

**Channel Tunnel Rail Link
London and Continental Railways
Oxford Wessex Archaeology Joint Venture**

**The Prehistoric Landscape at Whitehill Road
Barrow, Longfield and New Barn, Kent**

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CTRL Integrated Site Report Series

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ABSTRACT

The Museum of London Archaeology Service (MoLAS) was commissioned by Union Railways (South) Limited (a subsidiary of London and Continental Railways) to undertake a watching brief and detailed excavation between Fawkham Junction to Dale Road (Archaeological Zone 1) and from Dale Road to west of Hazells Farm (Archaeological Zone 2), southwest and south of Gravesend, Kent. This work formed part of an extensive programme of archaeological investigation carried out in response to the construction of the Channel Tunnel Rail Link (CTRL).

Earliest dated activity within the area may have taken place as early as *c* 4,000 BC with exploitation of spring lines at the valley floor east of Springhead. A barrow monument was set up to the west, at Whitehill Road: the original ditch around the barrow had partially filled in before the insertion of an inhumation burial. An amber necklace found with the body, while unusual in the Kent early Bronze Age tradition dates to latter part of the early Bronze Age. Human bone fragments from the burial gave a radiocarbon result of 3273±30BP (NZA-22740). When calibrated (1620-1440 cal BC) this indicates that the burial is post-Beaker. The construction of a second, outer concentric ditch around the barrow was also a secondary event, probably contemporary with the burial.

At Springhead, later Bronze Age colluvium sealed earlier features and was cut into by late Bronze Age pits and ditches. Apart from small amounts of late Iron Age material, there was no evidence for further activity until the 1st century AD when Roman field systems are laid out at Fawkham Junction and New Barn Road, and an enclosure constructed at South of Station Road. The Roman land use and activity was apparently short-lived and passed into disuse AD 100–150.

Later medieval and post-medieval activity within the landscape remained agricultural in character until the construction of the Gravesend West Railway in the mid 19th Century.

RÉSUMÉ

Le Museum of London Archaeology Service (MoLAS) fut chargé par Union Railways (South) Limited (une filiale de London and Continental Railways) d'entreprendre une surveillance archéologique ainsi que des fouilles, entre Fawkham Junction et Dale Road (Zone archéologique 1) et depuis Dale Road à l'ouest de Hazells Farm (Zone archéologique 2), au sud-ouest et au sud de Gravesend, dans le Kent. Ces travaux furent entrepris dans le cadre d'un programme de recherches archéologiques préventives de grande envergure, exécuté en avance de la construction de la ligne ferroviaire du Tunnel sous la Manche (CTRL).

L'activité la plus précoce identifiée dans les deux zones, a peut-être eut lieu aussi tôt que 4000 ans avant JC, avec l'exploitation de lignes d'eau du fonds de vallée, à l'est de Springhead. Un monument tumulaire fut érigé à l'ouest, à Whitehill Road : le fossé d'origine autour du tumulus s'était partiellement rempli avant l'insertion d'une tombe à inhumation. Un collier en ambre découvert avec le corps, bien qu'inhabituel dans la tradition de l'âge du Bronze dans le Kent, date de la période finale du début de l'âge du Bronze, environ 1700 à 1500 ans avant JC. La construction d'un second fossé extérieur concentrique autour du tumulus était également un événement secondaire, probablement contemporain avec la tombe. A Springhead, du colluvion de la fin de l'âge du Bronze scella les structures anciennes et fut à son tour coupé par des fosses et fossés de la fin de l'âge du Bronze. Mis à part une petite quantité de matériel de la fin de l'âge du Fer, il n'y avait guère de preuves d'activités antérieures au Ier siècle après JC, où des systèmes agraires romains furent mis en place à Fawkham Junction et New Barn Road. Une enceinte fut également construite à South of Station Road. Les activités romaines et l'occupation du paysage furent apparemment de courte durée et furent abandonnées vers 100-150 ap. JC.

Les activités des périodes médiévale tardive et moderne visibles dans le paysage demeurèrent de nature agricole jusqu'à la construction de la ligne ferroviaire ouest de Gravesend vers le milieu du XIXème siècle. Pour conclure, le tumulus de Whitehill représente un monument néolithique ou de l'âge du Bronze, érigé dans un paysage autrement agricole et caractérisé par des limites de champs. Quelques tentatives furent réalisées d'exploiter les vallées sèches après la fin de l'âge du Bronze. La région demeura agricole jusqu'à ce jour.

ZUSAMMENFASSUNG

Der Museum of London Archaeology Service (MoLAS) wurde von Union Railways (South) Limited (einer Tochtergesellschaft von London and Continental Railways) mit einer Baustellenbeobachtung und umfassenden Ausgrabung zwischen der Fawkham Junction und der Dale Road (archäologische Zone 1) und dem Gebiet von der Dale Road bis zum Bereich westlich der Hazells Farm (archäologische Zone 2) südwestlich und südlich von Gravesend, Kent, beauftragt. Die Arbeiten waren Teil der umfangreichen archäologischen Untersuchungen im Zusammenhang mit dem Bau der Bahnstrecke durch den Kanaltunnel (Channel Tunnel Rail Link).

Die früheste belegte Aktivität innerhalb der beiden Zonen geht mit der Nutzung von Quell-Linien im Talgrund östlich von Springhead möglicherweise bereits auf etwa 4000 v. Chr. zurück. An der Whitehill Road im Westen wurde ein Grabhügel angelegt. Der ursprüngliche Graben um den Hügel war bereits teilweise verfüllt, als ein Erdgrab eingelassen wurde. Eine bei der Leiche gefundene und für die frühe Bronzezeit in Kent ungewöhnliche

Bernsteinhalskette datiert auf das Ende der frühen Bronzezeit etwa 1700-1500 v. Chr. Ein weiteres Sekundäreignis war – womöglich zeitgleich mit dem Begräbnis – die Errichtung eines zweiten, äußeren Ringgrabens um den Grabhügel.

