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SUMMARY

The Museum of London Archaeology Service (MoLAS) was commissioned by Union Railways (South) Limited (URS) to undertake detailed archaeological investigations and a watching brief from Scalpers Hill to the A228, south of Gravesend, Gravesham District, Kent. This work formed part of an extensive programme of archaeological investigation carried out in advance of the construction of the Channel Tunnel Rail Link (CTRL).

This Zone, which stretches for 4.5km from west to east, consists of undulating land on the northern dip-slope of the North Downs, along which Watling Street, and its successors, the A2 and M2, run. The highest point is at Scalpers Hill, at a maximum of 112.82m OD, from where the ground generally descends eastwards, to a minimum of 80.63m OD where the Zone approaches the River Medway. The zone is crossed by three dry valleys, at Cobham Golf Course, Knights Place Farm (both broad and gently sloping valleys) and Great Wood (narrow and steep sided) running roughly from north-west to south-east.

Mesolithic (c 9000–c 4,500BC) and early Neolithic (c 4,500–3000 BC):

- A single burin of Mesolithic type was recovered at ARC 330 98 near Great Wood.
- A single worked flint of early Neolithic type was found in an evaluation at Cobham Golf Course (ARC CGC 97).

Early Bronze Age (c 2,000–1,400 BC):

- A causewayed ring ditch measuring c 22m in internal diameter was uncovered at Cobham Golf Course, with finds from the ditch dated to the early Bronze Age. Evidence suggests that the ditch filled quickly as no identifiable middle or later Bronze Age pottery was recovered from it. This feature is likely to be a mortuary barrow monument.

Middle Bronze Age (c 1500–1000 BC):

- A late Bronze Age ditch at ARC CGC 98 contained middle Bronze Age Deverel-Rimbury pottery and worked flints. The ditch appeared to be associated with a possible road orientated from east to west. This evidence indicates organisation of the landscape and the location of a settlement nearby.

Late Bronze Age (c 1000–700 BC):

- At Cobham Golf Course, numerous scattered pits, postholes and ditches containing pottery, struck flint, and materials probably connected with weaving, cooking and boiling brine for salt marked the northern edge of a permanent settlement. A flint scatter to the west probably indicated that part of the settlement had been ploughed out.
- A flint scatter to the east at Knights Place Farm (recorded as ARC 330 98) may indicate the location of a second, contemporary occupation site, later ploughed out.

Late Iron Age–early Roman (100 BC–AD 100)

- A major Roman road between Dover and London, via Rochester, (later referred to as Watling Street) was established through Zone 5. It is presumed to have been on the line of the later medieval/Post-medieval road/holloway which passed through Zone 5 for approximately 1km. However, it appears that this later road/holloway had removed all traces of any potential Roman road.
- A ditch of late Iron Age/ early Roman date was recorded Knights Place Farm. This ditch implies limited, presumably agricultural, use of the area.

Roman (1st century AD to the end of the 4th century AD)

- A Roman villa, previously dated to between the 1st and 4th centuries AD, was established just to the south of the CTRL at Cobham Park. No definite evidence was revealed from the CTRL work for the influence of this villa on the landscape.

Medieval (11th to 15th centuries):

- A large-scale reorganisation of the landscape was implied by extensive emparking for Cobham Park. The existing house dates from the 16th century but the manor on which its estate is based was medieval. The manor included woods managed for coppicing and charcoal-burning to the east of Knights Place Farm; mature woodland nearer to Cobham

Park; and agriculture, evidenced by ploughsoils extensively flecked with chalk marling on the valley sides and floors.

- The London to Dover road continued in existence. Travellers presumably were able to use St Thomas's Well (recorded during the CTRL works) to the west, but no roadside settlements appear to have arisen.

Post-medieval and modern (16th to 20th centuries):

- The extensive park and woodland already established continued in existence, with evidence for deliberate design of the landscape, especially at the end of the 18th century (ARC BG 98, ARC WS 98 and ARC 330 98).
- The London to Dover road, later known as Watling Street, continued in existence, with successive improvements being made from early in the 19th century. Among other evidence of these improvements seen at ARC WS 98 was a boundary stone, set up in 1808 to demarcate responsibility for maintaining the Dover Road between the adjacent parishes of Cobham and Shorne. This stone, recently damaged, was recovered during the works.
- This Zone contained structures associated with a Second World War military camp at ARC AWC 98. The eastern part of ARC CGC 98 was used for a rifle and grenade range at this time.
- Suburban exploitation of the landscape was implied by an extensive late 20th century golf course at ARC CGC 98.

1. INTRODUCTION

1.1 Project Background

1.1.1 The Museum of London Archaeology Services (MoLAS) was commissioned by Union Railways (South) Limited (URS) to undertake detailed archaeological investigations at Area 330 Archaeological Zone 5, from Scalers Hill in the west, south of Gravesend, to Cobham Golf Course in the east, west of Rochester, Kent (Figure 1). This work formed part of an extensive programme of archaeological investigation carried out in advance of the construction of the Channel Tunnel Rail Link (CTRL).

1.1.2 The archaeological Written Scheme of Investigation was prepared by Rail Link Engineering (RLE), agreed in consultation with English Heritage and Kent County Council (KCC) on behalf of the Local Planning Authorities.

1.1.3 Zone 5 location:

Approx. Compass direction of Co-ord.	URL Easting	URL Northing	NGR Easting	NGR Northing
North-west	47173.775	49740.094	567169.740	169741.689
South-east	51946.911	47586.529	571942.876	167588.124

1.1.4 Zone 5 lies between CTRL chainage 44+300 and 49+800 and covers a length of 4.5km.

1.1.5 The topography of this Zone, from west to east, consists of undulating land on the northern dip-slope of the North Downs. The highest points are Scalers Hill to the extreme west, at 112m OD, and Knight's Place Farm, above 100m OD, to the east. These two points are separated by two parts of a broad, dry valley. From the high point near to Knights Place Farm the ground gradually falls to the south-east to a minimum height of 55m OD, approaching the River Medway, but it is crossed by a narrow, steeply-sided dry valley running eastwards, at a minimum height of 45m OD. In general the dry valleys are a mixture of grass and fields, while the higher areas are covered in coppiced or mature woodland.

Table 1: Archaeological interventions in Zone 5

Event name	Event code	Contractor	Dates	Type
Cobham Golf Course	ARC CGC 97	OAU	1997	Evaluation
Cobham Park	ARC CPK 97	MoLAS	1997	Evaluation
Knights Place Farm	ARC KPF 98	MoLAS	1998	Evaluation

Event name	Event code	Contractor	Dates	Dates
Knights Place Construction Site	ARC KCS 98	MoLAS	1998	Evaluation
Great Wood	ARC GWE 98	MoLAS	1998	Evaluation
Scalers Hill to Cobham	ARC SCC 98	MoLAS	1998	Evaluation
Cobham Golf Course	ARC CGC 98	MoLAS	1998	Excavation
Ashenbank Wood Army Camp	ARC AWC 98	MoLAS	1998	Standing building survey
Brewer's Gate	ARC BG 98	MoLAS	1998	Excavation
Watling Street	ARC WS 98	MoLAS	1998	Excavation
Area 330 Watching Brief	ARC 330 98	MoLAS	1998 to 2000	Watching brief during construction works

1.2 Geology and Topography

1.2.1 The solid geology consists of the Upper Chalk of the North Downs overlaid locally by the silty sands and sandy clays of the Woolwich, Blackheath and/ or Thanet Beds (Figure 2). Where exposed, the chalk is riddled with solution features and sealed by a clay and flint Head deposit.

1.2.2 The Zone is situated mainly on the northern dip-slope of the North Downs, but the local topography is moderately varied. The western area incorporates fossiliferous, Oldhaven beds, deposits of Lignite and raised beaches of rounded gravels. Scalers Hill incorporated a Site of Special Scientific Interest.

Table 2: Topographic and geological details; Zone 5

Topography	Chainage	Geology
Scalers Hill, west facing slope 94.90m OD	44+300 -	Oldhaven, Blackheath and Woolwich Beds
Scalers Hill crest, between 108.79m OD and 114m OD	45+400	Oldhaven, Blackheath and Woolwich Beds
Scalers Hill, east facing slope dropping gently to 69.54m OD	46+600	Thanet Beds leading to chalk overlain by eroded Thanet Beds
Gentle, west-facing terracing slope rising to 100.88m OD	47+580	Thanet Beds

Topography	Chainage	Geology
Gentle east-facing slope to 86.05m OD	47.950	Thanet Beds over Chalk
Wooded area dropping from 86m OD, to 61m OD (cut by a sharp dry valley, to 45m OD at 49+360)	49+550	Clay and flint head over eroded chalk

- 1.2.3 Land use is basically dictated by soil type. On the Oldhaven, Thanet Beds and Glacial Head, the use is dominated by woodland, and in the dry valleys, on the eroded Thanet Beds, arable farming is undertaken.

1.3 Archaeological and Historical Background

- 1.3.1 A preliminary desk-top assessment, conducted for Union Railways Limited (URL) between 1990 and 1994 (URL 1994, vol 1, 107–113), identified several sites in this Zone as having possible archaeological interest.

- 1.3.2 The desk-top assessment was supplemented by limited geophysical prospection (URL 1996, vol 2, plans 2.1 & 2.2). A magnetometer survey at Cobham Golf Course (ARC CGC 97) identified a small area in the east of the site as causing weak magnetic activity, with possible archaeological significance. Sites were selected for further archaeological evaluation. Evaluation trenches were generally 30m long by 2m wide, laid out systematically to sample the areas which were both available for evaluation and thought to have archaeological potential.

- 1.3.3 These archaeological evaluations were undertaken from 1995 to 1998. In topographical order from west to east:

- sixteen trenches in a preliminary evaluation at Cobham Golf Course in 1995 (Proctor & Nash 1997): one trench near the centre of the site yielded objects dated to the early Neolithic (a leaf-shaped arrowhead), the late Bronze Age and early Iron Age (much burnt and struck flint, pottery fragments, a spindlewhorl and burnt sandstone); these objects were not in any obvious features, however, and were probably disturbed by ploughing. This work was not conducted as part of the CTRL project, but is relevant as it is within the area defined by Zone 5.
- five trenches at Scalers Hill (ARC SCC 98), which uncovered a single pit, truncated by medieval or later ploughing. The pit contained pottery and struck flints dating to the Bronze Age.
- seventeen trenches in a second evaluation at Cobham Golf Course (ARC CGC 97, carried out by OAU): pottery dated to the middle and late Bronze Ages was found, about 90% of it in a single feature, apparently part of a shallow ditch in the eastern half of the site. Similar pottery and burnt and struck flint was found widely scattered elsewhere, all taken to represent 'light domestic occupation of [an] ill-defined nature'.
- five trenches at Cobham Park (ARC CPK 97), in which only natural geological strata and the latest plough soils were identified;
- seven trenches at Knights Place Farm (ARC KPF 98), where shallow hearth-like features were uncovered, with associated stakeholes, undated but interpreted as the remains of medieval or post-medieval firepits/charcoal burners' clamps;

- thirteen trenches at Knights Place Construction Site (ARC KCS 98), where six of the trenches contained remains. One feature was a Roman period ditch, the others undated firepits, a ditch and also a 19th century quarry pit;
- twelve trenches at Great Wood (ARC GWE 98), in which only natural geological strata and the latest plough soils were identified.

1.3.4 These evaluations were followed by archaeological excavation at selected places along the line of the trace, as follows:

- five small areas of excavation straddling the line of Watling Street, spaced at wide intervals along a 1km length of the road (ARC WS 98), which uncovered the remains of a chalk-revetted bank and ditch forming a substantial park pale or ha-ha of early post-medieval (?16th-century) date, and scant remains of brick buildings identified as dog kennels (later poultry yards) erected when Cobham Park was landscaped by Humphrey Repton *c* 1790;
- a small area excavated on the site of a gate lodge at Brewers Gate, Cobham Park (ARC BG 98);
- a large area about 320m from west to east by 35m from north to south was excavated at Cobham Golf Course (ARC CGC 98);
- a survey of standing structures in Zone 5 pertaining to a Second World War army camp situated to the west in Zones 3 and 4, at Northumberland Bottom (ARC AWC 98).

1.3.5 The archaeological excavations were followed by a watching brief on construction works (ARC 330 98) between December 1998 and May 2000. The largest part of these construction works consisted of the construction of a 'cut-and-cover' tunnel through Scalpers Hill, and the excavation of deep cuttings through the eastern, wooded area. The area between Cobham Golf Course and Knights Place Farm consisted of alternating cuttings and embankments, which allowed for the deeper deposits near to the valley floors to be preserved *in situ*.

2. ORIGINAL PRIORITIES, AIMS AND METHODOLOGY

2.1 Research Objectives

2.1.1 The site is located within the Landscape Zone of the North Kent Downs (A2 Corridor). As such it was seen as a key area for studying the following Research Objectives:

Farming communities (2,000–100 BC)

- Determine spatial organisation of the landscape in terms of settlement location in relation to fields, pasture, woodland, enclosed areas and ways of moving between these
- Consider environmental change resulting from landscape organisation and re-organisation
- Determine how settlements were arranged and functioned over time.

Towns and their rural landscapes (100 BC–AD 1700)

- What was the effect of the development of towns (e.g. London, Springhead) on the organisation of the landscape?
- Did population increase and concentration effect natural resource exploitation and accelerate environmental change?
- How were settlements and rural landscapes organised and how did they function?
- How did the organisation of the landscape change through time?
- Consider the effect on the landscape of known historical events, eg. the arrival of Roman administration.

2.2 Landscape Zone Priorities

2.2.1 In light of the above the following Landscape Zone Priorities were identified.

Reconstruction of the changing palaeoenvironment for all time periods in evidence, through 'on-site' and 'off-site' studies, and the interaction of past environments and human economies.

- The interaction of hunter foragers with the natural environment
- Changes arising from the adoption of agriculturally based economies
- The effects of 'urban' growth and decline at Springhead, and the adoption of Roman ways and organisation in general

Spatial organisation of the landscape, and changes through time

- The socio-economic landscape of later agriculturists (2,000–100 BC)
- The immediate pre-Roman–early Roman urban-rural landscape
 - Pre-Roman urban origins
 - The effect of the Roman administration on the established economic landscape
 - The impact and effect of the development of Roman Watling Street
 - Character, function and development of the rural urban fringe, and satellite uses

The late and immediate post-Roman landscape

- The decline of the urban economy and wider changes in the later Roman economy in general – how this is reflected in the archaeological resource, and its effect on rural settlement and economy

Ritual and ceremonial use of the landscape

- No specific aim was directed at ceremonial use of the landscape for Zone 5.

2.3 Fieldwork Event Aims

2.3.1 The Fieldwork Event Aims for the main excavation (ARC CGC 98) were as follows:

Primary aims

- to determine the morphology and function of the settlement, including any adjacent enclosures and trackways, etc;
- to recover Bronze Age pottery assemblages, supported by radiocarbon dates if possible, for assessment and analysis;
- to recover evidence for on-site metalworking;
- to recover environmental and other economic indicators, if found to be present on site;
- to relate the remains to the evolution of the A2 corridor.

Secondary aims

- Substantiate the existing evidence for a settlement in the middle to late Bronze Ages, by providing further possible evidence for:
 - structures
 - cooking and food storage
 - field ditches
 - burials (or equivalent ritual acts and associated structures)
 - spinning and weaving
 - metalworking (or alternatively, charcoal burning)
- To recover suitable pottery assemblages for study of the late Bronze Age to early Iron Age transition

2.3.2 The Fieldwork Event Aims for the subsidiary excavations, mainly to the west of the main excavation at Cobham Golf Course, were as follows:

Primary aims

- to establish the origins and development of Roman Watling Street and its later development and use;
- to establish the relationship of Watling Street and later roads with Cobham Park boundary and other woodland boundaries;
- to establish changes to the local environment through the recovery of palaeoenvironmental indicators from buried horizons beneath earthworks;
- to locate the lodge at Brewers gate, Cobham Park;
- to expose enough to reveal the full extent of this building in plan and understand its successive phases of construction; and to record the remains so exposed;
- to locate, record and conserve a boundary stone along Watling Street between the parishes of Cobham and Shorne (statutorily listed Grade 2 as a building of architectural or historic interest).

2.3.3 Additional Fieldwork Event Aims were formulated for the archaeological watching brief in this area:

- to establish the nature of landscape division through time;
- to recover dating evidence from the features located to enable a chronology for the division of the landscape to be established;
- to recover evidence for the construction, use and disuse of St Thomas's Well, near Scalers Hill.

2.4 Fieldwork Methodology and Summary of Excavation Results

2.4.1 In summary, the fieldwork consisted of fieldwalking, geophysical prospection, archaeological trial trench evaluations, metal detector survey, bulk excavation, archaeological excavation and recording, watching brief monitoring (Figure 3). The methods of investigation were set out in a series of Written Schemes of Investigation, prepared by RLE, detailing the scope and methods of fieldwork and agreed with English Heritage and KCC on behalf of the local authority. These works may be briefly defined as:

Strip, Map and Sample

- The excavation and recording of sufficient contexts to establish a relative and absolute chronology of remains, and undertake sufficient sampling to gain artefactual, economic and palaeoenvironmental indicators to achieve the project aims.

Detail Excavation

- The excavation and recording of all significant contexts and relationships to establish the sequence of development and function of the site. Consideration was given to single context planning in areas of complex stratification.

Watching Brief

- All construction groundworks which potentially contained archaeological remains were monitored by MoLAS archaeologists. Construction backactors were fitted with flat bladed ditching buckets when conducting area stripping. Where archaeological remains were observed the area was cordoned off, excavated and recorded by MoLAS archaeologists.

Standing Building Survey

- The production of a record of the built structures present on site that conformed with Level 2 of the levels of recording detailed in '*Recording Historic Buildings: A Descriptive Specification*' Royal Commission on the Historic Monuments of England 1996 Third Edition.

2.4.2 On exposure all features were partly or wholly excavated by hand and plotted using a pen-computer or planned on pre-printed gridded permatrace and related to the site grid. Individual contexts were recorded on pro-forma context sheets. Sections were drawn on pre-printed, gridded sheets of draughting film and the section positions accurately plotted using a total station.

2.4.3 A photographic record was kept of individual archaeological features and sections, appropriate groups of features and structures. Finds were bagged and retained and environmental samples, both bulk and column, were taken where necessary from features and deposits.

2.4.4 The sites in this Zone showed evidence for:

Mesolithic (c 9,000–c 4,500 BC) and early Neolithic (c 4,500–3,000 BC):

- A single burin of Mesolithic type was recovered at ARC 330 98 in Great Wood.
- A single worked flint of early Neolithic type was found in an evaluation at Cobham Golf Course (ARC CGC 97).

