### 7.1 Assessment of Human Bone

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#### Introduction

7.1.1 Human bone – unburnt and cremated - was recovered from all areas excavated and all major periods (i.e. Bronze Age, Iron Age, Romano-British and Anglo-Saxon) represented at Saltwood. The fragility of most of the bone from the inhumation burials resulted in much of it being block-lifted on site for subsequent excavation and cleaning under more controlled conditions. A suite of samples recovered from the grave fills resulted in the retrieval of some additional material. Cremation-related deposits were subject to whole-earth recovery and wet-sieved to 1mm fraction-size.

# Methodology

7.1.2 The bone lifted in soil blocks was cleaned prior to assessment by gentle 'spraywashing', which proved to be the most effective mode of retrieval and cleaning. All the bone was subject to a rapid scan to assess demographic data, potential for indices recovery, and presence of pathological lesions. Assessments were based on standard methods (Brothwell 1972, Bass 1987, Buikstra and Ubelaker 1994). In addition, the cremated bone from each deposit was weighed, and an assessment of cremation efficiency and bone fragmentation was made (McKinley 1993, Holden *et al* 1995 a and b).

## Quantification

- 7.1.3 Unburnt human bone was recovered from 145 contexts and burnt or cremated bone was recovered from 114 contexts at Saltwood. A summary of the scan results is presented in **Table 46**. Bone recovered from several deposits that was initially considered to be human has since been identified as animal, as well as one deposit that comprised only soil when examined in detail; these are not included in the tables. It is possible that further small fragments of human bone may be retrieved from as yet unprocessed soil samples.
- 7.1.4 The poor condition of the unburnt bone (see below) is a major factor affecting all areas of the proposed analysis. Bone was examined from 114 inhumation burials (see below, *Provenance*, for deposit types), including one possible dual burial. The cemetery population included a minimum of 13 immature individuals, the youngest of which was a c. 2 year old infant, the remainder comprising adults of both sexes spanning a wide age range.
- 7.1.5 A significant proportion of the cremated bone from Saltwood (**Table 47**) appears to represent material disturbed and redeposited in antiquity (therefore identified as undated). Confirmed cremation deposits include a possible urned and unurned cremation burial to the east of Stone Farm Bridleway, and a minimum of 12 cremation burials to the west of the bridleway. Most of the bone represents the remains of subadult-adult individuals.

**Table 46:** Saltwood inhumed bone

Event code	Grave no.	Context	Period	Type	% skel.	Age	Sex	Comments
ARC SLT99	C4507	Sk 4552	E/MBA	?	c. 25%	Adult 25-40 yr.	?female	Fragments from all skeletal areas; vertebrae crumbled to dust. Bone remaining moderately preserved. Excavated with 2 left legs?
ARC SLT99	C4619	Sk 4676	E/MBA	Inh. burial	c. 35%	Adult >40 yr.	male	Heavily degraded fragments from all areas of the skeleton. Osteoarthritic lesions in cervical & lumbar, thoracic rib facets; osteophytes in left proximal ulna.; Large skeleton.
ARC SFB99	W64	1356	E/MIA	Inh. burial	<1%	?	7	tiny scraps tooth enamel
ARC SFB99	W68	1445	E/MIA	?inh. burial	c. 1%	Adult	??male	Fragment thick vault
ARC SFB99	W68	1446	E/MIA	?=1445	<1%	Subadult-adult	?	Degraded scraps vault
ARC SFB99	W69		E/MIA				·	no bone surviving, pending sample processing
ARC SFB99	W97	1735	E/MIA	Redep.; ?=1736	<1%	Adult c. 20-30 yr.	?	Tooth enamel. Cremated bone (see below). Lower grave fill.
ARC SFB99	W98	1738-40	E/MIA			•		tooth enamel
ARC SFB99	W105	1381	E/MIA					no bone recovered
ARC SFB99	W103	1804/5	LIA/ERO					no bone surviving, pending sample processing
ARC SLT98C	C212	Sk 211	LRO					no bone surviving, pending sample processing
ARC SLT99	C2164	2165	LRO					no bone surviving, pending sample processing
ARC SLT98C	C1	1001	EM	?	<1%	>infant	?	Shattered fragments tooth enamel & skull from sample.
ARC SLT98C	C1	Sk 1017	EM	Inh. burial	c. 5%	Adult <i>c</i> .18-30yr.	?female	tooth crowns; degraded vault (4-5); upper & lower limb fragments (3-4); ?intrusive tooth crown
ARC SLT98C	C2	1026/1029	EM	?	<1%	Subadult-adult	7	Teeth.
ARC SLT98C	C3	1039	EM	?redep. or = 1029	<1%	Subadult-adult	7	totally shattered fragments of tooth enamel.
ARC SLT98C	C3	Sk 1029	EM	Inh. burial	<1%	Juvenile-young adult	7	shattered fragments tooth enamel
ARC SLT98C	C5	1046	EM	?redep. or = 1075	<1%	?	7	shattered fragments tooth enamel
ARC SLT98C	C5	1075	EM	?inh. burial	<1%	Adult	7	tooth crown
ARC SLT98C	C7	1084	EM	?redep. or = 1310	<1%	Subadult-adult	7	splinters of bone inc. vertebrae; worn and degraded (5)
ARC SLT98C	C7	Sk 1310	EM	Inh. burial	c. 26%	Adult <i>c</i> . 25-40 yr.	male	skull (2), axial skeleton (4), shattered fragments upper limb (4-5), lower limb very degraded (5): ?some reconstruction?: caries
ARC SLT98C	C9	1109	EM	?inh. burial	<1%	Infant-adult	7	shattered tooth enamel; scrap burnt bone
ARC SLT98C	C12	1134	EM	?inh. burial	<1%	Adult	7	tooth crown fragment
ARC SLT98C	C14	1118	EM	?redep. or = 1140	<1%	Adult <i>c</i> . 25-45yr.	7	tooth crowns; fragments cremated bone
ARC SLT98C	C14	Sk 1140	EM	Inh. burial	c 1%	Adult <i>c</i> . 25-40yr.	7	Tooth enamel
ARC SLT98C	C15	1183	EM	?inh. burial	<1%	Subadult-adult	7	tiny fragments shattered tooth enamel
ARC SLT98C	C16	1120	EM	?redep. or = 1167	<1%	Adult	?	shattered fragments tooth enamel; 0.2g burnt bone. Fragment animal tooth.
ARC SLT98C	C17	Sk 1157	EM	Inh. burial	c. 1%	Adult c.25-40 yr.	?	
ARC SLT98C	C18	Sk 1160	EM	Inh. burial	<1%	Adult	?	Shattered tooth crown & scraps of bone.
ARC SLT98C	C20	1164	EM	?inh. burial	<1%	?	?	tiny fragments shattered tooth enamel
ARC SLT98C	C21	1187	EM	?redep. or = 1256	<1%	Adult >40yr.	?	teeth & degraded skull (5)
ARC SLT98C	C21	Sk 1256	EM	Inh. burial	c. 2%	Adult c. 35-60yr.	?female	Teeth, frontal fragments (3)
ARC SLT98C	C21	unstrat.	EM	?redep. or = 1256	<1%	?	?	degraded bone (5+)
ARC SLT98C	C22	1198	EM	?inh. burial	<1%	?	?	shattered tooth enamel
ARC SLT98C	C23	1203	EM	?inh. burial	c.1%	Adult c. 20-35 yr.	??male	Tooth crowns. Fragments cattle tooth.