Bei Springhead überlagerte eine von spätbronzezeitlichen Gruben und Gräben durchzogene Kolluviumschicht aus der jüngeren Bronzezeit ältere Strukturen. Abgesehen von geringen Mengen späteisenzeitlichen Materials gab es bis zum 1. Jahrhundert n. Chr., als römerzeitliche Feldsysteme an der Fawkham Junction und der New Barn Road und eine Einhegung südlich der Station Road entstanden, keine Hinweise auf weitere Aktivitäten. Die Landnutzung und Siedlungstätigkeit während der Römerzeit war offenbar nur kurzlebig und wurde 100-150 n. Chr. wieder eingestellt.

Die Landschaft wurde im Spät- und Nachmittelalter bis zum Bau der Gravesend West Railway Mitte des 19. Jahrhunderts weiterhin agrarisch genutzt.

Zusammenfassend lässt sich feststellen, dass der Whitehill Barrow ein neolithisches oder bronzezeitliches Denkmal in einer ansonsten durch Feldbegrenzungen gekennzeichneten Agrarlandschaft ist. Nach der späten Bronzezeit wurden verschiedene Versuche zur Nutzung der Trockentäler unternommen. Das Gebiet wird bis heute landwirtschaftlich genutzt.

ABSTRACTO

El Servicio Arqueológico del Museo de Londres (MoLAS) fue encargado por Union Railways (South) Limited (parte de London and Continental Railways Limited) de realizar un seguimiento de obra y una excavación en detalle entre Fawkham Junction y Dale Road (Zona Arqueológica 1), y entre Dale Road y el oeste de Hazells Farm (Zona Arqueológica 2), al suroeste y sur de Gravesend, Kent. Este trabajo forma parte de un extenso programa de investigación arqueológica realizado como consecuencia de la construcción del Channel Tunnel Rail Link (CTRL).

La actividad más temprana en estas zonas pudo haber ocurrido tan pronto como el 4000 a.C. con la explotación de líneas de agua en el suelo del valle al este de Springhead. Al oeste, en Whitehill Road, se estableció un dólmen: la zanja alrededor del dólmen fue parcialmente rellenada antes de la introducción de la inhumación. Aunque inusual en la tradición de comienzos de la Edad del Bronce en Kent, un collar de ámbar encontrado con el cuerpo data de finales de la Edad del Bronce Inicial desde el 1700 BC hasta el 1500 BC. La construcción de una segunda zanja exterior fue un evento secundario, probablemente contemporáneo con el enterramiento.

En Springhead, coluvial de finales de la Edad del Bronce selló estructuras anteriores y fue excavado por hoyos y zanjas de finales de la Edad del Bronce. Aparte de pequeñas cantidades de material de la Edad del Hierro, no se encontró evidencia alguna de actividad

hasta el s.I d.C. cuando se establecen sistemas de latifundio romano en Fawkham Junction and New Barn Road, y se construye un recinto al sur de Station Road. La actividad y uso del suelo romano fue de corta duración y cae en desuso entre 100-150 d.C.

La actividad medieval y post-medieval continua siendo agrícola hasta la construcción de la vía ferroviaria de Gravesend West a mitad del siglo XIX.

En conclusión, el dólmen de Whitehill representa un monumento Neolítico o de la Edad del Bronce establecido en un paisaje agrícola caracterizado por límites de campiña. Hubo algunos intentos de explotación de los valles secos después de finales de la Edad del Bronce. El área continuó agrícola hasta el presente.

ACKNOWLEDGEMENTS

The investigations at Whitehill Road Barrow and other sites in CTRL Area 330 (Zone 1) were undertaken principally by staff from Museum of London Archaeology Service (MoLAS). The overall management framework during the post-excavation phase was provided by the Oxford Wessex Archaeology Joint Venture (OWA). The work was supervised by an archaeological team from Rail Link Engineering (RLE), on behalf of the Employer, London and Continental Railways (LCR).

Management of the fieldwork and post-excavation assessment was undertaken by Niall Roycroft and Gordon Malcolm. Simon Savage, Portia Askew, Rachel Gardner and Kevin Appleton supervised the excavations and watching briefs. Other fieldworkers, and specialist contributors to the assessment report, are credited in the main project acknowledgements in the digital archive (ADS 2006).

The following specialists contributed to this publication report: Barbara McNee (later prehistoric pottery), Lisa Brown and Rachel Every (Roman pottery), Jackie Keily (small finds), Jennifer Kitch (animal bones), Bill White (human remains), John Giorgi (botanical remains and charred plant samples) and Jane Corcoran (geoarchaeology). Sophie Lamb prepared the figures. Mercedes Planas (Spanish), Gerlinde Krug (German) and Valerie Diez (French) translated the abstract.

Julian Hill undertook preliminary editorial work on this report for MoLAS. Andrew Fitzpatrick (later prehistoric team leader) carried out the main edit, and Alistair Barclay (early prehistoric team leader) made additional comments on the text. The project senior editor was Julie Gardiner.

The author is also grateful to those who contributed to the CTRL post-excavation project: Leigh Allen (finds manager), Niall Donald (data manager), Liz Stafford (environmental manager), Rob Goller and Anne Stewardson (senior illustrators). Gordon Malcolm managed the MoLAS report programme. OWA senior project managers were Stuart Foreman and Valerie Diez.