Early Bronze Age (c 2,000–1,400 BC):

- A causewayed ring ditch measuring c 22m in internal diameter was uncovered, with finds from the ditch dated to the early Bronze Age. Evidence suggests that the ditch filled quickly as no identifiable middle or later Bronze Age pottery was recovered from it.

Middle Bronze Age (c 1500–1000 BC):

- A late Bronze Age ditch at ARC CGC 98 contained middle Bronze Age Deverel-Rimbury pottery and worked flints. The ditch appeared to be associated with a road orientated from east to west. This evidence indicates organisation of the landscape and the location of a settlement nearby.

Late Bronze Age (c 1000–700 BC):

- At ARC CGC 98, numerous scattered pits, postholes and ditches containing pottery, struck flint, and materials probably connected with weaving, cooking and boiling brine for salt marked the northern edge of a permanent settlement. A flint scatter to the west probably indicated that part of the settlement had been ploughed out.
- A flint scatter to the east at Knights Place Farm (recorded as ARC 330 98) may indicate the location of a second, contemporary occupation site, later ploughed out.

Late Iron Age–early Roman (100 BC–AD 100)

- Two ditches of late Iron Age/ early Roman date were recorded, one at ARC CGC 98, the other at ARC KCS 98. These ditches implied limited, presumably agricultural, use of the area.

Roman (to the end of the 4th century AD)

- A major Roman road between Dover and London, via Rochester, (later referred to as Watling Street) was established through Zone 5. It is presumed to have been on the line of the later medieval/Post-medieval road/holloway which passed through Zone 5 for approximately 1km. However it appears that this later road/holloway had removed all traces of any potential Roman road.
- A Roman villa, previously dated to between the 1st and 4th centuries AD, was established just to the south of the CTRL at Cobham Park. No definite evidence was revealed from the CTRL work for the influence of this villa on the landscape.

Medieval (11th to 15th centuries):

- A large-scale reorganisation of the landscape was implied by extensive emparking for Cobham Park. The existing house dates from the 16th century but the manor on which its estate is based was medieval. The manor included woods managed for coppicing and charcoal-burning to the east of Knights Place Farm; mature woodland nearer to Cobham Park; and agriculture, evidenced by ploughsoils extensively flecked with chalk marling on the valley sides and floors.
- The London to Dover road continued in existence. Travellers presumably were able to use St Thomas's Well to the west, but no roadside settlements appear to have arisen.

Post-medieval and modern (16th to 20th centuries):

- The extensive park and woodland already established continued in existence, with evidence for deliberate design of the landscape, especially at the end of the 18th century (ARC BG 98, ARC WS 98 and ARC 330 98).
- The London to Dover road, later known as Watling Street, continued in existence, with successive improvements being made from early in the 19th century. Among other evidence of these improvements seen at ARC WS 98 was a boundary stone, set up in 1808 to demarcate responsibility for maintaining the Dover Road between the adjacent parishes of Cobham and Shorne. This stone, recently damaged, was recovered during the works.
- This Zone contained structures associated with a Second World War military camp at ARC AWC 98. The eastern part of ARC CGC 98 was used for a rifle and grenade range at this time.
- Suburban exploitation of the landscape was implied by an extensive late 20th century golf course at ARC CGC 98.

2.5 Assessment Methodology

- 2.5.1 This assessment report was commissioned by URS to the specification for assessment reports produced by RLE (CTRL Section 1 Archaeology: Post-Excavation Assessment Instruction No. 000-RMA-RLEVC-00030-AB), as discussed with English Heritage and Kent County Council. The production of this assessment was by the Museum of London Archaeology Service (MoLAS) with specialist advice provided by the Museum of London Specialist Services (MoLSS).

3. FACTUAL DATA AND QUANTIFICATION

3.1 The Stratigraphic Record

- 3.1.1 Where woodland existed at the present time only a very thin topsoil sealed natural geological drift deposits. On the dry valley sides and floors deposits of colluvial material, ploughed and washed downslope and thickening towards the base of the valleys, formed 'subsoil' deposits, which sometimes contained redeposited artefacts.
- 3.1.2 The archaeological evidence consisted of intrusive features such as pits, ditches and postholes cut into natural geological strata or subsoil. In every case the upper part of these features had been truncated by subsequent ploughing. Ploughing had also removed all evidence for ancient land surfaces, although these may survive in the unexcavated valley floors, sealed beneath deeper colluvial deposits.
- 3.1.3 Modern truncation was seen especially at ARC CGC 98, in the form of mounded teeing-off greens, bunkers, tree removal pits and irrigation pipes for a golf course.
- 3.1.4 The main site excavated in Area 330 Zone 5 was Cobham Golf Course, ARC CGC 98, where the focus of settlement, dated from the middle to late Bronze Age, seemed to be located at the head and to the southern side of a broad, low area between outcrops of Thanet Sand. This area, which forms a valley to the north also provides easy access to the south (Figures 3a and 3b). Almost no features were intercut in stratigraphic sequence, and relative dating depends almost entirely on dates obtained from pottery.
- 3.1.5 The results of the fieldwork can be summarised by period, as follows:
Mesolithic (c 9,000–c 4,500 BC):
- 3.1.6 Dispersed activity in the wooded areas is presumed during the Mesolithic period. The recovery of a burin of Mesolithic date from Merralls Shaw (ARC 330 98) was the only evidence from this period.
Early Neolithic (c 4,500–3,000 BC):
- 3.1.7 A single leaf-shaped flint arrowhead found at Cobham, was identified as early Neolithic in the 1995 evaluation, but nothing subsequently found in Zone 5 is dated similarly.
Early Bronze Age (c 2,000–1,400 BC):
Figure 3b and 7, Plate 3
- 3.1.8 A large causewayed ring ditch [234] was uncovered at ARC CGC 98, with ditch fills [223] contained numerous sherds of early Bronze Age pottery, including joining fragments. The circular ditch, approximately 22m in diameter, was broken by a causeway entrance 2m wide directly to the south. The fills in the ditch appeared to show that a large amount of material had eroded from the centre of the ring, as if from a mound. It is therefore possible that this feature represented the truncated remains of an early Bronze Age mortuary barrow/enclosure.

3.1.9 The ditch, of which 50% was hand excavated, only contained sherds of early Bronze Age pottery (and some that could only be dated to the 'prehistoric' period). The implication is that the ditch filled fairly quickly, and was virtually full by the middle and late Bronze Age, otherwise occupation debris from the adjoining settlement would have entered the ditch. As the site is situated on eroding Thanet beds and is very sandy, a fairly rapid filling is not unreasonable. The fragments of two vessels were located together at one point in the ditchfill and it is possible that they are the redeposited remains from 'original/secondary' burials set that had been set into the mound which have eroded, or been ploughed, out.

3.1.10 The flint assemblage, especially the unstratified pieces recovered from the western part of the site, contained occasional pieces that may date to the early Bronze Age. There were, however, no especially diagnostic tools from the area.

Middle Bronze Age (c 1500–1000 BC)

Figure 7

3.1.11 Implied evidence for occupation was gathered for the middle Bronze Age at Cobham (Figure 5). Pottery was recovered from various places along a single, relatively long ditch [211]. The large size of many sherds and the presence of joining fragments suggest that little redeposition had occurred, and therefore that this ditch was open and in use at the time of original deposition. Fragments of burnt and struck flint were also found in this ditch, but could not be dated more precisely than to the middle and late Bronze Age.

3.1.12 To the north of this ditch in the centre of the site was a linear, stained area [164] which contained numerous fragments of burnt flint, charcoal and gravel pebbles. It is possible that this feature represents the eroded remains of a trackway or roughly-surfaced road, which had formed a hollow way, with which the ditch was probably associated. This track is orientated parallel to the later medieval Watling Street.

Late Bronze Age (c 1000–700 BC)

Figure 7

3.1.13 The first definite evidence for actual occupation comes from the late Bronze Age at ARC CGC 98, comprising a concentration of pits, postholes and ditches. These features contained pottery identified as late Bronze Age, as well as less precisely datable perforated clay slabs, loom weights, burnt and struck flint. One small pit (fill [136], pit [137]) contained a large assemblage of many joining sherds and partially complete vessels.

3.1.14 This is good evidence for settlement. Structural evidence for the settlement was limited to deep postholes, and daub or fired clay, mostly found in association with pottery. The range of this ceramic material indicates an active, permanently occupied settlement. The focus was probably towards the centre of the area excavated and to the south, as suggested by the find-spots of a similar range of material found in the 1995 evaluation and the absence in the area excavated of evidence such as hearths and food storage pits.

3.1.15 Only the bases of the pits and postholes had survived subsequent medieval or post-medieval ploughing. All contemporary land surfaces and presumed shallow features had been removed.

- 3.1.16 Among pottery of middle or late Bronze Age date, not more precisely datable, were fragments of briquetage possibly for boiling brine, and perforated clay slabs possibly connected with cooking. A single, very hard fine-grained laminated piece of sandstone may have been used in food preparation as a pestle. Loom weight fragments indicate weaving activity.
- 3.1.17 This settlement area appears to be roughly defined to the north by the middle Bronze Age ditch and possible road. Occasional fragments of late Bronze Age pottery were recovered from the upper fills of this ditch. However, cutting through the ditch and possible trackway was a further ditch, orientated from south to north, which contained late Bronze Age pottery.
- 3.1.18 To the east of Cobham Golf Course, on the slightly heavier soils around Knights Place Farm, evidence for Bronze Age occupation was found in the form of numerous struck flint flakes recovered from a colluvial deposit in the base of a dry valley next to Merralls Shaw wood (Figure 3c). The very large number of flint flakes would suggest fairly intensive occupation, perhaps an outlying farm, in the higher area of Colewood Reservoirs. Recent MoLAS work on the A2/M2 Junctions 1 to 4 Road Widening Scheme has identified a buried soil scored by ardmarks at the base of this valley. The CTRL works did not, however, impinge as deeply as this below the colluvial deposits.
- 3.1.19 The presence of ardmarks indicates arable cultivation on the lighter soils at the base of the valley at Knights Place Farm. This was probably also the case at/in the base of the dry valley at ARC CGC 98. This low area was, however, subject to embanking for the CTRL and therefore not investigated at depth archaeologically.

Late Iron Age–early Roman (100 BC–AD 100) and Roman (to AD 400)

- 3.1.20 There was no direct evidence for occupation during the Iron Age and Roman periods, the reason for this may be that the settlement focus had moved away from the line of the trace. A ‘later prehistoric’ pit was recorded on Scalpers Hill (Figure 5, ARC SCC 98 pit [9]).
- 3.1.21 The possibility of local agriculture during the Roman period is indicated by the existence of a Roman villa some 800m to the west of the ring ditch at ARC CGC 98 (Figure 3a). The economic exploitation of the local landscape in Zone 5 in this period is further suggested by:
- the proximity of the presumed route of Roman Watling Street
 - contemporary settlements 5–6km to the west beside and to the south of Roman Watling Street (in Zone 3) and Springhead Roman Town
 - possible evidence of a large-scale organised Roman landscape of rectilinear fields and roads on the Hoo peninsula, 4–5km to the north of Zone 5; and the possible local introduction of the sweet chestnut (*Castanea sativa*) at this time as coppice wood (extensive, partly coppiced sweet chestnut woods continued to flourish to either side of the line of the Watling Street at Cobham) (Plate 2).
- 3.1.22 A boundary ditch containing Roman pottery was recorded in the south-east of Zone 5, at ARC KCS 98 Figure 3c, indicating that some of this area had been cleared of woodland and was under arable during the late Iron Age–Roman period. This impression is reinforced by a thick deposit of colluvial material containing fairly frequent struck flint flakes, recorded in the base of the dry valley adjacent to Merralls Shaw (see above). This deposit perhaps represented

soil creep or wash downslope caused by ploughing during the Roman period. This soil was sealed by post-medieval deposits and features associated with woodland management or clearance.

- 3.1.23 It is likely that the area of Merralls Shaw and Great Wood, to the east of Knights Place Farm (Figures 3c and 3d), remained mostly wooded from the prehistoric period onwards. There are two possible reasons for this. Firstly, topsoil in the areas presently wooded was only some 0.10m to 0.20m thick, and the soils in this part of Zone 5 are difficult to cultivate, being formed from a clay and flint head overlying shattered chalk with deep solution features. The area is also relatively elevated, exposed and poorly drained. Secondly, the line of the CTRL trace changes direction to the east of Cobham, while the course of the Roman (and probably earlier) road continues more or less in a straight line to Strood/Rochester. The CTRL trace is thus situated at an increasing distance from the focus this routeway and its successors would have provided.

Medieval and post-medieval

- 3.1.24 The house at Cobham Park dates from the 16th century, and it is likely that the park pale and estate boundary found at ARC WS 98 also date from this period (Figure 5). It is also reasonable to suggest that the present house had a predecessor, but whether it was built where the present house is situated is uncertain. Most of the estate lies to the south of the house, where the land is chalky and fertile. The Thanet/Oldhaven and Blackheath Beds of Scalers Hill were probably left to woodland.
- 3.1.25 Several clusters of shallow hearth-like areas of burning *in situ*, found under topsoil in the area surrounding Knights Place Farm (ARC KCS 98, ARC KPF 98 and ARC 330 98). These are interpreted as probably the remains of firepits, possibly associated with charcoal burners' clamps, of medieval and post-medieval date.
- 3.1.26 The character of the medieval and post-medieval landscape appears to have been tied closely to location or type of soil, or both. Throughout this zone are blocks of Ancient Woodland, secondary woodland and historic parkland with mature spreading trees. The area of Cobham Golf Course has been subjected to fairly intensive ploughing since the medieval period. Cultivation appears to have been confined to the fairly light soils of the dry valleys, which were further improved by marling, as seen by the frequent inclusions of chalk flecks in the subsoil at ARC CGC 98.
- 3.1.27 The remains of a park pale of Cobham Park were investigated in ARC WS 98 Trench 5, which showed two phases (Figure 5). The first was a ditch [16] was 3m wide with a U-shaped profile, with a 3m wide bank [4] to the south. The second phase consisted of a U-shaped ditch profile [15], some 8m wide, situated immediately to the north of the original ditch, with a large bank [2] c 10m wide to the south (which covered the original ditch and bank). The side of the second phase of ditch, where it joined the bank, had been revetted with blocks of chalk.
- 3.1.28 Old Watling Street, the medieval/post-medieval road, passed through Ashenbank Wood and down the eastern side of Scalers Hill. The road was approximately 3.5m wide and had developed into a deep hollow way in the area of Cobham Golf Course. The road follows a general line but not a straight one and turns to the north near to the upper, eastern part of Scalers Hill. Near to this change in alignment is the location of St Thomas's Well, situated near to a fairly large pond (which contained no finds older than a 1940's practice hand grenade).

- 3.1.29 St Thomas's Well (Figure 4) comprised a circular shaft, built and capped with brickwork. The probable remains of the iron hand pump had been thrown down the shaft. The well was sealed in sand and preserved in the mitigation earthworks of the CTRL.
- 3.1.30 Woods around Knights Place Farm (established in the 17th century) appear to have been felled during the post-medieval period, as indicated by the numerous charcoal-filled firepits/charcoal clamps. It may be significant that the remains of the clamps appear to be limited to the hillocks of Thanet Beds near Colewood Reservoirs, and are absent nearer to Knights Place Farm itself (ARC CPK 97).
- 3.1.31 A number of firepits/charcoal clamps were also recorded in the woodland area of Merralls Shaw during the watching brief ARC 330 98.

Post-medieval and modern

- 3.1.32 The remains of a gate lodge (Plate 1, Figure 6) and gate, kennels, park pale and wooded grounds (ARC BG 98 and ARC WS 98), lay along the northern edge of Cobham Park. These constituted, from the 17th and 18th centuries onwards, an ornamental, designed landscape as well as an economic resource. A large brick-lined pit (ARC 330 98 [987]) to the south-east of Brewer's Gate may have been an ice-house (Figure 6), or possibly a cistern connected with a series of ornamental ponds to the east. The grounds of Cobham Park are documented as having been redesigned by Humphrey Repton c 1790 (Figures 4 and 5).
- 3.1.33 Older material was probably disturbed and scattered during post-medieval ploughing, road improvements, construction of military camps and the installation of a golf course. Improved transport was evidenced by the separate routes taken by successive, wider and better engineered roads, culminating in the CTRL itself. A boundary stone was set up in 1808 on the southern verge of the road (Watling Street) to demarcate responsibility for maintaining the Dover Road between the adjacent parishes of Cobham and Shorne. This stone, recently damaged, was recovered during the works.
- 3.1.34 Ashenbank military camps (see separate report, URS 1999) occupied the woods during the Second World War. Specifically there were three separate but related Royal Air Force camp sites established to provide accommodation for those charged with operating the nearby military airfield, off Thong Lane. Two other sites for the same purpose were established, one immediately to the east of the junction of the A2 and Halfpence Lane and the other at Laughing Water, opposite Ashenbank Wood on the north side of the A2. These camps were designated by the RAF as Sites 1 to 5; those in Ashenbank Wood were Sites 1, 4 and 5, collectively containing 48 structures or features (Smith 1998). The camps were deliberately dismantled during the late 1950's and a number of low wall foundations, air raid shelters and areas of hard standing were recorded during the CTRL works.
- 3.1.35 A few pits and ditches of post-medieval date were found throughout Zone 5. A number of undated quarry pits in the area might indicate the exploitation of local chalk for marling, or possibly for construction.

3.2 The Artefactual Record

Ceramics

Prehistoric Pottery

- 3.2.1 A medium-sized assemblage of 835 sherds was recovered from the excavation ARC CGC 98. The pottery is generally middle Bronze Age and late Bronze Age in date, although a group of grog-tempered sherds recovered from the fill of the ring ditch [234] probably represents an early Bronze Age element. The middle Bronze Age pottery was mainly recovered from the linear ditch [211], whilst the late Bronze Age pottery is predominately from pits and postholes. All of the later Bronze Age pottery is flint-tempered and differentiation has been based on wall thickness and inclusion size in the absence of diagnostic featured sherds.

Post-Roman pottery

- 3.2.2 Some 19th century stoneware sherds were recovered from ARC BG 98; otherwise no post-Roman pottery was recovered for Zone 5.

CBM and Fired Clay

- 3.2.3 A total of 1.225kg of fired clay/ daub and 840g of stone were recovered from nine contexts at ARC CGC 98. All the daub is relatively small, but a few fragments have part of a curved flat surface. One fragment (context [176]) has a round hole 18mm in diameter. Almost all the daub was found together with prehistoric pottery, dated to the late Bronze Age.