ARC SLT98C	C23	1388	EM	?redep.	<1%	Adult c. 18-35yr	9	Tooth crown
	C25	Sk 1347	EM	Inh. burial	<1%	Juvenile-young adult c. 7-25 yr.	2	Shattered tooth enamel
	C29	Sk 1347 Sk 1254	EM	Inh. burial	<1%	Infant c. 2-3yr.	2	Tooth crowns
	C30	Sk 1234	EM	Inh. burial	<1%	Subadult- adult <i>c</i> . 13-25yr.	2	tooth crowns.
	C33	1330/1331	EM	?inh. burial	<1%	2	2	shattered tooth enamel
	C34	Sk 1361	EM	Inh. burial	c. 4%	Adult <i>c</i> . 25-45 yr.	2	Tooth crowns. Degraded fragments upper & lower limb shafts (5).
	C35	1363	EM	Inh. burial	<1%	Adult c.30-50 yr.	2	Tooth crowns. Scraps of ?long bone.
	C37	Sk 1415	EM	Inh. burial	<1%	Adult c. 20-35yr.	??male	Tooth crowns.  Tooth crowns.
	C39	1351	EM	Inh. burial	c. 1%	Juvenile-subadult <i>c</i> . 9-14 yr.	2	Tooth crowns
	C40	1357	EM	Inh. burial	<1%	Adult	2	shattered tooth enamel
	C40	1358	EM	?redep.	<1%	Adult <i>c</i> . 25-40yr.	2	Tooth crowns, degraded skull fragments.
	C40	unstrat.	EM	?redep.	<1%	Adult <i>C. 23-</i> 40y1.	2	shattered tooth enamel; 0.2g burnt/cremated bone; from sample
	C44	1239	EM	?inh. burial	<1%	Adult c. 20-35yr.	2	Tooth crown: = 1343
	C50	1380/ Sk	EM	Inh. burial	<1%	Adult c. 25-45yr.	2	Shattered tooth enamel
	C30	1381	EIVI	iiii. buiiai	1 /0	Adult 6. 25-45yl.	ī	Shattered tooth channel
ARC SLT98C	C53	Sk 1417	EM	Inh. burial	c.1%	Adult <i>c</i> .25-40yr	?female	Tooth crowns.
ARC SLT98C	C55	1404	EM	?redep. or = $1404$	<1%	?	?	shattered fragments tooth enamel
ARC SLT98C	C55	Sk 1403	EM	Inh. burial	<1%	Juvenile-adult	?	fragment shattered tooth enamel
ARC SLT98C	C57	Sk 1452	EM	Inh. burial	<1%	>infant	?	shattered fragments tooth enamel
ARC SLT98C	C171	Sk 6140	EM	Inh. burial	c. 17%	Adult	??male	Eroded (3-4) upper & lower limb shafts, foot bones.
ARC SLT98C	C171?	unstrat.	EM	?redep. or =6140	c. 15%	Adult >40yr.	?female	Teeth & degraded skull (4-5)
ARC SLT98C	C177	Sk 6527	EM	Inh. burial	c. 16%	Adult 30-45 yr.	?	Degraded (4) skull, tooth crowns, lower limb fragments (4-5), foot bones relatively well preserved (2).
ARC SLT98C	C181	Sk 6636	EM	Inh. burial	<1%	Adult <i>c</i> .25-45 yr.	??; female	/2 – tooth crowns ;/3 -Scraps degraded long bone shaft.
	C185	Sk 6517	EM	Inh. burial	c. 3%	Adult	?	degraded fragments lower limb
	C185	Sk 6517/	EM	Inh. burial	c. 10%	Adult c. 30yr +	??female	teeth, degraded skull fragments (3-5) & cervical vertebrae;
		6528						periodontal disease, calculus
ARC SLT98C	C190	Sk 6420	EM	Inh. burial	<1%	>infant	?	Degraded scraps supposedly feet
ARC SLT98C	C195	SK 6417	EM	Inh. burial	<1%	Juvenile-young adult	?	Shattered fragments tooth enamel.
ARC SLT98C	C196	Sk 6523	EM	Inh. burial	<1%	Young infant c. 0-2yr.		unworn deciduous tooth crowns
ARC SLT98C	C198	Sk 6565	EM	Inh. burial	c. 45%	juvenile c. 8-10yr.	?	Most of skull, warped & shattered vault (3). Late eruption of
								premolars. Legs moderately well preserved (2-3), axial skeleton disintegrated, upper limb poorly preserved (3-4). Left distal tibia recorded with femur as thigh bone.
	C199	Sk 6646	EM	Inh. burial	c.%	juvenile; c. 7-10yr.	??male	Permanent and deciduous tooth crowns.
	C1290	Sk 1343	EM	Inh. burial	<1%	Subadult-adult c. 12-30 yr.	?	Tooth crowns
ARC SLT98C	C1451	1450	EM	Inh. burial	<1%	Juvenile-young adult	??male	Tooth crowns.
ARC SLT98C	C2401	2400	EM	?redep. or = $2515$	<1%	Juvenile-subadult	?	Shattered fragments unworn premolar & molar crowns. 0.2g cremated bone.
ARC SLT98C	C2559	2558	EM	?redep. or = 2598	<1%	Juvenile-subadult		Shattered fragments unworn molar crown; 0.3g cremated bone.
ARC SLT98C	C2816	Sk 2817	EM	Inh. burial	<1%	Juvenile-adult; c. 7-30 yr.	2	Tooth enamel
ARC SLT98C	C2869	2886	EM	?redep. or = 2906	<1%	Subadult-adult	2	shattered tooth enamel
	C2869	Sk 2906	EM	Inh. burial	<1%	Adult c. 25-40 yr.	?female	Tooth crown fragments
ARC SLT98C	C6639	Sk 6639	EM	Inh. burial	c. 1%	adult c.35-50 yr.	9	Tooth crowns. Scraps long bone shaft & skull(5+)
	C109	Sk 3716	EM	Inh. burial	c. 1%	Adult >45 yr.	male	mandible, maxilla, occipital vault; cervical; lower limb: poor
AIC SL179	C109	SK 3/10	L:1VI	IIIII. Dullai	U. J/0	Δuuπ ~43 y1.	maic	manufole, maxima, occipitai vauit, cervicai, iower mino. poor