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1 INTRODUCTION

1.1 Project Background

The sites included within this report were identified and excavated as part of an extensive programme of archaeological investigation carried out in advance of the construction of the Channel Tunnel Rail Link (CTRL). CTRL was built by London & Continental Railways Limited in association with Railtrack Group plc. The project was authorised by Parliament with the passage of the CTRL Act, 1996. The high-speed line runs for 109 km (68 miles) between St Pancras Station in London and the Channel Tunnel and was built in two sections. Section 1 lies entirely within Kent and runs from Fawkham Junction (Gravesend) to Folkestone. The work was project managed by Rail Link Engineering (RLE).

The Museum of London Archaeology Services (MoLAS) was commissioned by Union Railways (South) Limited (URS) to undertake archaeological excavation and a watching brief on construction activities at Area 330, Archaeological Zones 1 and 2, referred to in this report by the principal site name, Whitehill Road Barrow. The investigations covered that part of the route south of Gravesend, between Fawkham Junction and Hazells Farm, to the south of the A2. Zone 1 lay between CTRL route Chainage (CH) 200+000 and 203+750 and covered a length of 4.40km. Zone 2 continued a further c 1.4km eastwards from CH 203+750 to 205+200. The boundary between the zones lay at Dale Road (Figure 1). In Zone 1 the CTRL route follows the line of the disused Gravesend West Railway, from Fawkham Junction to Dale Road, roughly on a south to north alignment.

In the light of advance evaluation or discoveries made during watching brief work certain areas were identified for detailed excavation; the Event Codes for these were ARC WHR99 in Zone 1 and ARC SSR99 and ARC STP99 in Zone 2. The location of the various areas of investigation is shown in Figure 2.

Figure 1: Site location within the CTRL route

Figure 2: The areas of archaeological investigation at Zones 1 and 2 and location of the detailed figures

Table 1: Fieldwork events covered by this report

Event name	Event code	Type	Contractor	Dates
Package 330 Watching Brief	ARC 330 98 (indexed as ARC 330 98A in datasets)	Watching brief	MoLAS	December 1998 to May 2000
South of Station Road	ARC SSR 99	Excavation	MoLAS	1999
Temple East of Springhead	ARC STP 99	Excavation	MoLAS	1999
Whitehill Road barrow	ARC WHR 99	Detail excavation	MoLAS	1999

This report, although covering the land to the east and west of the Pepper Hill Roman cemetery site (ARC NBR 98), undertaken by Oxford Archaeological Unit, does not include the cemetery itself, which is reported on separately (Biddulph 2006).

1.2 Geology and Topography

The geology of Zones 1 and 2 comprises Upper Chalk (Cretaceous) overlain by varying thicknesses of gravels, Thanet Beds and late Devensian waterlain deposits. These geological levels are sealed beneath extensive layers of colluvial material.

The topography of Zone 1 is gently undulating. North of Fawkham junction the CTRL route follows the line of the Gravesend West Railway, which first crosses the valley of a tributary of the Darent River on an embankment before proceeding in a cutting for the rest of the route.

Zone 2 lies at a confluence between two former tributaries of the Ebbsfleet, which are now dry valleys. The western valley is located between ARC SSR98 and ARC NBR98 flowing from south to north. The second, northern, valley runs from the south along Downs Road to Hazells Farm, where it turns west to run along the south side of the A2, towards New Barn Road. The route of the CTRL in Zone 2 lies on gently rising land on the south side of the northern dry valley, with only the agricultural mitigation area of ARC STP 99 crossing the valley floor. The deep colluvial deposits presumed to lie in the western dry valley were not investigated as these were sealed beneath construction earthworks.

At the time of fieldwork the area was arable farmland with a surface level of between *c*18m OD (northern valley floor, ARC STP 99) and *c* 30m OD (ARC SSR 99).

1.3 Archaeological and Historical Background

A desk-top assessment commissioned by URS (URS 1994) identified Zone 1 as having limited archaeological potential, and it was not considered necessary to conduct any advance archaeological works, as the construction works were limited to the stripping of soils for approximately 10m to either side of the existing Gravesend West Railway and the construction of new road bridges.

Zone 2, on the other hand, lies close to a significant archaeological area as it incorporates the upper reaches of the Ebbsfleet valley. The lower Ebbsfleet valley has regionally/nationally important remains from many periods. Consequently advance archaeological evaluation work was recommended for the zone. ARC STP 97 undertaken by Wessex Archaeology (WA) demonstrated the survival of Bronze Age features and colluvial deposits. Previous work had identified Iron Age, Roman and Saxon remains and burials around the site of the Roman ‘small town’ of Springhead (*Vagniacae*), part of which is a scheduled monument (SAM KE 198).

The Roman town was situated on Watling Street, the main Roman road from London to Dover, and lies in the general area of what is now the junction of Station Road and New Barn Road with the A2. The site of the Roman town is immediately to the north of Zone 2 but a north-south aligned Roman road running south from it, and a major Roman cemetery, containing inhumation and cremation burials, was identified during CTRL works within Zone 2, near to the break of slope at the top of the dry valley west of New Barn Road. As noted above, the road and cemetery (Pepper Hill Roman Cemetery – ARC NBR 98) are reported upon separately (Biddulph 2006).

A limited area of late Iron Age/early Roman occupation was recorded during evaluation works undertaken by Oxford Archaeology (formerly Oxford Archaeological Unit (OAU)) on the higher ground to the south of Station Road (ARC SSR 98). This site only partly extended onto the route of the CTRL.