Ceramic artefacts

- 3.2.4 The only ceramic accessions from Zone 5 came from ARC CGC 98. This site produced two fragmentary and incomplete loom weights and two perforated slabs, as well as fragments of briquetage (ceramic equipment believed to be associated with the manufacture of salt). All the ceramic accessions are dated to the Bronze Age.

Lithics

- 3.2.5 A small assemblage of 226 pieces of worked flint was recovered from ARC CGC 98, a little flint came from ARC 330 98. The assemblages are mostly composed of debitage (flakes, cores, core fragments and tested nodules), and a range of retouched forms, including retouched or used flakes, serrated flakes, scrapers, and denticulates. A possible Mesolithic burin was recovered from ARC 330 98. Varying quantities of burnt unworked flint were also recovered from ARC CGC 98 and ARC 330 98.

Stone

- 3.2.6 A single stone artefact was recovered from archaeological work at ARC CGC 98. This was found in a late Bronze Age context, [221] and is a fragment of a very hard pebble of fine-grained laminated sandstone, possibly used in food preparation.
- 3.2.7 The Shorne/Cobham Boundary stone, erected 1808 and situated to the west of Brewers Road was recovered (Figure 5). This was represented by a reworked architectural fragment of oolitic limestone. The stone had been recently damaged, but has since been reconstructed.

- 3.2.8 A single architectural fragment of a window sill with stooling for jamb was recovered from the fill of the Ashenbank Wood pond (ARC 330 98). The sill derives from the corner of the sill (rather than the head) of a rectilinear window. The stooling (or adapter) for the jamb reveals that it had a simple hollow-chamfered moulding. The sill weathered significantly *in situ* which reveals that the building that it derived from was old when demolished/refurbished. The glazing was supported on iron bars of square section. The astragal (or upright) was set diagonally in the sill as is normal Elizabethan/Jacobean practice. The dressing was cut with a pitcher chisel.

Glass

- 3.2.9 No glass older than 19th century bottle glass was recovered archaeologically in Zone 5. This glass was recovered from the Knight Place Construction site evaluation ARC KCS 98.

Metalwork

- 3.2.10 Little metalwork was recovered from the archaeological investigations in Zone 5. Part of a handle for an iron tool or fitting, probably post-medieval in date, was recovered at chainage 44+560 in ARC 330 98.

Coins

- 3.2.11 Only one coin was recovered from Zone 5, during ARC 330 98, a corroded, modern two-pence piece.

3.3 The Environmental Record

Human Bone

- 3.3.1 Two pits contained cremated bone:
- ARC 330 98 [364], after separation of minerals, only *c* 1 gram of burnt bone was left and this was so finely broken up that it was impossible to determine if it was human. Late Bronze Age pottery, dated 1000 – 700BC, was found associated with this deposit.
 - ARC CGC 98 [144], contained slightly more bone (*c* 5g) and this was probably human. The burnt bone is so comminuted (maximum size of fragment was only 7.5 x 5 mm) that it is impossible to say more. No other artefacts were recovered associated with this burnt bone.
- 3.3.2 This extremely small sample does not warrant any further comment.

Animal Bone

- 3.3.3 Each of the two sites ARC CGC 98 and ARC 330 98 provided very small quantities of animal bones. Cobham Golf Course produced bones from just one soil sample, which contained a highly fragmented assemblage of 125 fragments weighing 0.02kg. Two of these bones could be identified to species. A total of 0.01kg, or 14 fragments, from a soil sample was recovered from ARC 330 98. None of the bones from ARC 330 98 could be used for study of stature or age.

Macroscopic plant remains & charcoal

- 3.3.4 Twenty-six soil samples from ARC CGC 98 and ARC 330 98 were assessed for plant remains. Preservation of remains was poor, but a few charred cereal grains,

chaff fragments, and weed seeds were recovered from 5 samples. Potentially identifiable fragments of wood charcoal were seen in 11 samples. The potential of the charred plant remains to answer the research aims is limited, but analysis of the surviving remains would contribute somewhat to our knowledge of cereal use and cultivation, and exploitation of woodlands, in this area during the Bronze Age.

Mollusca

- 3.3.5 There were no snail remains in the samples.

Geo-archaeology

- 3.3.6 Two monolith samples taken through the fills of the ring ditch [234] at ARC CGC 98 suggest that the environment around the ring ditch was initially relatively stable and undisturbed, with low level erosion of the surrounding soil contributing gradually to its fill. Subsequently a more severe period of disturbance may have led to more rapid infilling of the ditch.
- 3.3.7 Further work may be able to confirm and elaborate on this sequence of events and link the ditch fills to changing pollen profiles. Soil micromorphological thin sections from the monolith samples may be used to indicate landscape, vegetation and landuse from the Bronze Age until the Roman period.

3.4 Dating

- 3.4.1 No specialist dating techniques were used during the fieldwork in this Zone. Where features occurred there was adequate ceramic evidence to establish a date. A number of burnt firepits/charcoal clamps were recorded in the vicinity of Knights Place Farm, but the reddening of the interiors of these features was insufficient to enable archaeo-magnetic dating to be undertaken. No wood was recovered that would have allowed for dendrochronological dating.

Radiocarbon

- 3.4.2 No radiocarbon samples were taken during fieldwork. However, it appears that adequate amounts of charcoal survive in samples from fills [227] and [229] of ring ditch [234], ARC CGC 98 to establish a radiocarbon date for these basal fills. It is considered that a sample should be sent for dating as the positive result would be extremely useful as the date established from the ceramic vessel fragments have a broad date range of around 600 years.

Documentary research

- 3.4.3 Before excavation archival records were briefly scanned to provide information to locate and date the former gate lodge at Brewers Gate, Cobham Park, Kent (ARC BG 98).

The Cobham Estate

- 3.4.4 The Cobham Estate passed to Crown in 1603 on the attainder of Henry, Lord Cobham. James I granted it to Ludovic Stuart, Duke of Lennox and created him Lord Darnley. The estate then passed through the female line and descended to Catherine Stuart who, in 1664, married Henry, Lord O'Brien of Ireland. After his death Catherine then married Sir Joseph Williamson who purchased Cobham after the estate had fallen into debt. He bequeathed two-thirds to his wife and

one-third Joseph Hornsby, one of his executors. The estate then descended from Catherine to her great-granddaughter Theodesia who married John Bligh in 1713. He was created Earl of Darnley in 1725. The present Earl is descended from John Bligh.

- 3.4.5 Under John, 4th Earl of Darnley (1767-1831) the estate was remodelled by Humphrey Repton, landscape gardener (1752-1818). Although Repton's 'red books' survive for some his works (e.g. Abbots Leigh, Somerset, Anthony House Cornwall or Barton Seagrove, Northants), the National Register of Archives (NRA) indicates that no such information survives for Repton's work on the Darnley Estate.
- 3.4.6 Records pertaining to the Bligh family, Earls of Darnley are lodged at the Medway Archives and Local Studies Centre, Strood. The category U565 includes deeds, estate papers, plans etc.
- 3.4.7 Maps of the estate around Cobham Hall survive as follows:
- U565 P1 Cobham Hall by Thomas Norton 1641
 - U565 P3 Cobham Hall by George Russell 1718
 - U565 P5 Cobham Hall by C Price 1749
 - U565 P6 Cobham Hall by C Sloane 1758
 - U565 P13, 1/2 Cobham hall Estate by Charles F Adams 1851
 - U565 P14 Cobham Hall Estate c. 1850

The Gatehouse

- 3.4.8 Surviving records provide information which located the old gatehouse, sited adjacent to the Brewers Gate of the Cobham Estate.
- 3.4.9 The 1641 plan shows that the entrance to the north of the estate (adjacent to the current A2) was gained by a gate, which is illustrated on the plan. The gate was also drawn on the 1749 plan. The 1758 plan was unavailable for consultation.
- 3.4.10 It is presumed that the original gatehouse was constructed at the time of the 1790 alterations to the estate by Repton as both the 1850 and 1851 plans depict a gatehouse on the west side of the path across which the earlier gate spanned. This is borne out by the change in the layout of the gardens and paths between the 1749 plan and the 1850/1 plans. The c. 1850/1 gatehouse is shown on both plans as bulb shaped with the narrow end projecting west and with the circular, bulbous, element at the east fronting onto the path which exited the estate.
- 3.4.11 Both the 1909 and 1939 editions of the Ordnance survey maps show that the bulb shaped gatehouse had been replaced by a rectangular gatehouse. This replacement gatehouse was demolished in the 1960's (Plate 1).

3.5 Archive Storage and Curation

Stratigraphic archive

- 3.5.1 The stratigraphic archive has been microfilmed and can be prepared for long-term storage. The contexts have been entered onto the MoLAS Oracle database, and subsequently transferred to RLE Datasets.

Finds and environmental archive

- 3.5.2 The majority of the archive is not in need of any significant treatment to enable it to be put into long-term storage. However, fired clay/ daub is soft and fragile, and should be stored in a stable environment.
- 3.5.3 Monolith samples could be thin-sectioned, enabling their information to be retained without deterioration and at great saving of space and cost of storage. If thin sections are made of the monolith samples they will take up less storage space, stand a better chance of long-term preservation and be amenable to a similar method of archiving to that for finds and environmental samples. As monoliths, the samples are not easily stored, need to be kept in a cool to cold and dark environment and are likely to deteriorate with time. Thin sections are easily available for further research and can be examined frequently without loss of information.
- 3.5.4 It is recommended that all material be retained at this stage, in order to be incorporated into any analysis and publication aspect of the project. Consideration should be given to the discard of the metal object from ARC 330 98.

3.6 Archive Index

ARCHIVE INDEX

Table 3 Archive Index ARC CGC 98

Item	Number Of Items or boxes or other	No of Fragments or litres or weight	Condition (No. of items) (W=washed; UW=unwashed; M=marked; P=processed; UP=unprocessed; D=digitised; I=indexed)
Cobham Golf Course: ARC CGC 98			
Contexts records	212		I
A1 plans	1		D
A4 plans	48		D
A4 sections	4		D
Films (monochrome) S=slide; PR=print	1PR		I
Films (Colour) S=slide; PR=print	1S, 3PR		I
Lithics (boxes)	3 boxes size 1	226	W, I
Burnt flint (boxes)	3 size 1	7111g	W, I
Pottery (boxes)	5 size 1	836	W, I
Fired clay (boxes)	1 size 1	1225g	W, I
Human Bone (boxes)	n/a		
Animal Bone (boxes)	1 size 1	125	W, I
Flora	See animal bone		P, I
Flots	1 size 1		P, I
Misc.	1 size 1		P
Soil Samples (10lit. buckets)	20		P – 100%
Soil Samples (no. of contexts)	10		

Quantification of Finds by volume (ARC CGC 98)

Description	Capacity	No.	Total Volume
Shoe box (size 1)	0.0108m ³	15	0.162m ³

Table 4 Archive Index ARC BG 98

ITEM	NUMBER OF ITEMS	NUMBER OF FRAGMENTS	CONDITION (No. of items) (W=washed; UW=unwashed; M=marked; P=processed; UP=unprocessed; D=digitised; I=indexed)
BREWERS GATE : ARC BG 98			
Contexts records	11		I
A4 plans	1		D
Films (Colour) S=slide; PR=print	1PR		I
Pottery (boxes)	1 standard		W, M, I

Quantification of Finds by volume (ARC BG 98)

Description	Capacity	No.	Total Volume
Shoe box (size 1)	0.0108m ³	1	0.0108m ³

Table 5 Archive Index ARC WS 98

ITEM	NUMBER OF ITEMS	NUMBER OF FRAGMENTS	CONDITION (No. of items) (W=washed; UW=unwashed; M=marked; P=processed; UP=unprocessed; D=digitised; I=indexed)
WATLING STREET: ARC WS 98			
Contexts records	70		I
A4 plans	11		D
A4 sections	15		I
Films (monochrome) S=slide; PR=print	1PR		I
Films (Colour) S=slide; PR=print	1S, 3PR		I

No finds or environmental remains were recovered/retained.

Table 6 Archive Index ARC 330 98 Zone 5

Item	Number Of Items or boxes or other	No of Fragments or litres or weight	Condition (No. of items) (W=washed; UW=unwashed; M=marked; P=processed; UP=unprocessed; D=digitised; I=indexed)
ARC 330 98 – Zone 5			
Contexts records	84		I
A4 plans	8		D
A4 sections	6		D
Small finds	See ARC 330 98, Zone 4	9	W, M, P, I
Films (monochrome) S=slide; PR=print	316 IMAGES		I
Films (Colour) S=slide; PR=print	316 S		I
Lithics (boxes)	1 box size 1	5	W, I
Burnt flint (boxes)	See lithics	35g	W, I
Pottery (boxes)	1 size 1		W
Animal Bone (boxes)	See ARC 330 98, Zone 3	3	W, I
Flora	See ARC 330 98, Zone 4		P, I
Flots	See ARC 330 98, Zone 4		P, I
Soil Samples (10 lit. buckets)	6		P – 100%
Soil Samples (no. of contexts)	3		P

Quantification of Finds by volume (ARC 330 98, Zone 5)

Description	Capacity	No.	Total Volume
Shoe box (size 1)	0.0108m ³	2	0.0216m ³

4. STATEMENT OF POTENTIAL

4.1 Stratigraphy

4.1.1 The nature of the linear cut through the landscape can give only a representative sample of the actual nature of land use: apparent gaps in the sequence may simply be due to activity unaffected by the CTRL works, although not far away. The stratigraphic evidence has the potential to contribute in varying degrees towards the following Time Periods:

- Early Agriculturalists (4,500 – 2,000BC)
- Farming Communities (2,000–100 BC)
- Towns and their rural landscapes (100 BC–AD 1700)

4.1.2 Within these time periods the stratigraphy can contribute towards the following Research Objectives or Landscape Zone Priorities as defined in the CTRL Archaeological Research Strategy and WSI:

Early Agriculturalists (4,500–2,000 BC)

4.1.3 The presence of a two artefacts, one identified as a Mesolithic burin and another as early Neolithic can contribute very little to our understanding of the landscape of Zone 5. There is no indication as to the economic function of the landscape before the Bronze Age.

Farming Communities (2,000–100 BC)

- *Determine spatial organisation of the landscape in terms of settlement location in relation to fields, pasture, woodland, enclosed areas and ways of moving between these*

4.1.4 The results from Zone 5 show a pattern of settlement building up to a peak in the late Bronze Age, when agriculture and pastoral land use may be inferred. After this date it appears that occupation moved away from the line of the trace. It is unlikely that the area was abandoned during the Iron Age.

4.1.5 If the line of Roman Watling Street had been established by the Bronze Age, as implied by the possible roadside ditch and possible road surface at Cobham Golf Course (ARC CGC 98) then it is likely that the area continued to act as a major thoroughfare.

Early Bronze Age (2,000 – 1600 BC)

4.1.6 The area of Cobham Golf Course shows evidence for early Bronze Age occupation and presumed ritual activity (as seen by the causewayed ring ditch). The location of this site is significant; at the head of a large dry valley, close to a probable water source. The causewayed ring ditch is situated half way up the valley side at this point. The location of this monument implies that much of the woodland in the immediate vicinity had been cleared and a community was perhaps engaged in farming the fertile soils on the valley floor. The location of this community was not found, and may be sealed beneath the deeper colluvial sediments which were left *in situ* during the CTRL works.

4.1.7 At this stage it is possible that the areas of Scalers Hill, Knights Place Farm and Merralls Shaw were still woodland, used as a natural, renewable resource.

Middle Bronze Age (1,600 – 1,000 BC)

- 4.1.8 By the middle Bronze Age at Cobham Golf Course it appears the ring ditch of the barrow had silted up, and a settlement had been established in the area. Evidence for this settlement was limited to finds from a linear ditch that passed through ARC CGC 98 and no other evidence for this settlement was located within the landtake of the CTRL. The ditch ran from roughly west to east, rising up from the valley floor. The large size of many of the sherds and the presence of joining fragments, suggests that little redeposition had occurred, and therefore that this ditch was open and in use at the time of original deposition. It is possible this ditch is associated with a road, perhaps a pre-cursor of Roman Watling Street, and it is possible that the road is seen by an eroded linear area, situated to the north of it (the inter-relationship with the late Bronze Age ditch is uncertain).
- 4.1.9 Fragments of burnt and struck flint were also found in this ditch; although they could not be dated more precisely than to the middle or late Bronze Age—early Iron Age, their close association with the middle Bronze Age pottery suggest that they formed a single assemblage. The ditch and the artefacts together constitute excellent, well dated evidence for deliberate organisation of the landscape. The fact that this ditch continued in use into the late Bronze Age, where there is more abundant evidence for permanent settlement in the vicinity, reinforces its likely significance in the earlier period.

- 4.1.10 The location of the middle Bronze Age settlement was not found.

Late Bronze Age (1000 – 700 BC)

- 4.1.11 The linear ditch and possible road appears to have formed the northern limit to the late Bronze Age settlement at one time. However the occupation spread over this road to the north during the some point in this time period.
- 4.1.12 The evidence for permanent local settlement in the late Bronze Age at Cobham included pits and postholes containing pottery, loomweights, perforated clay slabs, and fragments of briquetage (debris from vessels probably used to boil brine for salt, or for a similar operation). The evidence for weaving may imply both relatively stable settlement and the availability of wool or goat hair, and therefore the pasturing of sheep or goats, or both. The postholes and pits could not be interpreted as definitely marking obvious structures due to serious horizontal truncation, but the artefactual evidence shows that they represented an area close to or at the focus of settlement.
- 4.1.13 Animal bones had almost always totally dissolved in the acidic Thanet Sand conditions on the site so no conclusions as to this aspect of the settlement can be reached. Two pits contained calcined bones which had been fired at a high temperature. These bones could have either been cremated animals or simply bones thrown into high temperature fires.
- 4.1.14 The shifting settlement activity (implied or discovered) in the upper Cobham valley (Cobham Golf Course) appears to have been very long lived, showing it to be a good area for occupation. The actual evidence spans the period c 2,000 to c 700 BC. Evidence from Northumberland Bottom (ARC WNB 98, Area 330 Zone 3) implies that settlements were gradually shifting up slopes to higher ground, perhaps as more woodland was cleared, during the Iron Age. At Cobham this may mean that settlement activity shifted up to the higher ground of Scalpers Hill,

towards the area of the Cobham Roman Villa, , and away from the line of the CTRL.

- 4.1.15 The reason for the longevity of the (shifting) settlement activity may not be solely connected to the position of the site at the head of the Cobham dry valley, which was suitable for agriculture, but may also be closely associated with a possible Bronze Age routeway from east (?Rochester) to west (?Lower Darent Valley). If, as seems likely, the possible road at Cobham Golf Course is part of the routeway that was later to become Watling Street, then it is probable that the road also passed close to the Bowl Barrow (SAM KE 12838) to the south of 'The Mount' on Scalers Hill. Evidence from a very large Bronze Age well at Henhurst Road (Area 330 Zone 4) may be further evidence of this routeway (as large wells are often associated with major roads (for example nearby St Thomas's Well).

