“ A Sample of Carbonised Plant Remains.” in Philp, B, et al *The Roman Villa Site at Keston, Kent – first Report (Excavations 1968-1978)* The Kent Archaeological Rescue Unit
- Metcalf, C,R, and Doherty, G, 1974 “Botanical Remains.” in Meates G, W, *The Roman Villa at Lullingstone Kent*. Kent Archaeological Society Monograph Series No. 317-8
- Schweingruber, F,H, 1978 *Microscopic Wood Anatomy*
- Straker, V, 1999 “The Carbonised Plant Remains from Shaft E” in Philp, B, *The Roman Villa Site at Keston, Kent – second report (Excavations 1967 and 1978-1990)* The Kent Archaeological Rescue Unit

Table 27: Assessment of Charred Plant Remains & Charcoal

Sample Details							Flot Details						Residue
Site	Group	Sub-group	Context & type	Period/ Pot-date	Sample no.	Sample size (l)	Flot size (ml)	Grain	Chaff	Weeds Seeds charred/ uncharred	Char-coal	Comments [presence of rootlets, uncharred straw etc.]	Size (ml)/ Proportion checked
ARC SSR 99	16	117	28/fill of ditch [014]	RO	3	20	-	-	-	-	-	-	3000/ yes
ARC SSR 99	16	118	30/fill of ditch [029]	PR	5	20	-	-	-	-	-	-	1000/ yes
ARC SSR 99	16	117	12/fill of ditch [014]	RO	6	20	-	-	-	-/+	+	-	5000/ yes
ARC SSR 99	17	116	13/fill of ditch [009]	RO	2	10	-	-	-	-	+	-	1500/ yes
ARC SSR 99	17	116	10/fill of ditch [009]	RO	4	10	-	-	-	-	+	-	1500/ yes
ARC SSR 99	17	116	39/fill of ditch [009]	RO	10	10	-	-	-	-	-	-	2000/ yes
ARC SSR 99	18	114	35/oven feature	RO	7	3	5	++	+	+/+	-	stem frags	500/ yes
ARC SSR 99	18	114	35/oven feature	RO	13	20	-	-	-	-	-	-	?/no

Sample Details							Flot Details						Residue
Site	Group	Sub-group	Context & type	Period/ Pot-date	Sample no.	Sample size (l)	Flot size (ml)	Grain	Chaff	Weeds Seeds charred/ uncharred	Char-coal	Comments [presence of rootlets, uncharred straw etc.]	Size (ml)/ Proportion checked
ARC SSR 99	18	114	40/oven feature	RO	14	20	-	-	-	-	-	-	2000/ yes

ARC SSR 99	18	114	42/oven feature	RO	15	10	-	-	-	-	-	-	4000/yes
ARC SSR 99	18	115	60/oven feature	RO	16	3	-	+	-	-	-	-	500/yes
ARC SSR 99	18	115	49/oven feature	RO	17	10	-	+	-	-	-	-	1000/yes
ARC SSR 99	18	115	59/oven feature	RO	18	10	-	-	-	-	-	-	500/yes
ARC SSR 99	18	115	60/oven feature	RO	19	10	-	+	-	-	+	-	1500/yes
ARC SSR 99	18	115	62/oven feature-floor	RO	20	10	-	+	-	-	-	-	1000/yes
ARC SSR 99	18	115	63/chalk floor of oven	RO	21	3	-	+	-	-	-	-	2000/yes
ARC SSR 99	18	115	64/clay wall of oven	IA/RO	22	10	-	-	-	-	-	-	1000/yes

<i>Sample Details</i>							<i>Flot Details</i>						Residue
Site	Group	Sub-group	Context & type	Period/Pot-date	Sample no.	Sample size (l)	Flot size (ml)	Grain	Chaff	Weeds Seeds charred/uncharred	Char-coal	Comments [presence of rootlets, uncharred straw etc.]	Size (ml)/ Proportion checked
ARC SSR 99	18	115	65/ charcoal floor of oven	IA/RO	23	6	-	+	-	-	-	-	2500/yes
ARC SSR 99	19	103	24/fill of ditch [25]	RO	12	10	-	-	-	-	-	-	500/yes
ARC SSR 99	22	101	43/fill of ditch [44]	MO	11	10	-	-	-	-	-	-	1000/yes
ARC SSR 99	23	108	1/fill of ditch [002]	RO	1	10	-	-	-	-	-	-	3000/yes
ARC SSR 99	26	109	56/ lower fill of pit [32]	PR	9	30	-	-	-	-	-	-	3000/yes
ARC SSR 99	26	109	31/ fill	RO	8	10	-	+	-	-	-	-	2000/yes
ARC STP 99	3	2	86/ natural gravel and silt	?PR	24	-	-	-	-	-	-	-	column sample
ARC STP 99	3	2	2/ natural gravel and silt	?PR	26	-	-	-	-	-	-	-	column sample