Table 2: Earlier archaeological fieldwork events (not incorporated in detail into this report)

Event name	Event code	Type	Contractor	Dates
Temple East of Springhead	ARC SPT 97	Evaluation	WA	1997
South of Station Road	ARC SSR 98	Evaluation	OAU	1998

2 AIMS

2.1 Research Objectives

The aim of this report is to present synthesised data at an interpretative level that can be assimilated into complementary studies. This synthetic report is supported by the fieldwork and research archive which is available as a web-based digital archive (ADS 2006).

In support of the CTRL Project Monograph (Booth *et al.* 2007), the Tollgate report integrates key assemblages and stratigraphic data into a site sequence secured on key dating evidence from artefact groups and radiocarbon dates. The report includes a discursive narrative describing the sequence of activity and reasoning evidence (URS 2003, 15-16).

The research aims specific to Archaeological Zones 1 and 2 (URS 2001, 36) include:

Early agriculturalists (4500–1600 BC)

- Defining the nature of the contemporary environment.
- Determining the nature and effect of clearance for agricultural activity.
- The ritual and ceremonial landscape.

Farming communities (1600–100 BC)

- Considering environmental change resulting from landscape organisation and re-organisation and studying the natural landscape, its geomorphology, vegetation and climate as the context within which the archaeological evidence can be interpreted.
- The socio-economic landscape of later agriculturalists.

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
- The effect on the landscape of known historical events, such as the arrival of the Roman administration

3 METHODS

3.1 Fieldwork Methodology

The fieldwork consisted of excavation and recording under a watching brief and 3 areas of detailed excavation and recording – ARC SSR 99, ARC STP 99 and ARC WHR 99. The scope and methodology of the fieldwork were detailed in advance in a series of Written Schemes of Investigation (WSI), prepared by RLE and agreed with English Heritage and Kent County Council (KCC) on behalf of the local authority.

All construction groundworks with the potential to impact upon archaeological remains were monitored by MoLAS archaeologists.

4 RESULTS

4.1 Phase Summary

Analysis of the site stratigraphy, finds and environmental data has revealed several phases of activity within Whitehill Road Barrow area (Archaeological Zones 1 and 2), as summarised below:

- Early Agriculturalists (4500–1600 BC): Neolithic to early Bronze Age: Neolithic or early Bronze Age natural ‘spring’ features and occupation were recorded at ARC STP 99, close to a palaeochannel on the floor of a now dry valley. Evidence from the early Bronze Age comprised a barrow, surviving as a double ring ditch, located to the west of Whitehill Road (ARC WHR 99) and residual pottery in Roman ditches at Fawkham Junction. A secondary, crouched, adult inhumation burial with an amber bead necklace was inserted into the ring ditch towards the end of the early Bronze Age. Human bone fragments from the burial gave a radiocarbon result of 3273±30BP (NZA-22740). When calibrated (1620-1440 cal BC) this indicates that the burial is post-Beaker.
- Farming Communities (1600–100 BC): Middle Bronze Age to late Iron Age: There is evidence for features on the south side of the dry valley which mirrors the earlier activity on the valley floor. Early and middle Bronze Age deposits are sealed by colluvium, which is in turn cut by late Bronze Age pits.
- Towns and their rural landscapes I (100 BC–AD 100) late Iron Age to early Roman: landscape subdivision becomes more prevalent and is represented in the 1st century AD by an enclosure at ARC SSR 99, a number of recut ditches at Fawkham Junction and a boundary ditch east of Hook Green Road.

- The Medieval and recent landscape (1,000–1700 AD): Medieval and post medieval: features of the period – isolated pits, ditches, deneholes, field-drains – attest to the continuation of primarily agricultural exploitation of the area

4.2 Early Agriculturalists

4.2.1 Late Neolithic – Early Bronze Age (4,500–1600 BC)

Potential Neolithic or early Bronze Age activity was recorded in the excavations south of Springhead (ARC STP 99) along the dry valley floor, at c 15.0m OD (Table 3/ Figure 3). An east-west running paleochannel 40 (group 40116) probably had its origins in a period of inundation or glacial melt associated with the formation of the Ebbsfleet valley. Its fills derived from the erosion of the channel sides. On the north side of the palaeochannel was an occupation area composed of trampled silt 90 (group 40117) into which had been inserted several posts (group 40118), one of which (64), contained fragments of charred bedstraw weed grains (Giorgi 2006). The posts may have formed a rectangular structure - possibly a shelter - associated with a seasonal encampment along a river. The postholes and associated floor yielded burnt flint fragments, charcoal, stuck flint flakes and occasional charred grains (Giorgi, 2006; finds and environmental data summarised in Table 3, (which is presented with Table 3/ Figure 3). Three outlying postholes (group 40120) and two possible pits (group 40121) cut the paleochannel fills. These features were not dated but as they were sealed by colluvium they may be broadly contemporary with the activity to their north. Another outlying feature sealed by colluvium, pit 683, contained a high proportion of fire cracked flint and charcoal flecks but no *in situ* scorching was recorded.

To the south of palaeochannel 40 lay a large number of small, circular ‘bowl’ shaped pits (group 40123). The pits occasionally contained sparse amounts of burnt flint and charcoal. An exception seems to be pit 5 where 1100 fragments of burnt flint was recovered, weighing over 5 kilos ((Table). It was also noted that only occasional, very fine charcoal flecks accompanied the burnt flint within the pit fill and that no other evidence of burning was recorded. A natural gully (82) to the northwest of the palaeochannel contained a large fragment of unidentified animal bone (see Reilly in MoLAS 2001) and several fragments of burnt flint (Table).