	1							preservation, right worse than left; pathology degenerative disc
								disease, osteophytes, exostoses.; Residues to scan.
ARC SLT99	C110	Sk 3727	EM	Inh. burial		Adult c. 18-30yr.	female	Tooth crowns; degraded vault. Degraded fragments lower limb (5+).
ARC SLT99	C113	3746	EM	Inh. burial	c. 2%	Adult <i>c</i> . 20-35yr.	?	shattered fragment tooth enamel
ARC SLT99	C114	Sk 3788	EM	Inh. burial	<1%	Older juvenile-young subadult	?	6 tooth crowns (enamel only) mandibular & maxillary
ARC SLT99	C114	Sk 3760	EM	Inh. burial	<1%	9	2	degraded scraps vault
ARC SLT99	C117	3758	EM	Inh. burial	<1%	>infant	?	sliver of long one shaft
ARC SLT99	C118	Sk 3782	EM	Inh. burial	<1%	Adult c. 20-35yr.	?	Tooth crowns. Tiny scraps cremated bone
ARC SLT99	C121		EM	Inh. burial	c. 2%;	Adult 20-30 yr.	?male	comminuted fragments ?ilium & ?femur (5+), maxillary &
	0.21	Sit 3 / 00		iiiii ourur	. 270 ,		. mare	mandibular molar crowns (enamel only); degraded fragments skull (4).
ARC SLT99	C122		EM	Inh. burial	c. 1%	Adult c. 25-45yr.	?	Tooth crowns.
ARC SLT99	C123	Sk 3823	EM	Inh. burial	c. 8%	Adult >35 yr.	?female	Eroded (3-4) & warped vault fragments, teeth.
ARC SLT99	C124	Sk 3857	EM	Inh. burial	<1%	Adult 18-25 yr.	?	5 tooth crowns (enamel only) mandibular
ARC SLT99	C125/ C126	Sk 3928/ Sk 3929	EM	Inh. burial	<1%	Subadult-adult <i>c</i> . 15-30 yr.	?	Tooth enamel
ARC SLT99	C126	Unstrat.	EM	Inh. burial	<1%	Subadult-adult	?	scraps long bone shaft. Fragments burnt bone.
ARC SLT99	C127	Sk 3942	EM	Inh. burial	c. 1%	Adult 18-30 yr.	?	mandibular & maxillary tooth crowns (enamel & some with roots),
								vault fragment. Poor preservation of bone. Green staining. 2 beads.
ARC SLT99	C129	3884	EM	Inh. burial	c. 10%	Adult c. 25-40yr	?male	tooth crowns; degraded vault (4), right femur & innominate. Poor
								preservation but can see morph.; cremated bone (see below)
ARC SLT99	C131	Sk 3954	EM	Inh. burial	<1%	?		2 tiny fragments tooth enamel.
ARC SLT99	C133	Sk 3999	EM	Inh. burial	<1%	Adult 18-35 yr.	?	F2043&2126: shattered fragments tooth enamel; 3 small fragments burnt bone. F. 2267 animal bone not human, moderate preservation.
ARC SLT99	C134	4503	EM	Inh. burial	<1%	Adult <i>c</i> .25-40 yr.	?female	tooth crowns
ARC SLT99	C134	4505	EM	?redep.	<1%	Adult <i>c</i> .25-35 yr.	?	Tooth crowns – mandibular & maxillary
ARC SLT99	C137	Sk 4594	EM	Inh. burial	c. 1%	Adult >25 yr.	?	Highly degraded fragments vault, innominate & lower limb.
ARC SLT99	C139		EM	Inh. burial	c. 39%	Adult >40 yr.	male	Skull and upper body well preserved, most breaks recent, inc. some with no joins. Pelvis & lower limb highly degraded. Green cu-alloy stains on left hip (acetabulum); ante mortem tooth loss; degenerative disc disease – cervical; osteophytes – cervical, thoracic & lumbar, right distal radius; pitting – rib facets, medial clavicle; rotator cuff – right; Very robust skull
ARC SLT99	C145		EM	Inh. burial	c. 1%	Subadult-adult	?female	Fragments occipital vault; slivers from ?right leg.; Residues to scan.
ARC SLT99	C146	Sk 4658	EM	Inh. burial	<1%	Adult <i>c</i> . 25-35yr.	?female	Small mandibular & maxillary tooth crowns, few roots.; Beads from residues. Small residues to scan.
ARC SLT99	C150	4681	EM	Inh. burial	<1%	Juvenile-adult	?	Degraded fragments long bone shaft.
ARC SLT99	C151	4678/ Sk 4679	EM	Inh. burial	c. 1%	Adult	?	Teeth
ARC SLT99	C154		EM	Inh. burial	<1%	Adult <i>c</i> .30-50 yr.	?	Fragments tooth crown. Small fragment cremated bone; residue to scan.
ARC SLT99	C156	4701	EM	Inh. burial	<1%	Adult c.20-40 yr.	??male	mandibular & maxillary tooth crowns
ARC SLT99	C158	Sk 4717	EM	Inh. burial	c. 1%	Adult c. 18-40 yr.	?	Tooth crowns, shattered & degraded vault (5); Fragment created bone
ARC SLT99	C170	Sk 4727	EM	Inh. burial	<1%	Subadult-adult	?	Fragment humerus shaft, slightly degraded (3)