<i>Sample Details</i>							<i>Flot Details</i>						Residue
Site	Group	Sub-group	Context & type	Period/ Pot-date	Sample no.	Sample size (l)	Flot size (ml)	Grain	Chaff	Weeds Seeds charred/ uncharred	Char-coal	Comments [presence of rootlets, uncharred straw etc.]	Size (ml)/ Proportion checked
ARC STP 99	4	21	46/posthole-possible occup.	NE/EBA	6	2	10	-	-	-/+	++++	root and stem frags	?/no
ARC STP 99	4	22	61/posthole-possible occup.	NE/EBA	9	2	2	-	-	-	++	root frags	500/yes
ARC STP 99	4	23	63/posthole-possible occup.	UN	15	5	10	-	-	+/-	++++	root frags	400/yes
ARC STP 99	4	24	65/posthole-possible occup.	NE/EBA	16	5	10	-	-	-	+++	root & moss frags	?/no
ARC STP 99	4	25	67/fill of post-hole[68]	NE/EBA	17	5	10	-	-	-	+++	root frags	?/no
ARC STP 99	4	26	69/posthole-possible occup.	NE/EBA	18	2	-	-	-	-	-	-	?/no

<i>Sample Details</i>							<i>Flot Details</i>						Residue
Site	Group	Sub-group	Context & type	Period/ Pot-date	Sample no.	Sample size (l)	Flot size (ml)	Grain	Chaff	Weeds Seeds charred/ uncharred	Char-coal	Comments [presence of rootlets, uncharred straw etc.]	Size (ml)/ Proportion checked
ARC STP 99	4	27	71/ posthole- possible occup.	NE/EBA	19	2	5	-	-	-	+++	root, stem & moss frags	?/no
ARC STP 99	5	30	41/natural hollows	UN	5	10	-	-	-	-	-	-	100/yes
ARC STP 99	5	39	78/ natural hollows	UN	21	30	0.5	-	-	-	-	-	?/no
ARC STP 99	5	29	81/gully	?PR	22	20	-	-	-	-	-	-	100/no
ARC STP 99	6	34	50/fill of posthole	UN	8	3	-	-	-	-	-	-	?/no
ARC STP 99	6	35	52/fill of post-hole]	UN	11	10	-	-	-	-	-	-	300/yes
ARC STP 99	6	36	54/fill of post-hole	UN	12	?	-	-	-	-	-	-	?/no
ARC STP 99	7	38	60/pit	UN	7	10	-	-	-	-	-	-	100/no
ARC STP 99	7	37	56/pit	UN	13	10	-	-	-	-	-	-	100/no
ARC STP 99	7	37	57/pit	UN	14	?	-	-	-	-	-	-	?/no

<i>Sample Details</i>							<i>Flot Details</i>						Residue
Site	Group	Sub-group	Context & type	Period/ Pot-date	Sample no.	Sample size (l)	Flot size (ml)	Grain	Chaff	Weeds Seeds charred/ uncharred	Char-coal	Comments [presence of rootlets, uncharred straw etc.]	Size (ml)/ Proportion checked
ARC STP 99	8	18	36/ ?occup. deposit	NE/EBA	4	10	-	+	-	-	-	-	100/yes
ARC STP 99	9	3	4/fill of small pit containing burnt flint	UN	1	10	-	-	-	-	-	-	2000/ yes
ARC STP 99	9	4	6/pit	UN	2	5	-	+	-	-	+	-	200/yes
ARC STP 99	9	11	20/pit	UN	3	10	-	-	-	-	-	-	100/yes
ARC STP 99	9	32	45/pit	UN	10	10	-	+	-	-	-	-	500/yes
ARC STP 99	9	28	74/pit	UN	20	5	-	-	-	-	-	-	?/no
ARC STP 99	11	1	85/ hillwash, colluvium	?PR	24	-	-	-	-	-	-	-	column sample
ARC STP 99	11	1	84/ hillwash and colluvium	?PR	25	-	-	-	-	-	-	-	column sample

<i>Sample Details</i>							<i>Flot Details</i>						Residue
Site	Group	Sub-group	Context & type	Period/ Pot-date	Sample no.	Sample size (l)	Flot size (ml)	Grain	Chaff	Weeds Seeds charred/ uncharred	Char-coal	Comments [presence of rootlets, uncharred straw etc.]	Size (ml)/ Proportion checked
ARC STP 99	11	1	1/ hillwash and colluvium	?PR	26	-	-	-	-	-	-	-	column sample
ARC STP 99	12	42	87/ subsoil	?PR	24	-	-	-	-	-	-	-	column sample
ARC STP 99	12	42	87/subsoil	?PR	25	-	-	-	-	-	-	-	column sample
ARC STP 99	13	43	88/pit	MO	23	10	10	-	-	-/+	-	root frags	?/no
ARC STP 99	33	2	3/ natural silt	?PR	26	-	-	-	-	-	-	-	column sample
ARC 330 98	?	1049	368/ditch	UN	83	-	-	-	-	-	+++	-	3000/yes
ARC 330 98	?	1051	370/ditch	UN	84	-	-	-	-	-	-	-	1000/yes
ARC 330 98	2004	2003	304/ditch	MO	78	-	-	-	-	-	-	-	1800/yes
ARC 330 98	2002	2086	381/ditch	UN	87	-	-	-	-	-	++	-	600/yes