Bronze Age, general

- 4.1.16 Some evidence for contemporary Bronze Age occupation is implied around the Colewood reservoir at Knights Place Farm, in the form of redeposited struck flint flakes. Also a pit on Scalers Hill revealed Bronze Age pottery. Nearby archaeological work on the A2/M2 Junctions 1 to 4 Widening has uncovered evidence for a Bronze Age arable landscape adjacent to Merralls Shaw.
- 4.1.17 It can therefore be seen that a fairly well developed landscape existed in the Bronze Age in Area 330 Zone 5, with a mix of roads, settlements, woodland, pasture and arable agriculture.

Prehistoric

- 4.1.18 Scalers Hill appears to have been used by prehistoric peoples, but the evidence for occupation is limited. It is probable that the Thanet, Woolwich and Oldhaven Beds of this high ground limited the possibilities of use to woodland management, with agriculture/other activities in small clearings. The single pit located in ARC SCC 98 (evaluation) close to Brewers Road may indicate the presence of a small domestic occupation site.

• *Determine how settlements were arranged and functioned over time*

- 4.1.19 Continuity of prehistoric settlement need not mean that habitation was always in exactly the same place. The focus of settlement could have shifted somewhat from time to time as seen in Area 330 Zone 3 Northumberland Bottom. Evidence for activity at Cobham Golf Course is seen from the early to late Bronze Age.
- 4.1.20 It is possible that the early Bronze Age Barrow overlooked a settlement on the valley floor, and during the subsequent Bronze Age and Iron Age, the settlement gradually shifted to higher ground, until the Roman period. This could have coincided with episodes of woodland clearance.
- 4.1.21 It is suggested that the shifting occupation on the eastern face of Scalers Hill was connected, not only with activities in the valleys but also with a potential main east to west routeway that passed through Area 330 Zone 5, later to become Roman Watling Street. Therefore it seems that the settlement had both agricultural and trading functions.
- *Ritual and ceremonial use of the landscape*
- 4.1.22 A causewayed ring ditch, perhaps implying a mortuary barrow, and dating to the early Bronze Age, was situated in a position that was locally prominent, and significant. This position was at the wide head of the valley, half way up the

side, possibly near to a water source (as seen by the limit of alluvial sediment on the 1:50,000 Geological Survey).

- 4.1.23 The causewayed ring ditch was probably near to an east to west routeway, and evidence for this routeway appears on site at Cobham by at least the middle/late Bronze Age. Cobham Golf Course is situated at the head of a shallow valley orientated to the north, but is also located at the ‘head’ of a very wide, fertile, chalk area to the south. Thus the site is situated on an axis that there are east to west and north to south orientations.

- 4.1.24 No other burials or evidence for ritual structures were located within Area 330 Zone 5.

Towns and their rural landscapes (100 BC–AD 1700)

- *How were settlements and rural landscapes organised and how did they function?*

- 4.1.25 No clear evidence was found for the internal organisation of any settlement. The settlement at Cobham Golf Course bordered an east to west routeway, and domestic artefacts indicate a nearby agricultural landuse. It is suggested that this settlement functioned by exploiting the fertile soils of the gently rolling, chalk based downland and the natural resources within the nearby woodland (and water supply on Scalers Hill); but also by exploiting the east to west routeway for trade and travellers amenities.

- 4.1.26 It is therefore suggested that these are the principal attractions for the siting of the Cobham Roman villa on Scalers Hill. It is possible that the estate was large and rich, and away from the more densely occupied areas around Springhead. From the lack of evidence from the Roman and medieval periods it seems that the Cobham Villa estate, in the areas of the CTRL trace was agricultural land and managed wood, without domestic occupation. Elsewhere within this estate are probable small domestic occupations and dispersed farms.

- *How did the organisation of the landscape change through time?*

- 4.1.27 The evidence for activity in Zone 5 is really limited to Bronze Age and post-medieval. The archaeology of all other periods is either implied or presumed. It is possible that the settlement at Cobham began in the valley floor at the Wainscott Bypass and, perhaps coinciding with episodes of tree clearance, gradually climbed the eastern slope of Scalers Hill. The lack of occupation evidence for the Iron Age, Roman and medieval periods may be as a result of the Iron Age occupations on Scalers Hill, the Roman Villa at Cobham and later Cobham Hall. It is possible these sites represent the core to a series of ‘estates’ which were deliberately kept the area clear of minor agricultural occupations.

- 4.1.28 This Roman estate appears to have been ‘re-established’ during the medieval and post-medieval periods (the main buildings of Cobham Hall dating to the 16th century) and still forms part of the Cobham Park Estate as owned by the present Earl of Darnley. The estate incorporated medieval and post-medieval Watling Street, arable agriculture on the more fertile valley sides and floors, along with mature and coppiced woodland.

- 4.1.29 At Knights Place Farm there is probable settlement and agriculture (seen by the extensive flint scatter and ardmakes recorded during the A2M2 Junctions 1 to 4 road widening) in the Bronze Age and there is a probable field ditch with domestic pottery dating to the Roman period (ARC KCS 98). After this the area appears to revert to woodland until this was partially cleared in the post-

medieval period, probably from the 17th century onwards with the establishment of Knights Place Farm.

- 4.1.30 The areas of Merralls Shaw and Great Wood probably remained mostly woodland during the prehistoric and historic periods. The location and soils of the area makes it generally unsuitable for pasture or arable agriculture. Some modern chalk extraction works has been undertaken in Great Wood.
- *Consider the effect on the landscape of known historical events, eg. the arrival of Roman administration*
- 4.1.31 As the Iron Age is under represented in Area 330 Zone 5, little can be said for the impact of the arrival of the Romans. It is suggested that the routeway that was later to become Roman Watling Street began in the Bronze Age, but it is also suggested that the original route may have avoided the heavy geology of Oldhaven, Blackheath and Woolwich Beds of the crest of Scalpers Hill, passing more to the south of the CTRL trace. The route could have passed from Cobham Golf Course, past the Cobham tumulus and Cobham Roman Villa, and down to the Bronze Age well found at Henhurst Road (Area 330 Zone 4). It is also suggested that the Roman surveyors did not consider these deposits to be a problem and laid out Watling Street directly across the top of Scalpers Hill, more along the line of the present A2.
- 4.1.32 It has been observed at Northumberland Bottom, Area 330 Zone 3 that where there is a major Roman occupation site, there is usually a subsequent Norman/medieval site. The close proximity of the Cobham Roman villa and Cobham Hall follows this pattern of observation. The reason for these major foundations was probably connected with establishing the security, and later the exploiting the convenience, of adjacent Watling Street.
- 4.1.33 Cobham Park was involved in the production of suitable timber for ships of the Royal Navy, and the naval connection is further emphasised as Cobham Park was in the hands of the Bligh family. The present Earl is descended from John Bligh, who was created Earl of Darnley in 1725.
- *The impact and development of Roman Watling Street*
- 4.1.34 The origins for Roman Watling Street began in the middle Bronze Age, with the trackway at Cobham Golf Course. This routeway may originally have passed to the south of the Blackheath, Oldhaven and Woolwich Beds at the top of Scalpers Hill, perhaps passing close to the Roman Well found near to the Cobham Roman villa. Wells are often situated alongside roads as seen at nearby St Thomas Well in Ashenbank Wood and the wells around Henhurst Road, Singlewell (Area 330 Zone 4). Concerning the latter it should be emphasised that one of the wells at Henhurst Road dated to the middle to late Bronze Age.
- 4.1.35 The evidence of Area 330 Zone 4 suggests that Roman Watling Street was laid out towards the end of the 1st century AD. The Roman surveyors aligned the road directly over the crest of Scalpers Hill, ensuring a direct line of swift communication. This important route would have had a major effect on patterns of settlement and land use in the area. Principally this took the form of the establishment of a Roman villa, farmstead or settlement at Cobham Park, excavated in 1959 and dating from the late 1st to 4th century AD. This was associated with the development of the local infrastructure and agriculture.
- 4.1.36 The stratigraphic evidence has the potential to contribute in varying degrees towards the following Fieldwork Event Primary Aims:

- *To establish a record of changing settlement and landscape morphology for the area, including habitation areas and associated enclosures and trackways etc.*

4.1.37 The evidence for occupation sites, enclosures and routes has been summarised above, in the section dealing with Landscape Zone Priorities. Perhaps the most important concept to have emerged from the post-excavation assessment is a (partial) understanding of the way in which the local pattern of land use changed through time.

4.1.38 A number of activity foci have been identified. The nature of the sample has meant that only parts of 'sites' were excavated archaeologically, so when sites are 'abandoned' it may mean they shifted away from the landtake of the CTRL. However in most cases the continued, shifting settlement pattern, from the early Bronze Age to the post-medieval period has been recorded.

4.1.39 Preliminary analysis suggests that there was little continuity of actual settlement areas within the foci from one chronological period to another.

- *To determine the function of these areas and changes through time (eg. the effect of the imposition and decline of Roman administration)*

4.1.40 Another important concept to have emerged from the post-excavation assessment is the multi-functional aspect of the various foci of activity. Something has been said already about zonation within the late Bronze Age to modern landscape (see above).

4.2 Artefacts

Ceramics: Prehistoric and Roman pottery

4.2.1 The pottery has the potential to contribute to the following fieldwork event aims and Landscape Zone aims:

- *To determine the morphology and function of the settlement, including any adjacent enclosures and trackways*
- *To recover Bronze Age pottery assemblages for assessment and analysis*

Farming communities (2,000-100 BC)

4.2.2 Clearly important middle Bronze Age and late Bronze Age assemblages have been recovered which have the potential to contribute to the study of ceramics of these periods from the region. The pottery provides dating for the features. The ditches are direct evidence for agricultural activity and the pottery provides indirect evidence for nearby settlement, despite paucity of structural evidence.

Ceramics: post-Roman pottery

4.2.3 The lack of any post-Roman pottery except 19th century sherds indicates that there is no potential for them apart from dating the Brewers Gate building.

Ceramics: ceramic building material

4.2.4 The assemblage is largely composed of daub and has the potential to provide information on the following original Landscape Zone aims within the category Farming Communities (2,000-100BC):

- *To determine how settlements were arranged and functioned over time*

- 4.2.5 Some of the daub from the pits at Cobham showed evidence for wattle impressions, possible nail holes and curving smooth surfaces. Analysis of this daub should reveal evidence of the physical appearance of any nearby late Bronze Age building or other structure.

Ceramics: artefacts

- 4.2.6 The accessioned ceramic finds have potential to assist with the following time period:

- *Farming communities (2,000-100BC)*

- 4.2.7 The Cobham Golf Course site has been identified as probably being a part of a middle to late Bronze Age settlement. The ceramic accessions support this and are typical of assemblages found on other sites of this period. The loomweights provide evidence of settlement, as looms are unlikely to have been set up for short-term use. The briquetage is of particular interest and merits further work as it is evidence of possible salt production on or near the site. The perforated clay slabs, although of unknown function, are also typical finds on settlement sites of this period.

- 4.2.8 The ceramic accessions can assist the following fieldwork event aim:

- *To determine the morphology and function of the settlement, including any adjacent enclosures and trackways etc*

- 4.2.9 As stated above the ceramic finds are evidence of a settled community involved in textile working and possibly also salt production. Further work is required to spatially integrate the finds evidence with the stratigraphic evidence.

Lithics: Worked and Burnt Flint

- 4.2.10 The flint has great potential to elucidate later Bronze Age knapping strategies. As struck flint was recovered from most cut features, along with the ‘unstratified’ but spatially located material, the distribution across the site will provide some interesting data. It will be important to compare the flint that is associated with middle and later Bronze Age ceramics to confirm or reject current dating ideas for flint knapping techniques.

- *To determine how settlements were arranged and functioned over time*

- 4.2.11 The flint should be examined for possible use wear data and possible refitting flints. This will shed light on the activities carried out on the site, and help our understanding of late Bronze Age reduction sequences.

Humanly modified and unworked stone

- *To determine the function of these areas and changes through time*

- 4.2.12 The late Bronze Age smooth stone may be related to a functional use connected with the preparation of food, perhaps indicating a domestic function to this area within the settlement. Comparison with other known examples is required to further clarify this interpretation and use.

- 4.2.13 The Shorne/Cobham Boundary stone has little potential for further study beyond dating and indicating the recent boundary between Shorne Parish and Cobham Parish, along the line of medieval/post-medieval Watling Street.

Metalwork

- 4.2.14 The only metalwork recovered was an unstratified iron handle. It is not thought that this metal find can assist with any of the Landscape Zone aims or the Fieldwork Event aims.

4.3 Environmental

Animal bone

- 4.3.1 The potential value of the bones recovered from the Zone 5 excavations is minimal. The condition of the bones is poor, and the quantities are extremely small.

Macroscopic plant remains and charcoal

- 4.3.2 Very few plant remains were recovered from the samples within Area 330 Zone 5, so their value in answering the project aims is limited. As there have been very few studies of plant remains from Bronze Age sites in this area of Kent however, analysis of the five samples containing cereal remains may contribute to our knowledge of cereal use and cultivation in this period. Identification of the 11 charcoal samples will indicate the wood species being exploited, although it is unlikely that the small fragments found will reveal much about woodland management.

Geoarchaeology

- 4.3.3 The data from the monolith samples has potential to address the following landscape Zone and fieldwork aims:
- *To study the natural landscape, its geomorphology, vegetation and climate, as the context within which the archaeological evidence can be interpreted.*
 - *Farming communities (2,000 BC-100 BC): to consider environmental change resulting from landscape organisation and re-organisation.*
- 4.3.4 These aims may be achieved by pollen and soil micromorphological analysis of the ring ditch fills.
- 4.3.5 Pollen analysis should enable the nature of the changing landscape during and after the construction of the ring-ditch to be reconstructed and soil micromorphology should enable the sequence of events that led to the infilling of the ditch to be unravelled.

4.4 Statement of overall potential

- 4.4.1 The main site data have the potential to contribute towards the following Time Periods, Research Objectives and Landscape Zone Priorities:

Early Agriculturists (4,500–2,000 BC)

- Define ritual and economic landscapes and their relationships
- Define nature of contemporary environment
- Determine nature and effect of clearance for agricultural activity

- 4.4.2 The site has limited potential for addressing the above period, as the finds show a background of activity. Dispersed finds in the form of flint implements indicate a presence but no pottery or habitation sites have been located. Finds from this time period were not generally recovered from the areas to the west of Zone 5 (the North Kent Plain) and this may indicate a preference for the higher downland landscape during this early period.

Farming Communities (2,000–100 BC)

- Determine spatial organisation of the landscape in terms of settlement location in relation to fields, pasture, woodland, enclosed areas and ways of moving between these

- Determine how settlements were arranged and functioned over time
 - The socio-economic landscape of later agriculturists (2,000–100 BC)
- 4.4.3 The Zone can be roughly organised spatially through time, based on the archaeological evidence, but this is rather limited. This evidence mostly concerns the early, middle and late Bronze Age in two locations, with little evidence for Iron Age activity.
- 4.4.4 The probable middle Bronze Age road at ARC CGC 98 is of great potential as it may link up with the middle Bronze Age ‘well’ found at Henhurst Road, Singlewell (Area 330 Zone 4). It is possible the Henhurst Road well is situated adjacent to an ancient trackway as it is common for wells to be so placed in the Roman, medieval and Post-medieval periods (as seen in Area 330 Zone 4 Henhurst Road and Zone 5 St Thomas Well). It may thus be possible to roughly trace this section of a prehistoric ‘Watling Street’, passing close to the monuments at Cobham Golf Course (barrow) and the Cobham tumulus (to the south of the CTRL landtake on the western side of Scalers Hill), down to Henhurst Road.
- 4.4.5 It is seen (in Area 330 Zone 3 and possibly Zone 5) that the prehistoric settlements gradually migrate from the lower valley floors to the higher surrounding hills from the early Bronze Age to the late Iron Age. The presumption is that the settlement moves into freshly cleared (of woodland) areas, partly to free up the lower agricultural land rather than defence, as no defensive arrangements have been found.
- 4.4.6 Area 330 Zone 5 can be compared with the following nearby CTRL Bronze Age sites:
- Area 330 Zone 1: Whitehill Road early Bronze Age barrow and secondary inhumation
 - Area 330 Zone 2: ARC STP 99 Bronze Age landscape in the upper Ebbsfleet valley
 - Area 330 Zone 3: Beaker burials and early Bronze Age cremation vessels at Northumberland Bottom and Hazells Farm
 - Area 330 Zone 4: Late Bronze Age well at Singlewell
 - Area 330 Zone 6: Late Bronze Age to Late Iron Age occupation at Cuxton.

Towns and their rural landscapes (100 BC–AD 1700)

- How were settlements and rural landscapes organised and how did they function?
 - How did the organisation of the landscape change through time?
 - Consider the effect on the landscape of known historical events (e.g. the arrival of Roman administration)
 - The late and immediate post-Roman period
 - The impact and development of Roman Watling Street
- 4.4.7 Area 330 Zone 5 is situated away from any major town during this period. The area probably formed part of a large villa estate during the Roman period, and formed part of a large estate in the medieval and post-medieval period. The absence of indications for occupation in the areas excavated appears to suggest that there were few individuals actually living in the area. The lack of pottery from this period may indicate that the main activity was shifting areas of pasturage and woodland management, with occasional areas of arable agriculture.