ARC SLT99	C170?	?4725	EM	?redep. or =4727	c. 1%	Adult 25-45 yr.	?	tooth crowns & vault fragments
ARC SLT99	C173	Sk 6204	EM	Inh. burial	c. 1%	Subadult- adult; c. 16-25 yr.	??female	Tooth crowns.
ARC SLT99	C174	Sk 6230	EM	Inh. burial	c.26%	Older subadult-young adult c. 17-20	?male	Teeth; skull (3-4); degraded fragments mandible; right proximal femur recorded as left, as was innominate. Degraded (varies with side 3-5) fragments lower limb & upper limb & axial skeleton; calculus; ?some reconstruction.
ARC SLT99	C176	Sk 6407	EM	Inh. burial	c. 1%	Infant-juvenile <i>c</i> . 4-6 yr.	male	Tooth crowns
ARC SLT99	C1138	Sk 1167	EM	Inh. burial	<1%	Adult	?	Shattered tooth crowns. Scraps of ?vault.
ARC SLT99	C1193	Sk 1330	EM	Inh. burial	c. 1%	Adult c 20-30 yr.	?male	Tooth crowns. Slivers of long bone shaft.
ARC SLT99	C1195	Sk 1283	EM	Inh. burial	<1%	?	?	Scraps of tooth crown
ARC SLT99	C2401	Sk 2515	EM	Inh. burial	<1%	Juvenile-subadult c. 8-18 yr.	?	Tooth crowns
ARC SLT99	C2559	2558/ Sk 2598	EM	Inh. burial	<1%	Subadult/adult		Shattered enamel
ARC SLT99	C3041	3039	EM	?inh. burial	<1%	Juvenile-subadult	?	Unworn mandibular molar crown
ARC SLT99	C3047	3046	EM	Inh. burial	c.1%	Adult c. 18-30	?	Tooth crowns & fragments shattered tooth enamel.
ARC SLT99	C3777	3776	EM	?inh. burial		>infant		1g burnt bone – mandible & long bone.
ARC SLT99	C3896	3894/3895	EM	?inh. burial	nil			cattle tooth
ARC SLT99	Unknown	Sk 4899	EM	Inh. burial	<1%	Subadult-adult	?	Fragment degraded petrous temporal.; Residue to scan.
ARC SFB99	W7	3033	EM	Inh. burial	c. 15%	Adult c. 18-45 yr.	?male	Degraded & disintegrating skull vault, robust femur shafts.
ARC SFB99	W11	1055	EM	Inh. burial	c. 3%	adult	??male	Degraded scraps of vault, and lower limb shafts. Appears to have been supine & extended.
ARC SFB99	W12	1076	EM	?redep.	c. 4%	Adult >30 yr.	?female	occipital parietal vault. Degraded (3-4). Upper fill of grave - ?redeposited
ARC SFB99	W12	1146	EM	Inh. burial	c. 5%	Adult >50 yr.	?	Degraded (4-5), skull fragments. Warped longitudinal. Sutures obliterated. Uneven occlusal wear in canine – cultural?
ARC SFB99	W12	1147	EM	=1146 or 1076	<1%			Degraded scrap skull vault
ARC SFB99	W13	1075/1077	EM	Inh. burial(?s)	<1%	Subadult-adult; ?2) infant		Actually only surviving bone on 'non-skeleton' 1077. Check with in situ teeth - ?late eruption some permanent teeth. Basal fill of grave. Most recovered from sample.
ARC SFB99	W18	1125	EM	?redep. or remains inh. burial	<1%	Adult		canine crown. From grave fill – no burial remains recovered from this grave - this may actually be non-number 1168
ARC SFB99	W20	1119	EM	?redep.	<1%	Juvenile-subadult	?	Unworn maxillary molar crown. From grave fill – no burial remains recovered from this grave.
ARC SFB99	W22	1332	EM	Inh. burial	c. 1%	Subadult	?	tooth enamel, some root.
ARC SFB99	W23	1345	EM	Inh. burial	<1%	Subadult	??male	tooth enamel, mandibular and maxillary.
ARC SFB99	W29	1322	EM	?redep. or = 1328	<1%	Adult	?	shattered tooth crown
ARC SFB99	W29	1328	EM	Inh. burial	<1%	Adult c. 30-45 yr.	?	tooth enamel, mandibular & maxillary. Disturbed?
ARC SFB99	W38	1515	EM	?redep.	<1%	Adult	?	tooth crown fragment. Some cremated bone in here (see below). From backfill above 1516.
ARC SFB99	W38	1516	EM	Inh. burial	<1%	Subadult	?	Unworn-lightly worn tooth crowns. Retained deciduous canine. Fragment cremated bone (see below).
ARC SFB99	W40	1763	EM	Inh. burial	c. 1%	Adult c. 30-45 yr.	?	Teeth
ARC SFB99	W42	1777	EM	?inh. burial	c. 1%	1) juvenile-subadult; adult	?	Tooth crowns from 2 dentitions; ?disturbed, some redeposited (very near surface, central to grave)
ARC SFB99	W43	1575	EM	?coffined; inh. burial	c. 27%	Adult c. 30-50 yr.	male	Degraded skull (4-5); upper & lower limb, & innominate fragments