Although their fills contained charcoal and burnt flint, the bowl-shaped pits may have been naturally formed but an explanation for the processes involved remains elusive. On the other hand they may be man-made and broadly contemporary with the temporary occupation site to the north. Their function, however, remains enigmatic. One explanation may be that they served as water collection pits along the spring line at the valley base. This would

suggest that the site was occupied seasonally as the valley floor would have been too damp to allow settlement during the colder or wetter months. The presence of the burnt material may derive from the focus of activity around the group 40118 floor surface and associated postholes (see above) although no distinct areas of in situ scorching was recorded within the site.

Table 3/ Figure 3: Late Neolithic/early Bronze Age features at ARC STP99 (1) and tabulated finds and environmental data (Table 3 inset)

All the features from this phase of activity were sealed by two to three metres of colluvial material. The colluvium is probably of Middle to late Bronze Age date as discussed below (4.3.1).

The Whitehill Road barrow

The excavations at Whitehill Road revealed two concentric ring ditches (groups 40130 (outer) and 40131) (Figure 4, Plate 1), which are interpreted as having surrounded a now-truncated barrow, though there is some evidence that the outer ditch was a later modification. The monument lies on the gentle chalk slope facing the north-east, approximately 150m north of the northern side of a dry valley, formerly a tributary to the River Darent. Construction of the Gravesend West Railway (opened 1886) had removed nearly all the horizontal deposits, with only the lowest 0.3m surviving of the ring ditches and associated features. The railway cutting had also completely removed the western third of the outer ditch.

The inner ditch (3) had an internal diameter of c 10.25m and the outer ditch (4) an average internal diameter of c 15.6m. It had a broad 'U' shaped profile, with the inner edge slightly steeper than the outer (Figure 4, Figure 5). Primary fills of weathered chalk and subsoil filled the ditch, with survival of secondary deposits along the eastern side. These latter deposits showed evidence of surface scorching or placed burnt deposits, although it must be borne in mind that the deposits were directly below modern truncation and disturbance. It should be noted that cuts 29 (group 40132) and 35 (group 40134) within the inner ditch of the Whitehill Road barrow are undated. The severe truncation of this site makes any interpretation problematic. However, the chalk, gravel and charcoal inclusions of cut 29 suggest that it is not the truncated remains of a burial within the barrow.

No evidence for any central mound or barrow remained extant but surviving postholes within the inner ring ditch are associated with its construction and/or use. The location of posthole 31 (group 41033) at the centre of the internal area suggests that it represents either a central marker for construction or perhaps a marker for the monument after any central mound had been raised. Postholes 84 and 86 (group 40131) may be evidence of similar markers in the base of the inner ring ditch, although a simpler explanation may be that the

holes derived from removal of flint nodules during the original excavation of the ring ditch. The fills of postholes 84 and 86 were virtually identical to the overlying inner ring ditch fill. The posthole fills in general contained no evidence indicating a separate function or event (such as the presence of pyre / burning activity). Establishing a date for the inner ditch and presumed barrow is difficult due to the lack of any central burial or other finds and a paucity of environmental data. The evidence below shows that the inner ditch had silted up prior to enhancement.

A secondary burial (group 41035), cutting into the fill of the inner ring ditch, demonstrates a later phase of modification to the barrow (Figure 6, Plate 2). The rectangular grave cut (42) contained a skeleton (41), which lay flexed on an approximate north-east–south-west orientation, with the head at the north-east end. A necklace of amber beads was recovered from around the neck and shoulders. A total of 21 beads were recovered; 17 complete <2> and four fragmentary <3>. Despite the poor preservation of the skeletal remains in the unfavourable soil conditions (and some truncation when the Gravesend West Railway was built), the body can be identified as that of an adult of around 25 years of age. The gracile character of the skull morphology provided the only extant evidence that the skeleton was probably female, as perhaps could be expected from the association of a necklace (White 2006).

The amber beads (Figure 6) are the only finds to have survived the truncation of the barrow. The amber is almost certainly of ‘Baltic’ origin (Keily 2006). The beads belong to either forms 1B or 7B in Beck and Shennan’s typology (Beck and Shennan 1991). The beads all exhibit wear to varying degrees, affecting individual bead thickness. Although amber was used in a broad range of periods, from the Mesolithic to Anglo-Saxon, the early Bronze Age is the dominant period for amber bead usage. From 200 occurrences of amber in prehistoric Britain, 130 can be attributed to Beaker (2450-1700 cal BC) and early Bronze Age (1700-1500 cal BC) phases (Shennan 1993; Needham 1996).

Figure 4: The Whitehill Road barrow in plan and profiles through the ring ditches

Figure 5: Further profiles through the Whitehill Road barrow ring ditches (see Figure 4 for section locations)

Figure 6: Secondary burial 41 in plan and photographic and drawn illustration of the amber bead grave goods

Plate 1: South facing view of Whitehill Barrow

Plate 2: West facing view of inhumation 41

Within Britain beads and necklaces composed of 'exotic' materials like jet, faience and amber are associated with burials of the Wessex culture towards the end of the early Bronze Age *c* 1,700 to 1,500 BC (Needham 1996). In Kent, early Bronze Age burials containing exotic goods have been recorded, particularly in the east of the county (Drewett *et al* 1988; Champion 2005), but the present find is one of only two known occurrences of amber in early Bronze Age Kent, the other from the recent excavations at Ringlemere (a fragment of amber pommel and an amber pendant from disturbed context within the main Barrow (Parfitt and Needham 2004). A sample from the skeleton submitted for C14 dating provides a date for the burial and a *terminus ante quem* for the outer ditch. Human bone fragments from the burial gave a radiocarbon result of 3273±30BP (NZA-22740). When calibrated (1620-1440 cal BC) this indicates that the burial is post-Beaker.