- 4.4.8 Roman Watling Street, possibly laid out in the late 1st century AD did not attract any settlement activity to the area of the archaeological excavations during any of the subsequent time periods. It is possible that first the Roman villa, then the medieval manor and then the post-medieval hall has diverted occupation away from the area. From Cobham Golf Course the road swings east towards Rochester, moving further away from the trace.
- 4.4.9 It appears that the area of Knights Place Farm was cultivated in the later prehistoric and possibly Roman period, but after this date reverted to woodland until around the 17th century. The area of Merralls Shaw may have been mostly wooded since the prehistoric period.
- 4.4.10 As the evidence for medieval and post-medieval land use consisted of ploughed soils, a park pale boundary, a road (Old Watling Street) and a well (St Thomas's Well) Zone 5 has a limited potential for comparison with other nearby CTRL medieval and post-medieval sites. Documentary evidence for the Cobham Park estate exists for much of this period (URL 1998) which would help throw light on the activities undertaken.
- 4.4.11 There are two key Landscape Zones Priorities that can be applied to the evidence from all Time Periods:
- *Spatial organisation of the landscape and changes through time*
 - *Ritual and ceremonial use of the landscape*
- 4.4.12 It appears that the Cobham to Knights Place Farm section of Area 330 Zone 5 has formed part of the grounds of a large estate since the Roman period to the 20th century. The evidence for this seems to be a general absence of minor agricultural settlements along Watling Street in the vicinity of the Cobham Roman Villa and Cobham Hall. This is an interesting area for potential study of the continuity of use.
- 4.4.13 The area of Merralls Shaw appears to have been mostly wooded from the prehistoric period onwards. This impression is confirmed by the area being designated Ancient Woodland (URL 1994) and the very thin topsoil deposits which showed an absence of ploughing activity, and an absence of any boundary ditches.
- 4.4.14 The redesigning of the Cobham Park Estate by Humphrey Repton in the 1790's may be classed as a ceremonial or deliberate manipulation of the landscape, for example a number of artificial ponds and hills were created.
- 4.4.15 The new aims are summarised below. They enhance the existing aims rather than replace them.
- *Determine spatial organisation of the landscape in terms of settlement location in relation to fields, pasture, woodland, enclosed areas and ways of moving between these*
- 4.4.16 Individual settlements are established, grow and decline. In rural areas, where land is available, it makes sense to re-found a site that has become dilapidated, rather than to clear it and rebuild it. It is suggested that the migration of settlements from lower ground to higher ground is mostly to enable lowland areas to be given to agriculture – the settlements moving into areas possibly freshly cleared of (managed) woodland. This is because, even at the settlements on higher ground, there is little evidence for defence (even the late Iron Age settlement at Area 330 Zone 3 only has slight enclosure ditches). Area 330 Zone

5 has the potential to add to the study of prehistoric settlement location and movement, if compared with Area 330 Zones 2, 3, 4 and Area 350 Zone 6.

- 4.4.17 Further work would involve the comparison of dated settlements, their topographic locations and their association with nearby earlier and later sites.
- *The socio-economic landscape of later agriculturists (2,000–100 BC)*
 - *How were settlements and rural landscapes organised and how did they function?*
 - *Consider the effect on the landscape of known historical events, eg. the arrival of Roman administration.*
- 4.4.18 In terms of tying the Zone 5 results into the landscape, further research work may be required to integrate the CTRL results with the previous excavations at Cobham Roman Villa and the archaeological work on the Wainscott bypass. The aim would be to seek any evidence for Iron Age settlement, that may be located in the immediate area of Scalpers Hill. At present the evidence is limited to the idea that settlements gradually move to higher areas during the Iron Age and the recovery of an Iron Age coin (URL 1994, 1572) close to the villa site. The Cobham Roman Villa, SAM KE159, is noted as being occupied 1st to 4th century AD. This has relevance for the CTRL research aims regarding the arrival of the Roman administration, the creation of Roman Watling Street and landuse in the Roman period; evidence of which is generally lacking from the CTRL works in Area 330 Zone 5.
- 4.4.19 Further work would involve the inspection of the relevant site archives and integration with the CTRL results.
- *The impact and effect of the development of Roman Watling Street*
- 4.4.20 Is there any further evidence for the prehistoric ‘precursors’ of Roman Watling Street elsewhere on the CTRL route eg the roads of Area 330 Zones 3 and 4? This has a bearing on the CTRL research topic for the arrival and imposition of the Roman administration: to what extent did the Romans initially re-use/upgrade existing routes, and when were these routes replaced with proper Roman roads?
- 4.4.21 Further work would involve the comparison between the possible Bronze Age precursors of Roman Watling Street both in the area affected by the CTRL works and beyond.
- Ritual and ceremonial use of the landscape*
- 4.4.22 Can the dating of the Cobham ring ditch be further clarified by study of the pottery or the production of a radiocarbon date? An accurate date for the construction of the monument would form part of the CTRL research topic of ritual and ceremonial use of the landscape during the early Bronze Age.
- 4.4.23 Further work would involve attempting to produce a radiocarbon date for the Cobham ring ditch.

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APPENDIX 1: ASSESSMENT OF PREHISTORIC POTTERY

Louise Rayner

1. Introduction

- 1.1 The prehistoric pottery assemblage recovered from Zone 5 was mainly from the excavation area ARC CGC 98. The pottery was hand collected from a series of pits and ditch features concentrated around Cobham Golf Course. The pottery is predominately middle and late Bronze Age in date, although some has been recorded as indeterminate later Bronze Age and more general indeterminate later prehistoric. All of the pottery of this date is flint-tempered and differentiation has been based on wall thickness and inclusion size in the absence of diagnostic featured sherds. Clearly different from this material, are a group of sherds with a grog-tempered/clay pellet fabric, which may derive from an early Bronze Age Collared Urn or similar vessel type.
- 1.2 The recovery and study of this material was intended to assist the following fieldwork event aims:
 - To determine the morphology and function of the settlement, including any adjacent enclosures and trackways
 - To recover Bronze Age pottery assemblages, supported by radio-carbon dates, for assessment and analysis
- 1.3 Some 19th century sherds were recovered from ARC BG 98; otherwise no post-Roman pottery was recovered for Zone 5.

2. Methodology

- 2.1 All of the sherds recovered were recorded using standard MoLSS recording methods. The material is recorded on a context-by-context basis using fabric, form and decoration as unique identifiers. The prehistoric sherds were recorded using the Canterbury Archaeological Trust regional fabric. The material was quantified by count and weight and aspects of condition were also noted.

3. Quantifications

- 3.1 A total of 835 sherds of prehistoric date were recovered. The assemblage had a total weight of 9986g.

4. Provenance

- 4.1 From the fill of the ring ditch [223] an assemblage of 26 sherds was recovered which group into two slightly different fabrics, probably representing two different vessels. The fabrics are soft and virtually inclusion-less with the exception of grog or clay pellet inclusions. Most of the sherds are abraded and the soft nature of the fabric has resulted in poor survival. However a number of more diagnostic sherds are present including sherds with cord decoration and possibly part of a collar and a possible rim sherd. Clearly the condition of the

material means identification is tentative but the characteristics of the fabric and the more diagnostic sherds suggest the material dates to the early Bronze Age, probably derived from a Collared Urn or similar vessel.

- 4.2 The assemblage from [223] is the largest group of sherds recovered from the ring ditch. Other pottery from ring ditch fill contexts consisted of further sherds in soft fabrics with clay pellets ([242], [227]) and flint-tempered sherds that could not be closely dated ([221], [227]). These sherds may be contemporary with or later than the group from [223]. The possible Collared Urn may have been originally deposited to accompany a burial or hold cremated remains, although no remains of human bone were recovered. The extensive ploughing of the site has completely destroyed any barrow (if one was present) and may also have disturbed the vessels from their primary place of deposition. Collared Urns have been commonly recovered from barrows in Kent from sites such as Ringwould and Otford (Champion 1982, 32-5).
- 4.3 The middle Bronze Age material is characterised by coarsely flint-tempered fabrics and thick walled, heavy sherds. Featured sherds for this period were recovered from sections along the main east-west ditch [114] and [194]. These included rims and decorated body sherds typical of Deverel-Rimbury urns, including from [194] an applied horseshoe cordon, decorated with fingertip impressions and perforated at the terminal. Where present the rim sherds are all simple rounded profiles.
- 4.4 The middle Bronze Age sherds are large in size and frequently conjoining sherds occur suggesting little re-deposition has occurred. An assemblage of comparable date and character was recovered during the evaluation from sections of the same ditch feature (1914TT).
- 4.5 A number of contexts contained plain body sherds that have been recorded as indeterminate later Bronze Age. This was used where the wall thickness and/or fabric were deemed insufficient indicators to classify the sherds further.
- 4.6 The late Bronze Age pottery is best represented by five 'plain ware' assemblages recovered from pits located to the south of the large east-west ditch: [122], [136], [142], [160], [162]. Other sherds have been assigned to this period on the basis of finer flint-tempered fabrics and thinner wall thickness, but these are frequently undiagnostic body sherds.
- 4.7 The 'plain ware' assemblages include slack-profile fine ware bowls, coarse ware jars with flint-gritted bases (both [122]), slack-shouldered coarse ware jars with fingertip decoration on the rim [136] and various upright, flat-rimmed jars and weakly carinated vessels. The largest assemblage is pit fill [136], which contains a number of vessels including both fine ware bowls and coarse ware jars. One jar has a thick carbonised residue of the surfaces suggesting use as a cooking pot. There are a number of large joining sherds from this vessel, which probably indicates it derives from contemporary settlement in the nearby vicinity. The forms present in this assemblage are typical of the late Bronze Age.
- 4.8 A similar range of material was recovered from the evaluation phase (ARC CGC 97) with both middle Bronze Age and a small quantity of late Bronze Age pottery present. During an earlier evaluation on Cobham Golf Course (not connected with CTRL mitigation works) in 1995 by Pre-Construct Archaeology, further late Bronze Age material was recovered (Barclay 1997).

Post-Roman

- 4.9 Some 19th century wares were recovered from ARC BG 98. Three sherds from a stoneware beer bottle (probably from a brewery in the Old Kent Road, London), and a fragment from the base of a moulded object, probably a jardiniere, in a white fabric with brown glaze. Also recovered was a sherd of Doulton pottery, from Lambeth.

5. Conservation

- 5.1 The pottery has no conservation requirements and there are no implications posed by future work for the long-term storage of the assemblage.

6. Comparative material

- 6.1 Several Collared Urns have been recovered from barrows in Kent and they are one of the most common classes of pottery associated with features of this type. The poor condition of the sherds recovered from [223] leaves in little scope for stylistic comparison with other Kentish examples.
- 6.2 There are only a small number of comparable middle Bronze Age assemblages from this area of Kent, although assemblages from further east (Rochester to Thanet) should also be considered in relation to this material. A small assemblage was recovered from a site at Hayes Common, which included sherds from Deverel-Rimbury type vessels (Philp 1973).
- 6.3 The late Bronze Age assemblage contains elements typical of 'plain ware' assemblages from throughout south-east England. However assemblages of this period from the immediate vicinity appear to be scarce. This assemblage would benefit from consideration in relation to published groups from east Kent such as the group from Kingston Downs (Site 5: Archaeological work along the A2; Macpherson-Grant 1980).

7. Potential for further work

- 7.1 The association of these pottery assemblages with a combination of ritual (the early Bronze Age barrow) and settlement activity is important, particularly for the middle Bronze Age pottery, which is commonly retrieved from burial contexts. The nature and condition of the pottery suggests nearby settlement and these groups clearly have potential for further study, particularly as comparable material from this area of Kent is limited.
- 7.2 The pottery has the potential to contribute to the following fieldwork event aims and Landscape Zone aims:
- *To determine the morphology and function of the settlement, including any adjacent enclosures and trackways*
 - *To recover Bronze Age pottery assemblages for assessment and analysis*
- 7.3 As stated above (7.1) clearly important mid Bronze Age and late Bronze Age assemblages have been recovered which have the potential to contribute to the

study of ceramics of these periods from the region. The pottery will provide dating for the features, possible contemporaneity of pottery vessels and, combined with the stratigraphic remains, provides direct evidence for settlement.

7.4 In order to address the research aims and fulfil the potential of this assemblage the following tasks are recommended:

- Define middle Bronze Age fabrics in relation to published groups
- Define late Bronze Age fabrics in relation to published groups
- Comparative study of other material from region
- Illustration of key vessels
- Discussion text for late Bronze Age pit groups
- Publication text for assemblage

7.5 The 19th century material from ARC BG 98 is not worthy of further work, and only confirms the 19th century nature of the gatehouse.

8. Bibliography

Champion, T C, 1982, 'The Bronze Age in Kent', in P Leach (ed) *Archaeology in Kent to AD 1500*, CBA Res Rep 48, 31-39

Macpherson-Grant, N, 1980 'Archaeological work along the A2: 1966-1974', *Arch Cant* xcvi, 133-83

Philp, B, 1973 *Excavations in West Kent 1960-1970*

URL, 1997, Cobham Golf Course, an Archaeological evaluation; Barclay, A, 1997 middle and late Bronze Age pottery: prepared by OAU

Table 7: Assessment of Pottery, quantifications and attributes: ARC CGC 98

CONTEXT	COUNT	WEIGHT	PERIOD	COMMENTS
223	26	107	EBA	CP 7E; Early Bronze Age: possible frags of Collared Urn or similar vessel type.
100	18	336	LBA	FLIN 2; Mid/late or Late Bronze Age
118	29	88	LBA	FLIN; Late Bronze Age
122	20	171	LBA	FLIN 2 FLIN 2U FLIN 4 FLIN; Late Bronze Age: plain ware assemblage
132	16	75	LBA	FLIN; Late Bronze Age
134	2	26	LBA	FLIN; Late Bronze Age
136	256	4366	LBA	FLIN 2 FTD FLIN 2 STAB FLIN 2C FLIN 2U FLIN 4 FLIN; Late Bronze Age: plain ware assemblage
142	58	418	LBA	FLIN 2 FLIN 2U FLIN; Late Bronze Age: plain ware assemblage
146	6	37	LBA	FLIN; Late Bronze Age
160	103	1308	LBA	FLIN 2 FLIN 2C FLIN; Late Bronze Age: plain ware assemblage
162	5	87	LBA	FLIN 2; Late Bronze Age: plain ware vessel3
164	31	111	LBA	FLIN; Late Bronze Age: misc body sherds
172	7	63	LBA	FLIN; Late Bronze Age
186	2	27	LBA	FLIN; Late Bronze Age
198	4	26	LBA	FLIN; Later Bronze Age: probably late Bronze Age
221	4	70	LBA	FLIN 2; Late Bronze Age?
225	7	30	LBA	FLIN 2HO FLIN; Late Bronze Age
235	52	443	LBA	FLIN 2 RUST FLIN; Late Bronze Age
114	3	56	MBA	FLIN 7DR; Mid Bronze Age: Deverel-Rimbury type urn
162	1	32	MBA	FLIN; Middle Bronze Age: single residual sherd
190	64	1049	MBA	FLIN 7DR; Middle Bronze Age: Deverel-Rimbury type urns
196	26	394	MBA	FLIN 7DRC APD; Middle Bronze Age: Deverel-Rimbury type urn
148	18	187	LPR	FLIN; Later Bronze Age: mid/late or late Bronze Age.
152	9	76	LPR	FLIN SHEL; Later prehistoric: flint-temp LBA/IA; ?shell-temp IA
164	29	113	LPR	FLIN; Later prehistoric: some possible residual MBA sherds
176	6	66	LPR	FLIN; Later Bronze Age: mid/late Bronze Age
178	4	70	LPR	FLIN; Late Bronze Age
194	2	20	LPR	FLIN; Later Bronze Age: mid/late Bronze Age
221	6	25	LPR	FLIN; Indeterminate later prehistoric
227	3	3	LPR	CP FLIN; Indeterminate later prehistoric
233	2	6	LPR	FLIN ORGAN; Indeterminate later prehistoric
240	13	92	LPR	FLIN; Late Bronze Age
242	3	8	LPR	CP; Indeterminate earlier prehistoric

See Key after Table 8 for form and fabric codes.

Table 8: Assessment of Pottery from ARC CGC 98, additional detail

Context	Count	Weight	Fabric	Description	Early Date	Late Date	Comments
100	18	336	FLIN	2 , -	-1000	-700	COARSE FLINT; PLAIN JAR BODY SHERDS; 1 VESSEL; LBA COARSE WARE JAR.
114	3	56	FLIN	7DR , -	-1750	-1150	PLAIN ROUNDED RIM SHDS; V LARGE DIAM; WALL 15MM; D-R URN
118	29	88	FLIN	- , -	-1000	-700	COARSE & FINE FLINT BODY SHDS; SOME WITH SMOOTHED INTERIORS; ALL SMALL BS.
122		10	FLIN	- , -	-1000	-700	MISC FINE WARES BS
122	15	131	FLIN	2 , -	-1000	-700	COARSEWARE JAR INC. BASE SHDS WITH FLINT-GRITTED UNDERSIDE, PLUS MISC BS.
122	2	8	FLIN	2U , -	-1000	-700	PLAIN UPRIGHT RIM SHDS; FLAT, FOLDED OVER RIM.
122	2	22	FLIN	4 , -	-1000	-700	SLACK-PROFIED BOWL; SIMPLE TAPERING RIM. FINE FLINT, SMOOTHED SURFACES, THIN WALLED. LBA.
132	16	75	FLIN	- , -	-1000	-700	INC. BASE SHERDS OF COARSE WARE JAR; COARSE FLINT.
134	2	26	FLIN	- , -	-1000	-700	FINE, DENSE THIN WALLED BS; POSS LBA
136	178	2804	FLIN	- , -	-1000	-700	MISC BODY SHDS & BASES WITH FLINT-GRITTED UNDERSIDE. MAINLY FROM COARSE WARE JARS.
136	2	116	FLIN	2 , FTD	-1000	-700	SLACK-SHOULDERED LBA FORM; FTD ON INTERNAL EDGE OF RIM.
136	4	32	FLIN	2 , STAB	-1000	-700	FOLDED OVER FLAT RIM WITH POSSIBLE STABBED DEC UNDER RIM.
136	5	109	FLIN	2C , -	-1000	-700	MAINLY SHOULDER SHDS; NO RIM. V ABRADED
136	25	1007	FLIN	2U , -	-1000	-700	THICK CARBONISED RESIDUE INT & ETX; SLACK SHOULDER LBA FORM
136	42	298	FLIN	4 , -	-1000	-700	FINE WARE BOWL WITH LOW SHOULDER. FINE FLINT; JOINING SHERDS
142	49	335	FLIN	- , -	-1000	-700	MISC FLINT BODY SHDS & BASE EDGES NOTHING DIAGNOSTIC.