ARC SFB99	W45	1856	EM	Inh. burial	c. 25%	Adult c. 25-35 yr.	??female	Teeth good; degraded skull (3-4); fragments heavily degraded upper & lower limb shaft.
ARC SFB99	W57	1750	EM	Inh. burial	c. 1%	Adult c. 25-35 yr.	?	Teeth, some root. Scraps degraded skull. Long bones disintegrated, scraps left femur.
ARC SFB99	W59	1391	EM	Redep.?	c. 2%	Adult c. 20-35 yr.	??female	Tooth crowns; degraded skull & mandible fragments (4-5). Hypoplasia.
ARC SFB99	W60	1514	EM	Inh. burial	c. 1%	Adult c. 25-40 yr.		Cu-alloy staining on rigth mandibular premolar-molars. Mandibular & maxillary teeth.
ARC SFB99	W70	1606	EM	?inh. burial	<<1%	?	?	samples; .2 slivers of bone; .4 no bone; .5 no bone
ARC SFB99	W83	1293	EM	Inh. burial	c. 3%	Adult c. 30-50 yr.	?female	Degraded fragments skull and tooth enamel, innominates (obtuse
								greater sciatic notch); disintegrating scraps long bone.
ARC SFB99	W104	1743	EM	?coffined inh. burial	<1%	Adult c. 25-40 yr.	?	Tooth enamel. Disturbed.
ARC SFB99	W111	1811	EM	Dual inh. burial	<1%	Adult c.20-30 yr.; young infant		Tooth enamel crowns; inc. deciduous mandibular molar
ARC SFB99	W120	1896	EM	Inh. burial	<1%	Adult c. 25-45 yr.	?	4 maxillary tooth crowns, roots degraded.
ARC SFB99	W123	1854	EM	Inh. burial	c. 1%	Subadult-adult; c. 16-25 yr.	?	Fresh appearance; tooth crown enamel.
ARC SFB99	W123	1855	EM	Redep. ?; ?=1854	<1%	Subadult-adult; c. 15-30 yr.	?	Tooth crown. Cremated bone (see below).
ARC SFB99	W125	3127	EM	Inh. burial	c. 1%	Subadult-young adult c. 13-25 yr.	??male	Tooth crowns.
ARC SFB99	W126	3085	EM	Inh. burial	c. 1%	Older juvenile ; <i>c</i> . 8-10 yr.	1) ?male	Teeth, crowns good condition, roots degraded; 12 permanent maxillary & 12 mandibular, 1 maxillary & 2 mandibular deciduous molars - ?later eruption premolars (see SLT 98C 6565). Hypoplasia.
ARC SFB99	W185	1329	EM	Inh. burial	c. 3%	Adult c. 25-40 yr.	?	tooth enamel, scraps mandible & skull, degraded scraps long bone. Residue to sort.
ARC SLT98	-	1000	?	?	c. 3%	Adult	?	Lower limb shafts (4)
ARC SLT98	-	1122	?	?	<1%	?	?	shattered tooth enamel
ARC SLT98	-	1372	?	Inh. Burial	<1%	Adult	?	shattered fragments tooth enamel
ARC SLT98C	Ditch 2741	2890	?	?	<1%			Fragment shattered tooth enamel
ARC SLT99	Ditch 3828	3827/3831	?	Inh. Burial	<1%	Subadult-adult	?	Highly degraded fragment ?tibia shaft.
ARC SLT99	Cut 3891	3890	?	?	<1%	?	?	?human/?animal long bone fragments – shattered
ARC SLT99	Pit 3910	3970	?	Inh. Burial	c. 1%	Adult <i>c</i> . 25-35yr.	?female	mandibular & maxillary tooth crowns (enamel only) heavier occlusal wear one side