There are several reasons to suggest that the outer ring ditch 4 is a later addition. Its fills differed slightly from those of the inner ditch suggesting a differing exposure to weathering and local environment. It is also the case that some pits clustered around the outside of the inner ditch, and apparently respecting it, were cut by the outer ditch. For example, pits 44 (group 40129) and 46 (group 40128) to the north and south respectively of the inner ditch, similar in shape and size (*c* 1m wide) and both filled by orange-brown, silty clay with gravel, were truncated by the outer ditch. Pit group 40137 (48, 50 and 75) also appeared to respect the northern edge of the inner ditch, slightly west of pit 46. The pits shared similar clay silt fills within rounded cuts *c* 0.50m in diameter. Both 48 and 50 appear to be truncated by the edge of the outer ditch. However, no dating evidence was recovered from any of the features.

The outer ditch may have been intended to enclose burial 42. If the secondary burial dates to *c* 1700-1500 BC (Needham 1996), the original barrow would belong to an earlier phase, perhaps as early as the Beaker period of the final Neolithic (2450-2050 cal BC). From the evidence above the inner ditch had weathered before silting up and a period of pit activity had also occurred prior to the excavation of the outer barrow ditch.

The location of the barrow at Whitehill Road can be compared with that at Cobham Golf Course, where a larger ring ditch (22m internal diameter) with a 2m wide southern causeway also occupies an elevated position over adjacent (dry) river valleys (Davis 2006). Residual early Bronze Age pottery was also found in Roman ditch 516 to the south at Fawkham Junction. Of eleven sandy ware sherds, four were identified at the site assessment stage as being of possible Beaker date (*c* 2,500 BC–1,700 BC) (Rayner in URS 2001a). No further analysis of these sherds has been undertaken.

When seen alongside other early Bronze Age features on the CTRL route, such as the Cobham Golf Course barrow and the Beaker period double inhumation burials at Northumberland Bottom, the Whitehill Road barrow lends further evidence of a monument

within the developing landscape in north-west Kent. The site should be seen against a background of activity to the south of Gravesend, around the dry tributary valleys of the Ebbsfleet River.

4.3 Farming Communities

4.3.1 Middle and later Bronze Age (1,500 – 700 BC)

Figure 7: Features at ARC STP 99

At the Temple East of Springhead site (ARC STP99) the features on the southern side of the valley (Figure 7) mirror earlier activity along the valley floor to the north-east (see 4.2.1 and Table 3/ Figure 3), with more 'bowl' shaped collection pits (group 40147) suggesting a second possible spring line. None of these features was dated, with little by way of finds in the fills, but again the features were sealed by colluvium, in this instance to a depth of one metre.

Although the pits share many similarities in shape and dimension with the features at STP99, there is no evidence indicating that both pit groups were contemporary. The location upslope at *c* 21m OD suggests valley infilling by colluvium of considerable depth may have already taken place. At the adjacent evaluation (Temple East of Springhead - ARC STP 97), the colluvial sequence which sealed a Middle Bronze Age barrow was dated to the late Bronze Age or early Iron Age (P Andrews pers. comm.). However, a later Bronze Age date for the colluvium at ARC STP 99 is inferred from pits 1252 and 1254 (group 40157) which cut the surface of the colluvium. These pits contained late Bronze Age Plain Ware pottery (*c* 1100–900 BC); comprising two probable cups, a coarse ware jar and a burnished bowl (McNee 2006).

Creation of such a depth of colluvium, even over a period of several hundred years, is most likely to have been a result of clearance along the valley slopes. The valley clearance in itself is seen as a period of landscape modification of probable Bronze Age date but any interpretation must remain tentative due to the fact that observation was limited to only a very narrow transect through the valley, isolated from wider settlement and landscape patterns. There is very little evidence of middle or later Bronze Age field systems within the present zone. However, the evidence implies a shift to more intensive settlement and occupation along the Ebbsfleet and Darent Valleys during the late Bronze Age, and recolonisation of the valleys after their infilling by colluvial action.

Other evidence of later Bronze Age activity is restricted to residual and undiagnostic sherds in a late Bronze Age fabric in the Roman east–west aligned ditch 2 at Station Road (ARC SSR 99) (Figure 8). The pottery may be from a domestic assemblage through the presence of (six sherds) flint and quartz type fabric in the assemblage may be transitional

from late Bronze Age Plain Wares to decorated wares. Residual sherds of a burnished bowl also came from early Roman enclosure ditch 9 (group 40103) and seventeen residual sherds of a medium fine ware jar from a late Iron Age or early Roman pit or posthole 32 (group 401112).

Figure 8: Features at ARC SSR 99

4.4 Towns and their rural landscapes I

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

Late Iron Age

Only two features within the zones could be attributed to the late Iron Age and only a low level of activity, of undefined character, can be inferred within the zone. This phase of activity is not illustrated in detail. An isolated pit 670 (group 40152), at the east edge of the zone near Hazells farm (not illustrated in detailed plan but see Figure 2 for general location), contained flint tempered pottery dated to 300 BC-AD40. Fragments of late Iron Age pottery were recovered from Roman features at the sites at Fawkham Junction (ARC 330 98A) and South of Station Road (ARC SSR 99 pit group 40112, Figure 8) and from within the watching brief zone (ARC 330 context 1067 group 40150, Figure 7). At South of Station Road, this pottery included a Terra Rubra platter sherd with external moulding which may date to c 15 BC - AD 25. The occurrence of this vessel is significant (Brown 2006) in indicating pre-conquest trade with the Roman Empire.