Context	Count	Weight	Fabric	Description	Early Date	Late Date	COMMENTS
142	7	79	FLIN	2 , -	-1000	-700	SHOULDERED JARS WITH PLAIN SLIGHTLY EVERTED RIMS, NO DEC.
142	2	4	FLIN	2U , -	-1000	-700	FLAT, FOLDED OVER RIM
146	6	37	FLIN	- , -	-1000	-700	COARSE FLINT BS
148	18	187	FLIN	- , -	-1150	-700	SOME SHDS V. COARSE FLINT COULD BE MBA DEV-RIM; OTHERWISE MISC BODY SHDS. M/LBA
152	7	67	FLIN	- , -	-1000	-400	BA/IA?
152	2	9	SHEL	- , -	-1000	-400	VOIDS; QUITE SOAPY. IA?
160	57	457	FLIN	- , -	-1000	-700	MISC BODY SHDS & 3 BASES FRAGS. (1 FLINT-GRITTED). SMALL SHDS
160	36	540	FLIN	2 , -	-1000	-700	LARGE PLAIN JAR WITH INTACT BASE. ALL ONE VESSEL.
160	10	311	FLIN	2C , -	-1000	-700	LBA JAR FORM; LARGE JOINING SHDS, GOOD PROFILE.
162	5	87	FLIN	2 , -	-1000	-700	?JAR SMOOTHED/LIGHTLY BURNISHED EXTERIOR. FINE FLIN; 1 VESSEL.
162	1	32	FLIN	- , -	-1000	-700	COARSE FLINT, V ABR. ?MBA
164	31	111	FLIN	- , -	-1000	-700	MISC. COARSEWARE BS. 1 PROB. BASE FRAG.
164	29	113	FLIN	- , -	-1000	-700	ONE SHERD WITH APPLIED CORDON SIMILAR TO URN IN [161]. ONE SHERD WITH APPLIED BOSS/KNOB.
172	7	63	FLIN	- , -	-1000	-700	BODY SHDS ONLY NOTHING DIAGNOSTIC. PROB LBA ON FABRIC
176	6	66	FLIN	- , -	-1150	-700	BODY SHERDS ONLY; PROB M/LBA
178	4	70	FLIN	- , -	-1000	-700	BODY SHERDS ONLY; PROB. LBA COARSE WARE JAR
186	2	27	FLIN	- , -	-1000	-700	COMBING ON BS
190	64	1049	FLIN	7DR , -	-1750	-1150	THICK WALLED; COARSE FLINT. ONE BS WITH SLIGHT CORDON. DEVEREL-RIMBURY URNS.
194	2	20	FLIN	- , -	-1150	-700	FLINT QUITE COARSE; M/LBA
196	26	394	FLIN	7DRC , APD	-1750	-1150	RIM & BODY SHDS OF D-R URN WITH APPLIED HORSEHOE CORDON (DECORATED WITH FTD) & PERF.

Context	Count	Weight	Fabric	Description	Early Date	Late Date	COMMENTS
198	4	26	FLIN	- , -	-1150	-700	FINE TO COARSE FLINT WITH IRON OXIDES. M/LBA PROB LBA.
221	4	70	FLIN	2 , -	-1000	-700	JOINING BASE SHDS; V DISTINCTIVE DENSE FINE FLINT FABRIC; ?GRITTED UNDERSIDE.
221	6	25	FLIN	- , -	-1000	-700	V SOFT FABRIC, SPARSE FLINT WITH VOIDS FROM ORGANICS.?DATE
223	26	107	CP	7E , -	-2000	-1600	FABRICS GROUP INTO TWO WHICH REPRESENT DIFFERENT VESSELS. SOFT, INCLUSIONLESS.
225	6	24	FLIN	- , -	-1000	-700	MISC BODY SHDS.
225	1	6	FLIN	2HO , -	-1000	-700	HOOK-RIMMED VESSEL
227	1	1	CP	- , -	0	0	? VESSEL ?FIRED CLAY
227	2	2	FLIN	- , -	0	0	SMALL FRAGS
233	1	5	FLIN	- , -	0	0	BS
233	1	1	ORGAN	- , -	0	0	BS
235	37	321	FLIN	- , -	-1000	-700	MISC BODY SHDS.
235	15	122	FLIN	2 , RUST	-1000	-700	QUITE ROUND SHOULDERED, NECKED JAR WITH TAPERING RIM; UNDULATING RUSTIFICATION ON BODY.
240	13	92	FLIN	- , -	-1000	-700	COARSE, FLINT; BODY SHDS ONLY. MAINLY FROM ONE VESSEL.
242	3	8	CP	- , -	0	0	SOFT INCLUSIONLESS FABRIC; NO FLINT. EARLIER BA? BS ONLY.

Key to decoration and fabric codes:

2	MISCELLANEOUS OR OTHERWISE UNIDENTIFIABLE JAR
2C	CARINATED JAR
2HO	PLAIN HOOKED RIM JAR
2U	SIMPLE/UPRIGHT RIMMED JAR
4	BOWL
7DR	DEVEREL-RIMBURY URN
7DRC	DEVEREL-RIMBURY BUCKET URN
7E	COLLARED URN
APD	APPLIED DECORATION
CP	COOKING POT
FLIN	FLINT TEMPERED
FTD	FINGERTIP DECORATION
ORGAN	ORGANIC TEMPER
RUST	RUSTICATED DECORATION
SHEL	SHELL TEMPERED
STAB	STABBED DECORATION

APPENDIX 2: ASSESSMENT OF CERAMIC BUILDING MATERIAL/ ASSESSMENT OF FIRED CLAY

Ian Betts

Conservation by Liz Barham

1. Introduction

- 1.1 A total of 2.065kg of building material were recovered comprising 1.225kg of daub and 840g of stone from nine contexts. Most contexts contained less than ten daub fragments, the only exceptions were contexts 142 (44 fragments), 172 (11 fragments) and context 176 (29 fragments).

2. Methodology

- 2.1 All the material was examined and recorded for the assessment. The daub assemblage has been counted and weighed and any features such as impressions and areas of surface were noted. The data have been entered on an ORACLE database and all the material has been retained.

3. Quantifications

- 3.1 The total assemblage size is very small, just 2.065kg of which 1.225kg is daub from nine contexts. All is of prehistoric date, with most associated with late Bronze Age pottery (contexts [142], [172], [176], [178] and [221]).
- 3.2 One piece of daub has a rounded hole 18mm in diameter cut into it, ten pieces have a curved, smooth surface and one has a rounded shape. Wattle impressions are visible on a number of pieces.

4. Provenance

- 4.1 The provenance of the material is related to pits, ditches and postholes relating to a middle and late Bronze Age settlement at Cobham Golf Course. It is likely that the material has been redeposited from nearby huts and possibly hearths.

5. Conservation

- 5.1 The daub material is relatively soft and so should be stored in a stable environment of mid-range temperature and humidity and handled very carefully.

6. Comparative material

- 6.1 Late Bronze Age settlement sites in the area are scarce. The nearest comparable material is from Area 350 Zone 6 (Cuxton) where a good daub assemblage has been recovered, dating from the late Bronze Age to the middle/late Iron Age.

7. Potential for further work

- 7.1 The assemblage is largely composed of daub and has the potential to provide information on the following original Landscape Zone aims within the category Farming Communities (2,000-100BC):

- *To determine how settlements were arranged and functioned over time –*

- 7.2 Approximately ten fragments of daub have curved surfaces, analysis of these and the other daub present should reveal evidence for the physical appearance of any nearby building or other structure.

- 7.3 Further work: building material specialist

- Combine the stratigraphic and dating information to determine the chronological and spatial patterning of the assemblage
- Write publication report

- 7.4 Illustration

- Daub fragments with curved surface and daub fragment with circular hole

8. Bibliography

None

Table 9: ARC CGC 98 Assessment of Ceramic Building Material /Assessment of Fired Clay

Context	Count	Weight	Type	Period	Comments
106	6	30	DAUB	?LBA	3102*,
122	6	95	DAUB	LBA	3102* 1X PART BURNT
142	44	415	DAUB	LBA	3102* 1X ROUND SHAPE 30MM IN DIAMETER
160	8	30	DAUB	LBA	3102*
168	1	20	DAUB	?LBA	3102*
172	11	85	DAUB	LBA	3102*
176	29	490	DAUB	LBA	3102* 1X ROUNDED HOLE 18MM IN DIAMETER, SOME WITH CURVING SMOOTH SURFACE
178	1	45	DAUB	LBA	3102*
221	9	15	DAUB	LBA	3102* MINUTE FRAGMENTS

**Fabric code*

APPENDIX 3: ASSESSMENT OF CERAMIC ARTEFACTS

Jackie Keily

(Identifications by Louise Rayner)

Conservation by Liz Barham

1. Introduction

1.1 Eight accessioned finds were recovered from the excavation ARC CGC 98 in Zone 5. Seven of the accessions were recovered by hand excavation and one from an environmental sample.

1.2 The accessioned ceramic finds can assist the following fieldwork event aims:

- To determine the morphology and function of the settlement, including any adjacent enclosures and trackways etc

2. Methodology

2.1 The ceramic finds were accessioned in accordance with the Museum of London system. The ceramic finds have been counted and weighed and any features such as impressions and areas of surface were noted.

2.2 The records have been entered onto the Oracle relational database and transferred to RLE Datasets.

2.3 No sampling of the ceramic accessions was undertaken.

3. Quantifications

Table 10: Assessment of Ceramic Artefacts from ARC CGC 98

Context	Special Number	Material	Count	Period	Comments (Description)
122	4	Ceramic	6	LBA	Briquetage; unidentifiable forms.
142	8	Ceramic	37	LBA	Assorted fragments of briquetage (ceramic equipment believed to be associated with the manufacture of salt) including parts of pedestals and possibly angles.
160	2	Ceramic	4	LBA	Perforated clay slab
160	6	Ceramic	10	LBA	Briquetage; part of a possible pedestal and 9 very small fragments.
176	5	Ceramic	22	LBA	Loom weight; cylindrical form; near complete circumference.
176	3	Ceramic	17	LBA	Loom weight; cylindrical form.
176	1	Ceramic	1	LBA	Perforated clay slab
178	7	Ceramic	1	LBA	Briquetage; possibly part of a pedestal.

4. Provenance

- 4.1 The two loom weights and one of the perforated clay slabs came from flint packing in posthole [176] (sub-group 46). The second perforated clay slab came from pit [160] (sub-group 38). The fragments of briquetage came from pits [122] (sub-group 21; burnt in situ?), [142] (sub-group 29) and [160] (sub-group 38) and also from ?flint packing in posthole [178] (sub-group 47).
- 4.2 The material is quite a soft, fired ceramic and is, therefore, quite fragile and friable.

5. Conservation

- 5.1 The fragments are stable and packed appropriately for long term archive storage.
- 5.2 None of the ceramic accessions should be discarded. The study of perforated clay slabs is ongoing. It is still not fully understood what their function was so they should be kept for future research. Similarly the loom weights can add to any reference collection and the briquetage, which is evidence of possible salt production on or near the site is an important addition to Kent collections.

6. Comparative material

- 6.1 This is a small but very important assemblage of Bronze Age artefacts. Middle to late Bronze Age settlements in Kent are, at present, poorly understood (URL 1998, 42-3). It is recommended that the material is compared to other, similar sites on the CTRL, for example perforated clay slabs were recovered from a well at Singlewell, ARC 330 98, but not from any CTRL sites further to the west. This may indicate that settlement activity was more concentrated around the North Downs, rather than the North Kent Plain in the late Bronze Age.
- 6.2 In addition the finds should be compared with those found in Sussex (Black Patch, Patcham Fawcett, Varley Halls, Itford Hill (ibid)) and Essex (for example, Mucking). The latter has comparable assemblages of briquetage (Barford, 39-41 & 50-1).

7. Potential for further work

- 7.1 The accessioned ceramic finds have potential to assist with the following landscape Zone aim:
- *Farming communities (2,000-100BC)*
- 7.2 The site has been identified as probably being a small middle-late Bronze Age settlement. The ceramic accessions support this and are typical of assemblages found on other sites of this period (see 6.1 above). The loom weights provide evidence of settlement, as looms are unlikely to have been set up for short-term use. The briquetage is of particular interest and merits further work (see below). It is evidence of possible salt production on or near the site. The perforated clay

slabs, although of unknown function, are also typical finds on settlement sites of this period (Bond 1988, 39).

- 7.3 The ceramic accessions can assist the following fieldwork event aim:
- *To determine the morphology and function of the settlement, including any adjacent enclosures and trackways etc*
- 7.4 As stated above the ceramic finds are evidence of a settled community involved in textile working and possibly also salt production. Further work is required to integrate the finds evidence further with the stratigraphic evidence.
- 7.5 The following further work is required:
- Integration with stratigraphic information
 - Identification of fabrics
 - Catalogue for publication
 - Comparison with similar assemblages
 - Text
- 7.6 The following are recommended for illustration:
- The two perforated clay slab fragments
 - The two loomweights
 - Possibly 15-20 fragments of briquetage

8. Bibliography

- Barford, P, M, 1988, 'Salt production equipment (briquetage)' in D, Bond *Excavation at the North Ring, Mucking, Essex: A Late Bronze Age Enclosure*, East Anglian Archaeology Report No. 43, 1988, 39-41 & 50-1
- Bond, D, 1988, 'Perforated clay slabs' in D, Bond *Excavation at the North Ring, Mucking, Essex: A Late Bronze Age Enclosure*, East Anglian Archaeology Report No. 43, 1988, 39

APPENDIX 4: ASSESSMENT OF WORKED FLINT

Philippa Bradley

1. Introduction

- 1.1 A total of 231 pieces of worked flint were recovered from the excavations (Tables 11 and 13). The worked flint consists of mostly hard-hammer struck flakes, irregularly worked cores, core fragments. A range of mostly minimally retouched forms were recovered (retouched or used flakes, serrated flakes, scrapers, piercers and denticulates. The flint is generally hard-hammer struck with very little evidence for platform preparation or maintenance during knapping. Retouching is generally limited in extent, and many retouched pieces are made on thick cortical flakes. This assemblage is typical of mid-late Bronze Age technologies.
- 1.2 Burnt unworked flint was recovered from ARC CGC98 and ARC 33098 (see Tables 12 - 14). The burnt unworked flint consists of a range of small to large sized fragments or pebbles of heavily calcined flint.

2. Methodology

- 2.1 The worked and burnt unworked flint was recorded onto the Oracle database using standard MoLSS methods. The material was recorded by typological group, where appropriate notes were made on pertinent technological attributes. Brief notes were also made on the general condition of the material. The burnt unworked flint was briefly scanned and quantified, a general note of the condition of the material was also made. Natural unworked flint was discarded.
- 2.2 A single box of unstratified (recovered from the ploughed subsoil and roughly plotted to the western third of the site) material from ARC CGC 98 was scanned only. Its composition was very similar to the rest of the material from this site.

3. Quantifications

- 3.1 A total of 226 pieces of worked flint and 145 pieces of burnt unworked flint (weighing 7111g) was recovered from ARC CGC 98.
- 3.2 Five pieces of worked flint and 10 pieces of burnt unworked flint (weighing 35g) came from ARC 330 98. The flint is summarised in the Tables below.

4. Provenance

- 4.1 The worked flint was recovered from only a relatively limited number of contexts. The burnt unworked flint was spread over more contexts and concentrations, by both numbers and weight can be noted in several contexts eg [160] and [176]. The distribution by weight is slightly more varied.

- 4.2 The flint came from a range of features across Area 330 Zone 5 but were mostly recovered from Cobham Golf Course, ARC CGC 98 and a flint scatter to the east of Knights Place Farm. From ARC CGC 98 flint was recovered from pit and ditch fills, and also from a later ploughsoil. At Knights Place Farm the flints were found redeposited in a later ploughed soil.
- 4.3 Good groups were recovered from ARC CGC 98 ditch fills, pit fills and layers, in particular contexts [161], [221], [223], [227] and [248]. Middle and late Bronze Age pottery was also recovered from these features. In addition many of these features produced burnt unworked flint, indicating a range of domestic tasks were being carried out, the debris being deposited in selected features across the site.
- 4.4 Some of the material from these contexts may well refit. No refits were identified during the assessment, although possible refits were identified in contexts [161] and [221] (Table 11) and the similarity of some of the raw materials suggests that this would be a worthwhile exercise. Similarly several examples of usewear and possible usewear were identified during the assessment (eg contexts [223] and [248] see Table 11). The numerous different types of cores recovered, the flakes and trimming flakes all indicate the approach to knapping that was taken: rough nodules were worked fairly unsystematically to remove useable cores. Other cores were worked slightly more systematically.
- 4.5 Very limited evidence for a pre-middle Bronze Age presence was suggested by the lithics: a few blades and blade-like flakes were recovered. However, these may simply have been produced non-intentionally during knapping, as many Bronze Age assemblages have a limited proportion of blades, rather than as deliberate removals. A possible Mesolithic burin was recovered from context [3002] (ARC 300 98).
- 4.6 Earlier, nearby archaeological evaluations at Cobham produced evidence for Neolithic and early Bronze Age activity (Durden 1997; Pre-Construct Archaeology 1996).

5. Conservation

- 5.1 The flint is appropriately bagged and boxed for long-term storage. Some of the burnt unworked flint is beginning to disintegrate, however, there is little that can be done to prevent this. No conservation is required. All of the natural flint has been discarded.
- 5.2 Selected burnt unworked flint could be discarded, keeping only a selection of representative material for archive purposes. The full quantification (by weight and number), together with a description of the material discarded would provide sufficient records for any future work.

6. Comparative material

- 6.1 Little material on middle to late Bronze Age lithics have been published from Kent and little useful comparative material has been recovered from the CTRL works in Area 330/350. Some crudely worked fairly undiagnostic material came from Area 330 Zone 3 (Bradley 2001) which may be contemporary with the Zone 5 material. An assemblage of later Bronze Age flint came from Coldharbour Road, Gravesend (Bradley 1995), and the MSA at Hollingbourne (Bradley 1998).
- 6.2 In a wider context later Bronze Age assemblages have begun to receive attention. Recent work on usewear analysis, coupled with reduction technology and site distribution, has produced some interesting results (Brown and Bradley forthcoming). These results, at Wallingford have shown that retouch was only used in certain cases when the users' hands required protection; many pieces were used unmodified or with very minimal retouching. This is a pattern that can be seen across Britain during the later Bronze Age.

7. Potential for further work

- 7.1 The numerous cores, core fragments, flakes and trimming flakes (Table 11) will provide an excellent opportunity to examine later Bronze Age knapping strategies, which have shown to be of considerable interest nationally (cf Brown and Bradley forthcoming). Examination of flake types may also show that particular flakes (eg trimming flakes) were selected for retouching or use unmodified. The detailed examination of the flint in conjunction with the ceramics may elucidate chronological differences in the lithics. The distribution across the site in conjunction with a more detailed examination of the middle and later Bronze Age ceramics will also provide some interesting data, although the lithic assemblage is on the small side for detailed statistical analyses to be undertaken.
- 7.2 The flint can contribute to the following time period research objectives:
Farming communities (2,000-100BC).
- *Determine spatial organisation of the landscape in terms of settlement location in relation to fields, pasture, woodland, enclosed areas and ways of moving between these*
 - *Determine how settlements were arranged and functioned over time.*
- 7.3 Lithics may help to clarify the pre-late Bronze Age activities on site but given the generally small numbers and the lack of diagnostic forms this may be somewhat limited.
- 7.4 The majority of the lithics are clearly middle to later Bronze Age in date and as such have great potential to elucidate the domestic use of the landscape at this time.
- 7.5 The flint should be examined for possible usewear data and possible refits that have been identified during the assessment. Detailed analysis of the flint will enable any reduction sequences to be reconstructed. The possible usewear will require low-level microscopic analysis to enable the type of wear to be categorised.