**Table 47:** Saltwood cremated bone

Site	Feature	Context	Period	Type	Bone wt.	Age	Comments
ARC SLT99	C3709	3708	LBA/EIA	?	18.0g	Adult	Pitting - articular process
ARC SLT99	C3710	3711	LBA/EIA	?	483.5g		
ARC SLT99	C3739	3737/8	LBA/EIA	?			Bone yet to be examined
ARC SLT99	C3777	3776	LBA/EIA	?			Bone yet to be examined
ARC SLT99	C3806	3805	LBA/EIA	?	5.4g		·
ARC SLT99	C3806	3809	LBA/EIA	?	1.4g		
ARC SLT99	C3896	3894/5	LBA/EIA	?			Bone yet to be examined
ARC SLT99	C3935	3933/4	LBA/EIA	?			Bone yet to be examined
ARC SFB99	W99	1704	LBA/EIA	?rpd	10.3g	Adult	2 sub-contexts; mixed charcoal rich pit
ARC SFB99	W100	1727	LBA/EIA	?u. cb/; ?rpd	33.3g	Adult	Quantities of charcoal? see photo. & plan
ARC SFB99	W101	1729	LBA/EIA	?rpd	12g	Subadult-adult	Charcoal rich pit fill
ARC SFB99	W102	1700	LBA/EIA	?rpd	4.6g	>infant	4 sub-contexts; charcoal rich shallow pit
ARC SFB99	W102	1701	LBA/EIA	= 1700	0.3g		?human; 2 sub-contexts
ARC SFB99	W106	1723	LBA/EIA	?			Bone yet to be examined
ARC SFB99	W107	1725	LBA/EIA	?redep.		>infant	
ARC SFB99	W223	3603	LBA/EIA	unurn.	143.0g		
ARC SLT98	C6	5	E/MRO	?	291.7g	Adult	
ARC SLT98	C12	67	E/MRO	?	2.0g		
ARC SLT98	C12	68	E/MRO	?	121.4g	Adult	
ARC SLT98	C12	69	E/MRO	?		Adult	Osteophytes
ARC SLT98	C14	59	E/MRO	?	50.7g	Adult	Few u/b cattle teeth; 2 samples
ARC SLT98	C14	60	E/MRO	?	279.5g	Adult	Iron panning
ARC SLT98	C14	61	E/MRO	?	0.2g		
ARC SLT98	C14	62	E/MRO	?	22.5g	Subadult-adult	Inc. animal bone; sherd
ARC SLT98	C15	49	E/MRO	?	2.4g	Subadult-adult	Pot sherds
ARC SLT98	C16	86	E/MRO	?	113.5g	Adult	
ARC SLT98	C19	95	E/MRO	?	1.0g		
ARC SLT98	C19	96	E/MRO	?	5	Adult	
ARC SLT98	C20	56	E/MRO	?	0.7g	Subadult-adult	
ARC SLT98	C20	58	E/MRO	?	16.2g	Adult >40 yr.	?some animal bone; sherds
ARC SLT98	C21	82	E/MRO	?	3.7g	Subadult-adult	
ARC SLT98	C21	83/84	E/MRO	?		Adult	Worn sherds
ARC SLT98	C21	85	E/MRO	?	14.4g	Subadult-adult	
ARC SLT98	C22	100	E/MRO	?	6.7g	Adult	
ARC SLT98	C22	101	E/MRO	?	89.3g	Adult	Sherds
ARC SLT98	C337	336	E/MRO	?	1192.8g	Adult	Charcoal stained
ARC SLT99	C2187	2186	E/MRO	?	0.1g		
ARC SLT99	C2210	2208	E/MRO	?	41.4g		Charcoal stained; two samples
ARC SLT99	C2215	2216	E/MRO	?	124.6g		Heavily fragmented
ARC SLT99	C2233	2232	E/MRO	?	245.8g	Adult	
ARC SLT99	C2303	2301	E/MRO	?	0.1g		

ARC SLT99	C3008	3007	E/MRO	?	640.5g	Adult	
ARC SLT99	C3193	3192	E/MRO	?	0.79	Tuut	
ARC SLT99	C3705	3704	EM	?	791.5g	Adult	
ARC SLT98	-	unstrat	UN	?			Unstratified
ARC SLT98	C33	32	UN	?	0.1g		Ditch fill
ARC SLT98	C71	34	UN	?	0.2g		Ditch fill
ARC SLT98	C1019	1018		?	<0.1g		?animal/?human; minuscule fragment; pit fill
ARC SLT98	C1031	1030	UN	?	1.4g	Adult	From inh. grave fill
ARC SLT98	C1137	1118	UN	redep.	0.7g	Subadult-adult	From inh. grave fill
ARC SLT98	C1154	1155	UN	?			From inh. grave fill
ARC SLT98	C1244	1243	UN	?	0.5g		From inh. grave fill
ARC SLT98	C1252	1251	UN	?	0g	?	Human; ditch fill
ARC SLT98C	C2493	2492	UN	?	<0.1g		Probably human; ditch fill
ARC SLT98C	C2538	2537	UN	?	0.1g		Probably human; posthole fill
ARC SLT98C		2553	UIN	?	<0.1g		Probably animal; pit fill
ARC SLT98C	C2723	2722	UIN	?	<0.1g		Animal?/human?; posthole fill
ARC SLT98C	C2778	2777	UN	?	<0.1g		Animal?/human? – tiny fragment; pit fill
ARC SLT98C	C2805	2802	UIN	?	0.5g		Probably animal; 3 samples; pit fill
ARC SLT98C	C2805	2803	UIN	?	<0.1g		?animal/?human; pit fill
ARC SLT98C	C2805	2804	UN	?	<0.1g		Probably animal; pit fill
ARC SLT98C	C2805	2813	UIN	?	0.2g		?human/?animal; 3 samples; pit fill
ARC SLT98C	C2805	2814	UIN	?	0.1g		Probably animal; 2 samples; pit fill
ARC SLT98C	C2812	2811	UN	?	<0.1g		Burnt & unburnt animal; ditch fill
ARC SLT98C	C2816	2815	UIN	?	0.1g		?human; from inh. grave fill
	C2819	2818	UIN	?	0.1g		?human; posthole fill
ARC SLT98C	C2845	2844	UN	?	<0.1g		?human; ditch fill
ARC SLT98C	C2869	2868/2886	UIV	?	0.5g		?human; from inh. grave fill
	C2899	2898	UIN	?	<0.1g		Human; from inh. grave fill
ARC SLT98C	C2919	2918	UN	?	0.3g		Human; pit fill
	C2966	2967	OIV	?	<0.1g		?animal/human; from inh. grave fill
ARC SLT99	C2101	2102	UN	?	0.2g		Ditch fill
ARC SLT99	C3014	3013	UN	?	neg.		Pit fill
ARC SLT99	C3116	3115	UIN	?	6.7g	Subadult-adult	Pit fill
ARC SLT99	C3143	3145	UIN	?	neg.		?burnt animal; posthole fill
ARC SLT99	C4757	3701	UIN	?	3.5g		
ARC SLT99	C3713	3712	OIV	?	0.4g		Inc. u/b shattered tooth enamel.; ?backfill inh. grave
ARC SLT99	C3715	3714	UIN	?	0.1g		Tiny fragments; from inh. grave fill
ARC SLT99	C3722	3721	UIN	?	0.3g		Root fragment
ARC SLT99	C3724	3723	UN	?	<0.1g		Tiny fragment; posthole fill
ARC SLT99	C3726	3725	UN	?	1.7g		?backfill inh. grave; tiny fragments
ARC SLT99	C3741	3731	UIN	?	0.3g		?backfill inh. grave; inc. fragment u/b tooth enamel
ARC SLT99	C3751	3750	UN	?			?backfill inh. grave; 2 bags
ARC SLT99	C3753	3752	UIN	?	6.3g		2 bags; pit fill
ARC SLT99	C3755	3754	UN	?	0.9g		Inc. u/b crown; from backfill inhum. grave