A section through a ditch on the west side of Dale Road also yielded fragments of late Iron Age to early Roman Belgic coarseware (50BC to AD100).

Early Roman

Figure 9: Roman ditches at Fawkham Junction

The evidence for this period from South of Station Road (ARC SSR 99), Fawkham junction, and the villa sites at Darent suggests land division and agriculture to the south and west of the settlement at Springhead Roman town. The activity within the zones appears short-lived, with the pottery dates from the features indicating use and abandonment towards the end of the 1st century AD.

At Fawkham junction (Figure 9) the ditches had a series of recuts indicating several phases of land management. A small, flat based, bowl shaped oven or hearth 894 (group 40139) measuring 0.8m in width, was cut into the base of one of the largest ditches 799 (group 40138). The function is not clear but may have been used for heating grain or providing a temporary campsite for farmers. The base of the cut does not appear to have been

exposed to prolonged or repeated firings, as the recorded scorching was not suitably intense. The ditch, possibly a boundary at the easternmost edge of a villa estate, could be easily accessed and may have been attractive for ease of raking out the hearth. This is attested to by the localised spreading of hearth ash and debris within the ditch fills. A similar feature is noted within the enclosure sequence at ARC SSR 99, where a large oval oven 36 and rebuilds (group 40104) had been cut into the enclosure ditch 9 (group 40103).

The establishment of a more formally organised landscape can certainly be attributed to the effect of Roman governance as the field ditches do not follow previous ditch alignments (although there is some residual late Iron Age pottery present, see section 4.4.1). Most dateable material (with the exception later Roman pottery sherds in a ploughsoil at Fawkham Junction) dates from AD 40–150 with the emphasis on earlier coarse ware fabrics in use towards the end of the 1st century AD.

The features at ARC SSR 99 (Figure 8) demonstrate land partitioning such as the creation of a medium sized enclosure 9 (group 40103), the south-east corner of which was present within the site limits. The enclosure occupied high ground at *c* 30m OD, overlooking the western dry valley of the Ebbsfleet River to the east, the Roman town of Springhead to the north and the northern dry valley to the north-east. The southern enclosure ditch truncated the southern butt ends of two phases of earlier north-south aligned ditches 29 (group 40101) and 14 (group 40102). Ditch 29 had been backfilled prior to the cutting of ditch 14. Both ditches exhibit a slight change in alignment at the north ends, veering slightly to the north–west. Ditch 29 contained no datable material and ditch 14 is dated to AD 50 to AD100 by 78 sherds of Romano British pottery (Brown 2006). The relationship between the enclosure and ditch 14 is unclear as the fills were similar and the pottery dates from both features are the same (from AD 50 to AD 100). Either ditch 14 served as a very temporary enclosure boundary or it was created about the same period as the enclosure and forms a partition within. To the north-east, ditch 25 (group 40105) contained a single sherd of Romano-British pottery.

The use of enclosure 9 was as short lived as the ditches at Fawkham Junction – the recovered pottery fabrics and types similarly indicate abandonment towards the end of the 1st century AD. Very little survived within the enclosure to suggest what activity took place within it. The insertion of oven 36 into the upper fills of enclosure ditch 9 suggests that the low level of activity within the enclosure had already ceased, as the ditch had been backfilled prior to the oven being constructed. The sequence of repairs/rebuilds to the oven attest to its having been in use for some time before its eventual collapse. Samples taken from it produced a total of 66 charred grains, 11 of which are wheat (*Triticum* sp) with one grain tentatively identified as hulled spelt (*Triticum* cf. *spelta*) and two emmer/spelt (*T. dicocum/spelta*). Grains of six row hulled barley (*Hordeum vulgare*) were also present in the sample alongside the wheat fragments. Small quantities of chaff and weed seeds within the oven assemblage

indicates crop processing may have been carried out in the vicinity, with the oven being used to dry and crack the hulls of grain prior to milling/grinding. Such activity is likely given the location of the site outside the settlement and in the fields.

Animal bones show efforts to incorporate cattle, pig and sheep/goat into the diet and economy. A small, rat sized bone may also point towards the origin and spread of the rat species into Britain at this time.

The enclosure appears to have been sited close enough to a settlement to receive domestic debris and food waste alongside the processing undertaken at the oven, which yielded grain fragments and pottery sherds. The nature of the enclosure is probably agricultural through lack of any *in situ* domestic structures or features and may have been used for stock and storage rather than the edge of a small farm. A shift in activity or abandonment may be interpreted by the lack of later pottery from the features, in contrast to continued growth at the nearby Roman town of Springhead in the second century.

Further evidence of the rural and agricultural nature of Roman exploitation is seen with ditches at New Barn Road; perhaps an early Roman track or path allowing access to the fields from the town at Springhead. A ditch 382 (group 40153) located to the east of ARC SSR 99, at Dale Road, revealed the remains of a cremation burial and accompanying grave goods, the items of which have subsequently been lost. The absence of dating evidence after c. AD100 suggests that if the fields were not abandoned, the workforce associated with it had moved sufficiently far away not to be leaving any material remains.