- Investigate/confirm possible refitting flint and analyse for usewear
- Detail comparison with ARC CGC 97 etc lithics
- Time for preparing publication
- A selection of lithics would require illustration (around 20 pieces – cores and retouched forms)

8. Bibliography

- Bradley, P 1995 The struck flint in, Excavations at Coldharbour Road, Gravesend, Kent (A. Mudd), *Archaeologia Cantiana* **114**, 394-399
- Bradley, P 1998 Worked flint, in Archaeological investigations on the Motorway Service Area, Junction 8, M20 at Eyhorne Street, Hollingbourne, Kent (I Scott), *Archaeologia Cantiana* **117**, 134-137
- Brown, A and Bradley, P forthcoming Worked flint, in A Cromarty, A Barclay and G Lambrick *Excavations at Whitecross Farm Wallingford*, OAU monograph
- Durden, T Worked flint assessment (ARC CGC 97), unpublished OAU report for URL
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Table 11: ARC CGC 98 Worked Flint

Context	Count	Period	Comments
73	4		Flakes, all worn
73	1		?tested nodule/irreg worked core, also 4 natural
110			5 natural inc 1 sarsen frag
112	1		Small flake
144			1 natural
146	2		1 burnt poss used?, 1 CRF - platform
132	1		Trimming flake ?used edge
160			Lump of sarsen - unworked
161	10		All large and many cortical - some poss refits?
161	2		Cores irregularly worked also 5 natural
162	1		Flake with ?used edges
164	13		Some trimming flakes, some used edges, several irreg flakes, 1 burnt flake
164	1		Misc retouched flake
176	1		Trimming flake
192	6		Inc 1 thick flake from a nodule
192	2		Core/core frags both irregularly worked, Also 6 natural
194	1		Single platform flake core irregularly worked
196	2		Slightly irregular trimming flakes
196	1		Multi-platform flake core, irreg worked
198	1		End and side scraper, on thin blank some cortex, neatly retouched, some wear to scraping edge
198	2		Two flakes, also 1 natural
198	1		?tested nodule, irregularly worked, possibly natural
200	1		Denticulate on a thick side trimming flake
200	1		Multi-platform flake core many overhangs and hinges, also 2 natural
202	-		Non-flint ?worked stone
202	1		Thick trimming flake
202	2		Two tested nodules very crudely worked, also 3 natural
204	2		1 trimming flake, 1 possible flake - very crudely struck, also 5 natural
221	4		Blade-like SH flakes
221	41		Many irregular flakes, many trimming flakes, some used edges, poss refits? , also 3 natural
221	5		Multi-platform, irregularly worked cores, many HFs and overhangs and incipient cones
221	1		End and side scraper on cortical blank, retouch is relatively neatly executed
221	1		End scraper of thick cortical blank, minimal retouch at distal end
221	2		Denticulates, 1 is minimally retouched, other is semi-circular in shape and quite elaborate
221	1		Retouched flake, irregular retouch on irregular thick flake

Context	Count	Period	Comments
223	1		End scraper on cortical blank minimal retouch ?used edges
223	1		Piercer on cortical blank, small point
223	26		Many cortical flakes, some very irregular, some used edges, mostly HH
223	1		2 platform core, irreg worked
223	36		Flakes - some trimming, many large irregular ones, some used edges, many HFs, also 1 natural
223	3		Blade-like SH flakes
223	2		Serrated/worn flakes both on blade-like blanks
223	1		Single platform flake core on large irregular nodule
223	1		Multi-platform flake core
223	1		Core on a flake
223	1		End and side scraper on thick cortical flake, very crudely worked, partly denticulated retouch
225	3		Flakes, poor quality flint
225	1		Retouched flake, minimal retouch poss used as a scraper
227	8		Many irregular flakes, and trimming flakes
227	2		End scrapers both on trimming flakes, thick blanks
227	1		Single platform flake core irregularly worked, burnt
233	1		Flake, poor quality flint
237	1		Small flake fragment
242	5		Multi-platform flake cores, all large (2 very large irreg nodules), little controlled working
248	7		Flakes inc some very large eggs, some used edges, mostly HH
248	1		Denticulate
248	1		End scraper on fairly thick non-cortical blank, minimal retouch
248	1		Serrated/worn flake
248	3		Core fragments all quite irregularly worked
248	2		Irregularly worked cores also 2 natural
Total	226		

Key:

HH Hard hammer

SH Soft hammer

HF Hinge fracture

Table 12: Burnt Flint ARC CGC 98

Event code	Context	Count	Weight	Comments
ARC CGC 98	61	1	74	Small burnt pebble, also 2 natural
ARC CGC 98	112	2	141	Calcined grey
ARC CGC 98	122	1	89	Calcined grey
ARC CGC 98	128	4	284	Calcined grey and red
ARC CGC 98	136	2	195	Calcined grey
ARC CGC 98	136	6	36	
ARC CGC 98	138	3	167	Calcined grey
ARC CGC 98	142	1	99	Calcined grey
ARC CGC 98	142	6	86	Calcined grey
ARC CGC 98	146	2	140	Calcined grey
ARC CGC 98	148	4	406	Calcined grey
ARC CGC 98	160	9	118	Calcined grey
ARC CGC 98	160	37	2257	Calcined grey and occasional red, mostly large nodules/frags
ARC CGC 98	160	7	289	Calcined grey
ARC CGC 98	161	2	37	Calcined grey with red tinges
ARC CGC 98	162	25	642	Calcined grey
ARC CGC 98	164	3	164	Calcined grey
ARC CGC 98	168	2	140	Calcined grey
ARC CGC 98	176	5	3	Calcined grey
ARC CGC 98	176	2	110	Calcined grey
ARC CGC 98	176	14	1178	Calcined grey, inc large pieces from nodules
ARC CGC 98	178	3	281	Calcined grey
ARC CGC 98	182	1	5	Calcined grey, also 25 natural
ARC CGC 98	223	2	141	Calcined grey
ARC CGC 98	227	1	29	Calcined red
Total		145	7111	

Table 13: Worked Flint ARC 330 98

Event code	Context	Count	Period	Comments
ARC 330 98	3002	2		1 slightly worn, other is a flake from an opposed platform core - flake removals
ARC 330 98	3002	2		serrated/worn flakes possible gloss
ARC 330 98	3002	1	Mesolithic	possible burin on large partly cortical flake
Total		5		

Table 14: Burnt Flint ARC 330 98

Event code	Context	Count	Weight	Comments
ARC 330 98	362	10	35	Calcined white to grey
Total		10	35	

APPENDIX 5: ASSESSMENT OF SHORNE/COBHAM BOUNDARY STONE

Mark Samuel

1. Introduction

- 1.1 The stone was placed in its location on Old Watling Street in 1808 as a result of a direction from the Justices of Peace of the Rochester Assembly Rooms on 6th May 1808. The direction arose following a dispute between the parishes of Cobham and Shorne as to the responsibility for the repair and maintenance of the highway from Ifield to Rochester along which lay the parish boundary.
- 1.2 The total section of the highway in 1808 was 3,637 yards and the Justices ordered that the highway be divided at the mid point, where the stone would be erected. All the highway to the west of the stone was to be repaired by Cobham Parish and all that to the east by Shorne Parish.
- 1.3 The *in situ* stone was square with chamfered edges and sat 235mm above the existing ground level. It had carved detail to the north, west and east faces which took the form of the date, 1808 on the north face, the letters S & P on the east face and the letters C & P on the west face. The south face and the top surface were plain.

2. Methodology

- 2.1 Between the recording of the above details (1997) and the URS excavation at Watling Street (ARC WS 98) in 1998, the above ground section of the stone, complete with the inscription, had been broken off. The stone itself, upon location in 1998, lay beneath a heap of broken concrete and hard core rubble.
- 2.2 After recovery, the recording of the stone involved a hand drawing and detailed description of each face and both ends. These drawings were then digitised onto CAD. Each face of the stone was then photographed in large format colour and black and white.

3. Quantifications

- 3.1 The block was nine inches square (228.6mm) in cross section and was geometrically cut. It had a fine or bland finish, featureless even where it was not subsequently worn. The corners are roughly chamfered, the chamfers stop at different points along the block. One end of the block is snapped (modern break where the inscription has been previously recorded), while the other is very roughly cut to form an approximately level end.
- 3.2 A mass of rough stone projecting from one face is the only feature, and this bears signs of tooling.

4. Provenance

- 4.1 The Watling Street site ARC WS 98 comprised five trenches laid out across the line of a modern road, Watling Street. Each trench was up to 50m long and up to 10m wide. They were positioned at intervals over a distance of 1km along the road and numbered 1 to 5 from east to west. The western extremity of this stretch of road (Trench 5) was at URL grid 48050 49575, corresponding approximately to Ordnance Survey national grid reference (NGR) TQ 6805 6960. On the southern side of Watling Street at Trench 5 the Cobham/Shorne boundary stone was located.
- 4.2 An eye examination of gross characteristics shows the stone to be a fine-grained oolitic limestone. The hardness, weight and distinctive 'ring' when hit indicated that this was probably Portland stone from Dorset, but no distinctive oyster fossils are present.
- 4.3 The stone was clearly re-used. The high finish and the geometrical precision indicated that this stone originally had an architectural function and the polished tooling implied that almost the whole stone was intended to be visible. Only the presence of a tenon shows how it was supported. A morticed stone of similar section fitted against one facet. It seems this stone was part of a horizontal balustrade or similar, supported at regular intervals by uprights. The absence of any ornamentation could be evidence that the stone derived from an industrial or commercial building. The use of Portland stone, combined with the lack of ornament, suggests a date after the mid-17th century but an earlier date is not impossible.
- 4.4 The block was probably at least twice its present length prior to re-use. One end was cut to an approximate plane and the only then were the corners were chamfered. The block was then set vertically on its new end. The differentials of wear indicate that the stone was deeply set in the ground.

5. Conservation

- 5.1 The stone requires no conservation and the missing section of the inscription has been reconstructed by URS.

6. Comparative material

- 6.1 There is the possibility that this stone came from a rebuilding phase of a nearby high status building such as Cobham Hall.

7. Potential for further work

- 7.1 The stone has little potential for further work beyond dating and indicating the recent boundary between Shorne Parish And Cobham Parish, along the line of medieval/post-medieval Watling Street.

8. Bibliography

None

APPENDIX 6: ASSESSMENT OF STONE (HUMANLY-MODIFIED AND UNWORKED)

Mark Samuel

1. Introduction

- 1.1 Two pieces of stone were recovered from Area 330 Zone 5. The first was a fragment of architectural stone from the backfill of Ashenbank Wood Pond (ARC 330 98), discovered when the pond was emptied and dating to the post-medieval period. The second was a single stone 'pebble' (probably used either for baking or as a pestle), recovered from Cobham Golf Course (ARC CGC 98) and dating to the late Bronze Age.

2. Methodology

- 2.1 The architectural fragment was scanned and weighed, and details were entered on the MoLAS building material form. The stone was noted using the Museum of London geological type series and its role was described and illustrated with a sketch.
- 2.2 The Late Bronze Age stone was examined and compared with other stone types held in a stone reference collection at the Museum of London.

3. Quantifications

Table 15: Worked Stone from Area 330 Zone 5

Event code	Context	Count	Weight (g)	Type	Period	Comments
ARC CGC 98	221	1	840	Sandstone	LBA	3121 'BAKING STONE' /PESTLE
ARC 330 98	599	1	15600	Sand/oolitic limestone	PM	Window sill with stooling for jamb, 1540-1680

- 3.1 Window sill with stooling for jamb. The hard and dense building stone is a sandstone/oolitic limestone with some grains of glauconite; it is as yet unsourced. The sill derives from the corner of the sill (rather than the head) of a rectilinear window. The stooling (or adapter) for the jamb reveals that it had a simple hollow-chamfered moulding. The sill weathered significantly *in situ* which reveals that the building that it derived from was old when demolished.
- 3.2 The glazing was supported on iron bars of square section. The astragal (or upright) was set diagonally in the sill as is normal Elizabethan/Jacobean practice. The dressing was cut with a pitcher chisel.
- 3.3 There was a single, very hard fine-grained laminated piece of sandstone weighing 840g, dating to the late Bronze Age.

4. Provenance

- 4.1 The architectural fragment is likely to have derived from a farmhouse or other building of the Yeoman class. It is indicative of a measure of wealth and comfort. The building stone is probably regional.
- 4.2 The surviving dressing is well-preserved, but any reconstruction stemming from it would have to be conjectural in size and detail.
- 4.3 The Late Bronze Age stone was recovered from a pit at Cobham Golf Course and was dated by associated pottery fragments.

5. Conservation

- 5.1 No conservation is required, but the architectural fragment needs to be more securely packed.

6. Comparative material

- 6.1 The architectural context of this fragment can be studied through publications such as those written by Richard K Morris (1978-9 and 1992).
- 6.2 Stones are found on Bronze Age settlement sites and are usually referred to as 'baking stones' upon which food was cooked, or pestles, used for grinding. It is considered that the stone is more probably a pestle. There are no comparative examples from the CTRL works in this area.

7. Potential for further work

- 7.1 This item of architectural stone has no further potential beyond the record made in this assessment report.
- 7.2 The Late Bronze Age stone 'pestle' will help to clarify food preparation methods in the Late Bronze Age and adds to the corpus of domestic material recovered from Cobham Golf Course.

8. Bibliography

Morris, RK, 1978-9 'The development of later Gothic mouldings in England'
Architectural History **21 & 22**, 21-57, 1-48

Morris, RK, 1992 'An English glossary of medieval mouldings: with an
introduction to mouldings c.1040-1240', *Architectural History* **35**, 1-
17

Additional references:

Gallois RW and Edmunds FH, 1965 'The Wealden District' *British Regional
Geology Guide*

Worssam B C and Tatton-Brown TWT, 1993 'Kentish Rag and other Kent
building stone' *Arch. Cant.* **112**

APPENDIX 7: ASSESSMENT OF METALWORK

Jackie Keily

Conservation by Liz Barham

1. Introduction

- 1.1 Only one metal accession was recovered from ARC 330 98 in Zone 5, part of a handle for an iron tool or fitting, now in two fragments.
- 1.2 The artefact was recovered by means of metal detection.
- 1.3 It is not thought that the metal accession can assist any of the fieldwork event aims.

2. Methodology

- 2.1 The metal find has been accessioned in accordance with the Museum of London system.
- 2.2 The records have been entered onto the Oracle relational database.
- 2.3 The metal work from this phase of work was not sampled.

3. Quantifications*Table 16: Assessment of Metalwork from ARC 330 98*

Context	Special Number	Material	Count	Period	Comments (Description)
CH 44+560	84	Iron	2	Post-medieval	Two fragments of a tool or fitting, with a loop handle

4. Provenance

- 4.1 The iron was recovered from CH 44+560 and is therefore unstratified.

5. Conservation

- 5.1 The metal artefact is stable and packed appropriately for long term archive storage. However, consideration should be given to discard for such an object.

6. Comparative material

- 6.1 There is no scope for comparative work.

7. Potential for further work

7.1 It is not thought that the metal find can assist with any of the Landscape Zone aims or the Fieldwork Event aims.

7.2 No further work is required on the metal find.

8. Bibliography

None

APPENDIX 8: ASSESSMENT OF ANIMAL BONE

Alan Pipe and Kevin Rielly

1. Introduction

- 1.1 Animal bones were recovered during excavation works at Cobham Golf Course (ARC CGC 98) and also from the Watching Brief (ARC 330 98).
- 1.2 Animal bones were recovered by hand-collection on site and through wet-sieving bulk samples taken in the field. All hand-collected animal bones were washed and air-dried, then bagged and labelled as context groups. Bulk samples were washed using a modified Siraf tank fitted with 1.0mm and 0.25mm flexible nylon mesh to retain the residue and flot fractions respectively. These fractions were visually sorted for floral and faunal remains and labelled as individual sample groups.
- 1.3 The study of the material was carried with regard to the following Fieldwork Event Aims:-
 - To recover environmental, and other economic, indicators if these are to be found to be present on site
 - to determine the ritual and ceremonial uses of the landscape

2. Methodology

- 2.1 All contexts containing faunal remains were analysed and recorded onto the ORACLE CTRL animal bone database. No sub-sampling of contexts was carried out. Identifications of species and carcase part were made using the MoLSS Environmental Archaeology Section reference collection together with Schmid (1972).

3. Quantifications

- 3.1 Each of these two sites provided very small quantities of animal bones. Cobham Golf Course produced bones from just one soil sample, which contained a highly fragmented assemblage of 125 fragments weighing 0.02kg. Two of these bones could be identified to species. A total of 0.01kg, or 14 fragments, from a soil sample was recovered from ARC 330 98. None of the hand collected bones from ARC 330 98 could be used for study of stature or age. The quantities of identifiable, ageable and measurable bones from each of these contexts is displayed in Table 17.
- 3.2 Table 18 shows the percentage of identifiable fragments represented by all of the specified species groups. All contexts are recorded in the table, including environmental samples. It is evident that these deposits provided a limited range of species, and that there is no obvious pattern of species abundance.

4. Provenance

- 4.1 The main notable aspect of the animal bone assemblage is the extremely limited quantity of the material. The sand rich/acidic nature of Area 330 Zone 5 appears to have ensured that the animal bone has almost entirely disintegrated.
- 4.2 The ARC CGC 98 assemblage was recovered from the sampled contents [144] of pit [145], which was sampled due to the possibility of it being a human cremation. This deposit was described as 'charcoal-rich', the charcoal perhaps representing the remains of the fuel which had been used in the firing/cremation. The bones, unfortunately, were very fragmented and could not be identified to species. This feature could be late Bronze Age in date, assuming this was associated with adjacent pits dating to this period, as for example pit [142].
- 4.3 The bones from the watching brief ARC 330 98, were taken from two pits [294] and [365], the latter feature dated to the late Bronze/early Iron Age, while the former remains undated. A sample taken from the latter pit provided a small collection of calcined bone fragments. This collection was similar to that previously described from ARC CGC 98, with identification severely limited by the high level of fragmentation. There was just one diagnostic piece, the root of a tooth, which may be pig. It should be mentioned that these calcined bones (from ARC 330 98 and ARC CGC 98) were shown to Bill White (human osteologist at the Museum of London Specialist Services), who confirmed that there were no obvious examples of human bone amongst the two collections.
- 4.4 A very small quantity of animal bones was found in the undated ARC 330 98 pit. This consisted of a single dog bone.