ARC SLT99	C3757	3756	UN	?	neg.		?backfill inh. grave
ARC SLT99	C3764	3763	UN	?	0.5g		?backfill inh. grave
ARC SLT99	C3779	3778	UN	?	0.1g		From inh. grave fill
ARC SLT99	C3781	3780	UN	?	0.7g		Inc. fragments u/b tooth crown; from backfill inh. grave
ARC SLT99	C3764	3782	UN	redep?	1.4g	Subadult-adult	?backfill inhum. grave; human skull
ARC SLT99	C3830	3829	UN	?	0.2g		Pit fill
ARC SLT99	C3864	3865	UN	?	5g	Subadult-adult	?backfill inh. grave
ARC SLT99	C3866	3867	UN	redep.	2.4 g		Backfill inh. grave
ARC SLT99	C3885	3884	UN	redep.	16.0g	Subadult-adult	?human/?animal; backfill inh. grave
ARC SLT99	C3918	3917	UN	?	1.2g		Ditch fill
ARC SLT99	C4665	4717		redep.	.2g		Human; in backfill inh. grave.
ARC SFB99	W24	1115	UN	redep.	0.5g		?human/?animal; in fill inh. grave
ARC SFB99	W33	1355	UN	redep.	1.2g	Subadult-adult	Ditch fill
ARC SFB99	W38	1515	UN	redep.	0.8g		Human; backfill inh. grave
ARC SFB99	W38	1516	UN	redep.	0.3g	Subadult-adult	Inh. burial, i.e. = 1515
ARC SFB99	W44	1602	UN	redep.	0.4g	Subadult-adult	In basal ditch fill
ARC SFB99	W45	1578	UN	?rpd/; ?redep.	6.8g	Subadult-adult	Inc. sample; upper fill inh. grave 1577, some charcoal – rpd?, redep?; u/b fragment, ?animal/?human
ARC SFB99	W45	1859	UN	redep.	2.5g		?human; fill inh. grave
ARC SFB99	W57	1635	UN	redep.	2.7g	Adult	In fill inh. grave, ?redep. burial/rpd?
ARC SFB99	W59	1390	UN	?rpd/ ?redep.	2.2g	Subadult-adult	Inc. sample; charcoal flecking, ??rpd or just redep.; pit fill
ARC SFB99	W62	1697		redep.	0.2g		?human; in fill ditch
ARC SFB99	W67	1410	UN	?redep.	0.3g		?human; in charcoal rich pit fill
ARC SFB99	W69	1412		redep.	2.5g		?human; in inh. grave fill
ARC SFB99	W70	1605	UN	redep.	2.9g	Subadult-adult	Some slightly blue/grey; in fill inh. grave
ARC SFB99	W95	1573		redep.?		Subadult-adult	In ditch fill; charcoal flecks ?rpd?
ARC SFB99	W97	1735	UN	redep.	0.7g	Subadult-adult	In backfill inh. grave
ARC SFB99	W103	1805	UN	redep.	5.3g	Adult	In backfill inh. grave
ARC SFB99	W104	1706		redep.	0.8g		Human; in fill inh. grave
ARC SFB99	W109	1845	UN	redep.	0.6g	Subadult-adult	In backfill inh. grave
ARC SFB99	W122	1465	UN	?rpd	2.1g	Subadult-adult	Inc. sample; charcoal rich pit
ARC SFB99	W123	1855	UN	redep.	13.5g	Subadult-adult	2 sub-contexts; few fragments slightly grey; u/b tooth crown, unworn. In backfill inh. grave
ARC SFB99	W139	3410	UN	?	0.1g		?human/animal; in pit fill, discrete deposit
ARC SFB99	W170	3646	UN	?rpd	15.5g	Juvenile-adult	2 samples; charcoal flecking, could be rpd in ditch fill
ARC SFB99	W180	3498	UN	?	2.2g		?human/animal; charcoal rich pit fill
ARC SFB99	W190	1647	UN	?redep.	0.4g	>infant	Pit fill, charcoal

### Provenance

- 7.1.6 The deposits from which unburnt human remains were recovered largely comprised the remains of inhumation burials, including two associated with Bronze Age barrows, six of Early/Middle Iron Age date, one Late Iron Age/early Romano-British, and two late Roman or 'sub-Roman' (bone from the latter has yet to be examined). The remainder, comprising the large majority of inhumation burials from all sites, was of Early Anglo-Saxon date (coded EM in **Tables 46-7**).
- 7.1.7 Most of the cremated bone recovered to the west of Stone Farm Bridleway was from deposits of Late Bronze Age/Early Iron Age and Romano-British date, including the remains of cremation burials and other cremation-related deposits; one cremation burial believed to be of Anglo-Saxon date was also recovered. Much of the cremated bone recovered to the east of the bridleway derived from the backfill of Anglo-Saxon inhumation graves, with some deposits from ditch fills. Other deposits, including several which appear to represent redeposited pyre debris, were recovered from the vicinity of Late Bronze Age/Early Iron Age features. In addition, one possible urned cremation burial (W100) and one unurned burial (W223) were recovered.

#### Conservation

- 7.1.8 The unburnt bone from the inhumation burials is generally in very poor condition, being extensively degraded (mostly scoring 5 on a decreasing scale of 1-5) and in many cases the disintegration process is on-going rendering the bone very fragile. Frequently, the only part of the skeleton to survive intact is the enamel of the tooth crowns. The poor condition of the bone is reflected in the levels of percentage skeletal recovery, which in the vast majority of cases is <1%. More than *c*. 10% of the skeleton survived in only 9% of the inhumation graves, the maximum being *c*. 45% from a juvenile in grave C198 and *c*. 27% from an adult from grave W43. It may be noted that bone from the two Early/Middle Bronze Age inhumations (C4507, C4619) survived in better condition than from the later inhumations.
- 7.1.9 The cremated bone is generally in good condition. The quantity of bone from the large majority of the deposits was very small, with only 26 contexts in total containing in excess of 10g of bone. The greatest weight of bone from a single deposit was 1192.8g (C337) with a maximum of 33.3g from the eastern part of the site (W100). The small weight of bone and frequently comminuted fragments largely reflects the type of deposit, many of which represent disturbed or redeposited material. The bone is almost universally the buff-white indicative of a high level of oxidation.
- 7.1.10 Under the terms of Schedule 11 of the CTRL Act 1996, all human remains are to be reburied.

# Comparative material

7.1.11 The human remains from Saltwood in themselves cover a wide temporal range and comprise the contents of several cemeteries relating to various population groups. Some ten other archaeological sites excavated along the Channel Tunnel Rail Link Route have produced varying quantities of human remains from individual burials or cemeteries – both inhumation and cremation – from the Bronze Age through to Anglo-Saxon (Glass 1999). These new sites join a corpus of published data from

- Kent including nine Bronze Age, two Iron Age, one Iron Age-Romano-British, 14 Romano-British and 17 Anglo-Saxon cemetery/burial sites (Anderson 1994, Shaw 1994, Mays and Anderson 1995, Ashbee 1997, Parfitt 1999).
- 7.1.12 From these comparable cemeteries a minimum of 21 Bronze Age (mostly cremation burials) three Iron Age, 138 Romano-British (mostly inhumation burials) and 640 Anglo-Saxon (all inhumation burials) burials have been recovered. Limitations in comparisons will be imposed not just by the poor condition of much of the bone from Saltwood, but the similarly poor condition of much of the unburnt bone from other sites in Kent, the lack of skeletal analysis in some cases and limited analysis in others (Mays and Anderson 1994).
- 7.1.13 Wider comparisons with material from excavations outside Kent e.g. Edix Hill, Cambridgeshire (Duhig 1998) and Apple Down, West Sussex (Harman 1990) may illustrate broad region similarities or variations.
- 7.1.14 Various types of cremation-related deposit have been found on sites from all periods (e.g. Jessup 1959, McKinley 1997a and b, Barber and Bowsher 2000, McKinley in press). The recovered data will be used to assess the various types of deposit and the mortuary rituals and rites they may reflect.

Potential for further work

- 7.1.15 The human bone assemblage, both cremated and unburnt, covers a wide temporal range from the Early/Middle Bronze Age to Anglo-Saxon, with a major concentration in the latter phase. The overall potential of the unburnt bone assemblage is severely limited by the very poor condition of the bone, but the frequent recovery of tooth crowns offers the possibility of the further recovery of data pertaining to demography and health.
- 7.1.16 Age will largely have to be assessed from tooth wear patterns. The occasional presence of additional ageing criteria will allow the establishment of controls against which any necessary adjustments can be made to the age ranges offered by standardised tooth wear pattern charts (Miles 1962, Brothwell 1972). This data may counteract the effects of different diet, general health and genetic predisposition within different population groups. In many cases it should be possible to attribute tighter age ranges than those given for this assessment.
- 7.1.17 Sexing of a greater number of individuals may be attempted using multivariate analysis of measurements taken from the tooth crowns (Ditch and Rose 1976). The demographic data may be compared with that of others within the region and nationally to assess the nature and development of the cemeteries, and to assess any variations in spatial distribution within the cemeteries.
- 7.1.18 There will be little opportunity to assess physical characteristics. It will not be possible to undertake calculation of skeletal indices, for example, stature estimation or cranial index, but there may be limited potential for the calculation of other indices reflective of the homogeneity of the assemblage. This data may also be used for regional and national comparisons.
- 7.1.19 Very few pathological lesions were observed in assessment and, consequently, there is restricted potential to comment on the health, economy and status of the cemetery populations of any period as reflected in the condition of the skeletal remains. There will be limited scope for assessment of diet as indicated by the dental health of the

- individuals, though the predominant recovery of only dental enamel from the Anglo-Saxon cemeteries will necessitate a restricted interpretation.
- 7.1.20 The use of DNA sampling to assist in gender determination, and the identification of family groups, is likely to be limited by the very poor bone survival. While some of the inhumation burials within the Anglo-Saxon cemeteries have potentially survived well enough to provide adequate DNA samples, these are unlikely to provide a sufficiently wide range of samples to answer specific questions the identification of gender for random isolated samples is not sufficient.
- 7.1.21 The use of strontium and lead isotope analysis to determine geographical origins, however, has a higher potential, since this process can utilise tooth enamel. This analysis could be used, for example, to demonstrate similarities (or lack of) in geographical origin between the three Anglo-Saxon cemetery groups.
- 7.1.22 The possibility of obtaining high precision dates for burials of any date is likely to face similar restriction due to poor bone preservation even where bone does survive, this may only comprise the mineral component, without the collagen which is necessary for dating. Bone from the inhumation burials of pre-Saxon date, however, does survive in better condition, and may be sufficient to provide adequate samples for dating this would be most appropriate for the groups of burials considered to be of Early/Middle Bronze Age and Early/Middle Iron Age date.
- 7.1.23 The patterns of skeletal survival within the inhumation graves from the eastern part of the site may be assessed in the light of a suite of pH samples extracted from targeted areas within the grave fills. This may indicate the original presence of organic materials within the grave that have altered the microenvironment sufficiently to enhance bone survival. However, preliminary analysis of a small subsample of these pH samples indicates few significant variations in pH value to date. Other factors may also have had similar effects, such as soil chemistry, and these will also be considered in any discussion of differential bone survival across the site.
- 7.1.24 Assessment of cremation-related deposits, their type and nature requiring reference to the primary context data will demonstrate aspects of the funerary rites and rituals (McKinley 1994a, 1997, 1998 and in press).

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