5. Conservation

- 5.1 It is recommended that all material be retained for the next stage of the analysis and for any future comparative work

6. Comparative material

- 6.1 These assemblages could be compared to other concentrations of calcined bones recovered along the CTRL route. There is the possibility that they represent cremations, and would therefore be 'ritual' in nature. If this is the case, then they could be compared to the cremations recovered from the Area 330 Zone 3 excavations, here perhaps with the intention of determining changing methods of cremation through time.

7. Potential for further work

- 7.1 It can be assumed that the potential value of the bones recovered from the Area 330 Zone 5 excavations is minimal as the quantities are extremely small.
- 7.2 There is very little potential for any study of the economic use of the animals represented, especially as the identified parts are limited to one dog bone, from

an undated pitfill from ARC 330 98, and a possible pig tooth from the ARC 330 98 'cremation'.

- 7.3 There is perhaps some potential concerning the ritual use of animals (CTRL research aim *Ritual and ceremonial use of the landscape*), as shown by the two possible cremations from the prehistoric pits. Unfortunately, neither of these two collections contained fragments identifiable to species-level. There was a possible identification of a pig tooth, which may suggest a ritual use of animal domesticates. Conversely, both collections may simply represent the remains of hearth sweepings.
- 7.4 It is recommended that some further work be undertaken on the calcined bone collections in order to ascertain whether any bones can indeed be identified to species. The distinction between human and animal is clearly of some importance. Such data could add to the understanding of human burial practises with or without animal offerings, and also to the 'ritual' use of animals as offerings/sacrifices within the daily life of the prehistoric occupants of this area.
- 7.5 Given the possibility that there may be some animal bones within the calcined collections, and in order to meet the research aim concerning the ritual and ceremonial uses of the landscape, it will be necessary to provide the following (the second and third tasks will depend on the outcome of the first task):-
 - Identification of the calcined bones
 - Research into contemporary animal/animal and human cremations
 - Writing the report

8. Bibliography

Schmid, E, 1972, Atlas of animal bones for prehistorians, archaeologists and Quaternary geologists Amsterdam, New York, London, Elsevier

Table 17: Assessment of animal bone – quantity of identifiable bones, age, measurements and butchery

Site	Context	N. iden.	N. ageable	N. meas.
ARC CGC 98	144	2	1	0
ARC 330 98	295	1	1	1
ARC 330 98	364	0	0	0

N - approximate number of bones. iden - bones identifiable to species/species group

Table 18: Assessment of animal bone – species, quantity and interpretation

Site	Context	S.No	Interpretation	Period	% of identified fragments									Count	Weight (kg)
					Sheep goat	Cattle	Pig	Horse	Dog	Small mammal	Bird	Fish	Other		
ARC CGC 98	144	10	Pit		0	0	0	0	0	0	0	0	100	125	0.025
ARC 330 98	295	0	Pit		0	0	0	0	100	0	0	0	0	1	0.02
ARC 330 98	364	72	?Cremation	LBA/EIA	0	0	0	0	0	0	0	0	0	10	0.002

LBA Late Bronze Age
EIA Early Iron Age

APPENDIX 9: ASSESSMENT OF CHARRED PLANT REMAINS & CHARCOAL

Anne Davis

1. Introduction

- 1.1 A total of 26 bulk soil samples were taken for environmental analysis during the excavation of the two sites in Zone 5; 20 came from ARC CGC 98, and six from ARC 330 98. The sampled deposits came from mainly from fills of pits and ditches, with a few from post-holes and a possible furnace. Those which have been spot-dated so far are all from the middle to late Bronze Age, but the majority are currently undated. Sample sizes ranged from 3 to 40 litres. A report on two further samples was written as part of the evaluation (Campbell & Pelling 1997), and concluded that charred remains were poorly preserved on the site.
- 1.2 It was hoped that the study of botanical material from this site would provide information on economic activities, for example crop husbandry.

2. Methodology

- 2.1 The samples were processed by flotation, using a Siraf flotation tank, with meshes of 0.25mm and 1.0mm to catch the flot and residue respectively. All flots and residues, were dried, and the residues were fully sorted by eye for artefacts and biological material. The flots were briefly scanned using a low-powered microscope, and the abundance, and general nature of plant macrofossils and any faunal remains were recorded, using the following scale for the number of charred items per sample:
 - += 1-10
 - ++ = 11-50
 - +++ = 51-100
 - +++ = 101-1000
 - 1000+ = >1000.
- 2.2 Results were recorded on the MoLAS ORACLE CTRL botany database.

3. Quantifications

- 3.1 Charred material was recovered from 21 of the assessed samples, mainly in the form of wood charcoal. In many cases this was poorly preserved and highly fragmented, although pieces large enough for species identification were recovered from 11 samples. Occasional charred cereal grains were seen in four samples, and cereal chaff, in the form of wheat glume bases and spikelet forks in two. Four samples contained very occasional weed seeds. The numbers of all these remains were very low, usually less than five items per sample.
- 3.2 Assessment data for the samples with identifiable charcoal or other remains is shown in tables 17 and 18.

4. Provenance

- 4.1 The charred cereal remains referred to above were found in four pitfills and a ditch fill, two of which were spot-dated to the late Bronze Age, while the remaining three are currently undated. Identifiable charcoal was recovered from a possible furnace, six pitfills, three ditch fills, and a post-hole, two of which have been dated to the middle or late Bronze Age.
- 4.2 The condition of the charred material was generally poor, and it may not be possible to identify all grains to species. Charcoal was mostly broken into very small fragments, but larger pieces were retrieved from some of the samples, as mentioned above, and may be identifiable. The majority of samples included rootlets, and sometimes uncharred seeds, of modern origin. It is therefore possible that some of the charred material could be intrusive.

5. Conservation

- 5.1 The dried flots, and plant material from the residues, have no particular conservation requirements.

6. Comparative material

- 6.1 No comparative material has been found from Bronze Age sites in this area of Kent. No Bronze Age environmental material was recovered from Area 330 Zones 1 to 4. There is a good sample from Area 350 Zone 6 (Cuxton ARC CXT 98 – sample <11>) but this is dated to the middle Iron Age. In addition there are good samples from White Horse Stone (ARC WHS 98) but these are dated to the Neolithic.
- 6.2 Further afield, similarly small assemblages of charred cereals and charcoal have been found from Bronze Age features at Cranford Lane, Heathrow (Giorgi 1995), and excavations at the Beddington Sewage Farm, Croydon (de Moulins forthcoming).

7. Potential for further work

- 7.1 Very few plant remains were recovered from the samples within the Zone 5 area, so their value in answering the project aims is limited. As there have been very few studies of plant remains from Bronze Age sites in this area of Kent, analysis of the five samples containing cereal remains may contribute to our knowledge of cereal use and cultivation in this period. Identification of the 11 charcoal samples will indicate the wood species being exploited, although it is unlikely that the small fragments found will reveal much about woodland management. This work would be justified as the deposits concerned can be securely dated.
- 7.2 There is potential for using the charcoal from the barrow ditch ([227] and [229]) for radiocarbon dating.

- 7.3 Four flots (samples <4>, <<10>, <11> and 12>, based on the grain, chaff, charred seeds and uncharred seeds contents), will be sorted, and charred cereal remains from these and from the sample residues, identified and counted, using a low-powered microscope. The environmental preferences and soil requirements of weed species will also be investigated. Charcoal samples will be identified to species where possible, using an epi-illuminating microscope.
- 7.4 The resources required to complete this work, and preparation of a publication report, are as follows:
- Sorting and identification of charred cereal remains
 - charcoal identification
 - data entry & preparation of table
 - preparation of publication report

8. Bibliography

- Campbell G. & Pelling R. 1997 'Environmental indicators' Cobham Park Golf Course (ARC CGC97) evaluation report.
- Giorgi J. 1995 Assessments of plant remains from Cranford Lane (CFL94). Unpublished MoLAS assessment reports BOT/ASS/07/95, 24/95, 26/95, 28/95.
- de Moulins D. forthcoming

Table 19: Assessment of Charred Plant Remains & Charcoal from ARC CGC 98

Key + = 1-10, ++ = 11-50, +++ = 51-100, +++ = 101-1000, 1000+ = >1000.

Sample Details					Flot & Residue Details							Residue	
context no.	Sample no.	feature type	period	Sample vol. (l)	flot vol. (ml)	grain	chaff	charred seeds	unch'd seeds	charcoal	comments	vol. (ml)	% sorted
132	15	Ditch	LBA	10		+				+++	No flot. 5 grains (wheat?) in residue.	1000	100
136	4	Pit	LBA	10	200	++	+	+	+	>1000	C.10 grains. 5 glume base & sp forks. 5-10 seeds incl legume. Rootlets.	2000	100
140	12	Pit		10	250			+	+	>1000	V. few seeds. ?identifiable charcoal.	300	100
144	10	Pit		10	70		+	+	+	>1000	<5 charred seeds, chd stems. 1 glume base. ?identifiable charcoal. Rootlets.	500	100
150	11	Pit		10	80				++	>1000	?identifiable charcoal. Rootlets.	200	100
160	6	Pit	LBA	10						+	Few ?identifiable charcoal frags.	2000	100
176	9	Posthole	M/LB A	10	5	+				++	1 grain seen. Few ?identifiable charcoal frags. Rootlets.	1000	100
180	8	?hearth		10	100					>1000	Some identifiable charcoal frags. Rootlets.	1000	100
227	20	Ditch	?EBA	10	5			+		+++	1/2 large charred seed. ?identifiable charcoal. Rootlets.	1000	100
229	21	Ditch	?EBA	10	40					+	Few ?identifiable charcoal frags.	500	100

Table 20: Assessment of Charred Plant Remains & Charcoal from ARC 330 98 (Zone 5)

Sample Details				Flot & Residue Details							Residue	
context no.	sample no.	feature type	sample vol. (l)	flot vol. (ml)	grain	chaff	charred seeds	unch'd seeds	charcoal	comments	vol. (ml)	% sorted
361	70	Ditch	10	10				+	>1000	Few ?identifiable charcoal frags. Rootlets.	2000	100
605	161	Pit	10		+				+	No flot. 3 ?wheat grains in residue. Few ?identifiable charcoal frags.	1500	100
606	160	Pit	10						+	Few ?identifiable charcoal frags.	1000	100

APPENDIX 10: ASSESSMENT OF GEO-ARCHAEOLOGY

Jane Corcoran

1. Introduction

- 1.1 Two monolith samples were taken through the fills of a Bronze Age ring ditch. The aim of the monolith assessment was to characterise and attempt to interpret the fills in terms of the changing landscape processes on the site; and to suggest further work that should be undertaken in order to gain a better understanding of the changing environment and human activities in the environs of the site.
- 1.2 The monolith samples were obtained by hammering a 500mm x 50mm x 50mm tin into the cleaned section face. The sediments and stratigraphy visible in section were described and drawn by the excavators on site. The monolith location was marked on the section drawing and a level, related to Ordnance Datum was taken on the top of the tin.

2. Methodology

- 2.1 The sediments sampled in the tin were cleaned and described using standard sedimentary criteria. This attempts to characterise the visible properties of each deposit, in particular relating to its colour, compaction, texture, structure, bedding, inclusions, clast-size and dip.
- 2.2 Each different unit observed was given a separate letter and the nature of the contacts between the units was described.

3. Quantifications

- 3.1 This section gives the results of the monolith assessment. The sequence is described in the following table. In this table the depth down from the top of the sampled profile is given for the contacts between the units and brackets denote the thickness of the individual units.

Table 21: Assessment of Geo-Archaeology

Unit	Depth of contact from top of sequence	Description and Contacts Sample <23> through context (223) ring-ditch cut [224]	Slabs of column sample
		TOP OF MONOLITH SEQUENCE (c.80.65m OD)	
A	[0.50m thick]	Yellowish brown 10YR5/6 slightly clayey slightly sandy possibly humic SILT. Soft and variably compact, or crumbly and loose (may relate to former large root channels). Moderate to frequent small angular, with occasional rounded, flint gravel, typically 10-20mm diameter. Frequent manganese speckles and very occasional iron concretions.	1-9
	0.50m	Diffuse contact to:	
B	[0.10m thick]	Light yellowish brown 10YR6/4 slightly sandy silt. Moderately soft, compact and moderately hard. Moderate to frequent small angular, with occasional rounded, flint gravel, typically 10-20mm diameter. Frequent manganese speckles. This may be a transition Zone between units A and C.	10
	0.60m	Diffuse contact to:	
C	[0.10m thick]	Yellow 10YR7/6 slightly sandy silt. Compact and hard. Occasional small angular, with occasional rounded, flint gravel, typically 10-20mm diameter. Frequent manganese speckles and occasional iron concretions.	11
	0.70m	BASE OF DITCH and monolith profile	

4. Provenance

- 4.1 The fill in this segment of the ditch had been described as one context (223) on site. However description of the monolith identified a 0.10m thick paler, harder and slightly sandier lower unit (C) with a 0.10m thick gradual interface Zone (B) below a thicker and possibly more humic, silty upper fill (A) that was 0.50m thick.
- 4.2 Manganese and occasional iron concretions were present throughout the profile, suggesting episodically damp conditions in the ditch. However no visible plant remains were preserved.
- 4.3 Looser patches within Zone A may be the result of (ancient or recent) rooting or burrowing although no finer root channels were observed within the profile, which might suggest rapid infilling with little or no vegetation growth.

- 4.4 No depositional structures were observed and it is possible that the sediment accumulated gradually, perhaps as a result of soil creep from the banks and the surroundings of the ditch and became incorporated into the ditch soil. This would be compatible with the gradual contact and interface Zone (unit B) between units A and C. The lack of rooting may possibly result from oxidising and possibly bioturbated conditions.
- 4.5 However the contrast in colour, texture and hardness between the lowest fill (C) and the thicker upper fill (A) indicates different sediment sources, depositional processes and / or post-depositional processes for these deposits.
- 4.6 This might suggest that the greyer unit B developed by weathering of the primary fill, unit C, which may have been derived from the sides of the ditch. This could have taken place at the same time as inputs from the source material (surrounding soil?) of unit C and was later buried by more rapid deposition of unit A.
- 4.7 This may support the suggestion that the initial environment of the ring-ditch was fairly stable but subsequent activities, perhaps linked to the establishment of the nearby late Bronze Age settlement, caused large scale earth movement and possibly levelling of the earthworks.
- 4.8 The very high silt content of the fills is also notable. This may be comparable to the fine, well sorted fills of Bronze Age ditches and postholes frequently found elsewhere in southern Britain. These fills have been attributed to drier climatic conditions during the Bronze Age (Evans 1975, 142) which, together with landscape disturbance is likely to have led to widespread wind erosion and transport.
- 4.9 In order to better understand the significance of the ring-ditch fills in terms of the changing landscape and landuse in the environs of the site, pollen and soil micromorphological analysis should be undertaken. This work will enable the sediment source, depositional processes and changing vegetation of the site and surrounding area to be investigated. The filling of the ditch has been dated by pottery to the early Bronze Age by pottery, furthermore there is the potential for the charcoal in the ditch fill to be dated using ^{14}C and this should provide an adequate framework for this environmental work.

5. Conservation

- 5.1 If thin sections are made of the monolith they will take up less storage space, stand a better chance of long term preservation and be amenable to a similar method of archiving to that for finds and environmental samples. As monoliths, samples are not easily stored, need to be kept in a cool to cold and dark environment and will be likely to deteriorate with time. In addition thin sections are easily available for further research and can be examined frequently without loss of information. Stored monoliths are less accessible and will gradually lose their potential for preserving information, especially as each time they are examined further cleaning will wear away the surface.
- 5.2 In the same way, processed sub-samples taken from the monolith will be easier to store and less likely to deteriorate than the original soil material and will provide supporting information to the thin sections.

- 5.3 Long term storage as a monolith sample is likely to be costly and is not an efficient use of space or archive material. After analysis, if not impregnated with resin and converted to thin sections, the sample should be discarded.

6. Comparative material

- 6.1 The pottery suggests that the ditch was excavated in the early Bronze Age and was filled by the middle Bronze Age (no artefacts from the nearby middle and late Bronze Age settlement were recovered from the ditch).
- 6.2 The evidence from further analysis of the monoliths should be compared to other evidence for the changing environment during the Bronze Age in the North Downs area and further afield. This will enable a better understanding of the perception, exploitation and modification of the landscape by Bronze Age societies to be gained.
- 6.3 No snails were preserved in sample column <22> taken adjacent to the monoliths.
- 6.4 The pollen and soil micromorphological analysis from the monolith samples taken through the Bronze Age barrow ditch at Whitehill Road (ARC WHR 99) should provide good comparative material relating to the infilling of a similar feature and timeframe.
- 6.5 Comparative material will also include the colluvial sequences sampled during CTRL investigations in many of the North Downs sites. Also published or otherwise available accounts of soil, pollen and snail evidence from buried soils and valley sediments from south-east England (eg: Godwin 1962; Thomas, 1989; Allen 1995; Preece & Bridgland 1998; Waller 1998; Waller and Hamilton 1998).

7. Potential for further work

- 7.1 The data from the monolith samples has potential to address the following landscape Zone and fieldwork aims:
- *To study the natural landscape, its geomorphology, vegetation and climate, as the context within which the archaeological evidence can be interpreted.*
 - *Farming communities (2,000 BC-100 BC): to consider environmental change resulting from landscape organisation and re-organisation.*
- 7.2 These aims may be achieved by pollen and soil micromorphological analysis of the ring-ditch fills.
- 7.3 Pollen analysis should enable the nature of the changing landscape during and after the construction of the ring-ditch to be reconstructed and soil micromorphology should enable the sequence of events that led to the infilling of the ditch to be unravelled.

Table 22: Recommendations for further work on the monolith samples

Task	Requirement
Preparation and analysis of pollen samples (*): <ul style="list-style-type: none"> • 5 at c. 0.40mm intervals through units A1 and A2 in <31> • 11 at c.40mm intervals through units A1 and A2 in <33> 	Pollen specialist
a) Impregnation of the 3 monolith samples and manufacture of 6 thin sections of c.110 x 70mm <ul style="list-style-type: none"> • from across contacts A1/A2 + A2/B in monolith <31> • from A1, A1/A2 and A2/B in monolith <33> • from A1/A2 in monolith <32> b) analysis / interpretation of the depositional and post-depositional characteristics recorded in these samples (*)	Likely to take 3 months to prepare the thin sections. Thin sections to examine PLUS report preparation
Comparison of the sequence and chronology of events with valley sediment profiles from other CTRL sites and from the published literature for the area.	Geoarchaeologist
* It is suggested that the thin sections / pollen slides should initially be scanned to assess their potential and, if suitable the analysis should be undertaken.	

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