4.5 The Medieval and Recent Landscape

4.5.1 Medieval and Post Medieval (AD 1400 – 1900)

There is a large gap in the archaeological record until the post medieval period, when evidence for occupation resumes. The accumulation of ploughsoils and worked soil sealing all previous features are certainly post Roman and probably medieval in date. Solid evidence for the agricultural presence comes from the digging of deneholes dispersed across the Zones. These large and deep quarry pits often have a central vertical shaft giving way at the base to several small chambers or alcoves. The reason for these quarries in the late Medieval and Post-medieval periods would have been to provide minerals and/or soil nutrients and particles to help break up soil during ploughing. Deneholes as a feature are not necessarily confined to the late medieval or post-Medieval periods and some suggest they may even arise in Neolithic to Iron Age periods as a means of gaining flint and chalk. Beyond the deneholes are occasional pits and ditches, probably occurring at the edges of fields or tracks (groups 40155, 40156) and a curiously isolated post-medieval pit 796 (group 40141) at Fawkham Junction (Figure 9), dated to the 16th century by fragments of pottery vessels in the backfill. A major

boundary ditch was excavated to the north-east of Whitehill Road, measuring 6m in width and incorporating the bases of three former ditches beneath, perhaps the edge of a parish boundary, which went out of use by *c* 1800.

The range of features reflect the continued use of this part of the CTRL route and Kent plain as a sustained agricultural landscape with little settlement encroachment until the modern period. The most dramatic change beginning with the Gravesend West Railway on the west edge of Whitehill Road and the later 20th century roads.

4.6 Unphased features

There was a body of undated evidence for dispersed and isolated activity across the watching brief zone. These features are generally consistent with agricultural practice or open area activity such as ditches, fire pits, pits and modern drainage and services. The archaeological evidence demonstrates that activity remained rural and agricultural in nature.

5 GUIDE TO THE ARCHIVE

The site has been analysed and published as part of the Channel Tunnel Rail Link Section 1 Post-excavation Project. This Integrated Site Report is one of 20 publication level site reports available to download from the Archaeology Data Service website: <http://ads.ahds.ac.uk/catalogue/projArch/ctrl/index.cfm>. These present synthesised data from key site sequences at an interpretative level that can be assimilated into complementary studies. The ADS site also includes five schemewide specialist reports, which provide synthetic overviews of the specialist data from CTRL Section 1 in its regional context. Underpinning the site reports and overviews, is a comprehensive archive of individual specialist reports and databases, which are also available to download. The CTRL reports and data can be accessed through the 'Project Archives' section of the ADS website.

Hard copy publication of the CTRL Section 1 results comprises a single volume synthetic overview of the excavated results in their regional context, which includes a complete site gazetteer and guide to the digital archive (Booth et al 2007).

Table 4 below details all available digital data for the Whitehill Road Barrow group of sites. The post-excavation assessment report is included in the digital archive, but assessment databases have only been included for categories of material which were not subsequently subject to full analysis. All reports and accompanying figures are presented as downloadable, print-ready Adobe Acrobat files (.pdf). ADS also maintain archive versions of report text (.rtf) and image pages (.tiff). Databases are available as text files (.csv). The digitised site plan is available as an Arcview shapefile (.shp) and in drawing exchange format (.dxf).

The following tables include details of the archive components.

Table 4: Digital report and archive components available to download from the Archaeology Data Service website. [<http://ads.ahds.ac.uk/catalogue/projArch/ctrl/>]

Description	Filename root	Principal authors and organisation
Integrated site report		
Integrated site report	WHR_ISR	Bull R (MoLAS)
Integrated site report figures	WHR_ISR	Bull R (MoLAS)
Site research database		
Site database	WHR	Bull R (MoLAS)
CAD/ GIS drawings		
CAD drawing	WHR_CAD	OWA
ESRI ArcMAP GIS project	WHR_GIS	OWA
GIS limit of excavation shapefile	WHR_GIS	OWA
GIS feature plan	WHR_GIS	OWA
Specialist research reports		
Ceramics (later prehistoric)	CER_LPR_WHR	McNee B and Morris EL (Southampton)
Ceramics (Late Iron Age and Roman)	CER_ROM_WHR	Every R (OWA JV)
Small finds	SFS_WHR	Keily J (MoLSS)
Faunal	ENV_Fauna_WHR	Kitch J (OWA JV)
Charred plant remains	ENV_Charredplants_WHR	Giorgi J (MoLSS)
Geoarchaeology	ENV_Geoarch_WHR	Corcoran J (MoLAS)
Human remains	HUM_WHR	White B (MoLSS)
Radiocarbon dating	DAT_WHR	Allen MJ (OWA JV) and Barclay A (OWA JV)
Specialist datasets		
Ceramics (later prehistoric)	CER_LPR_WHR	Mcnee B and Morris EL (Southampton)
Ceramics (Late Iron Age and Roman)	CER_ROM_WHR	Every R (OWA JV)
Small finds	SFS_WHR	Keily J (MoLSS)
Small finds	SFS_WHR	Keily J and Richardson B (MoLSS)
Faunal remains	ENV_Fauna_WHR	Kitch J (OWA JV)
Charred plant remains	ENV_Charredplants_WHR	Giorgi J (MoLSS)
Human remains	HUM_WHR	White B (MoLSS)
Post-excavation assessment		
Project Area 330 Zone 1 Post-excavation assessment text	WHR_PXAssessment	MoLAS
Project Area 330 Zone 1 Post-excavation assessment figures	WHR_PXAssessment	MoLAS
Project Area 330 Zone 2 Post-excavation assessment text	WHR_PXAssessment	MoLAS
Project Area 330 Zone 2 Post-excavation assessment figures	WHR_PXAssessment	MoLAS

Table 5 Artefactual and environmental archive index

Item	Site code	Number Of Items or boxes or other	No of Fragments or litres or weight
Lithics (boxes)	ARC 330 98 Zone 1	1 size 1	
	ARC 330 98 Zone 2	1 size 1	6
	ARC SSR 99	1 size 1	3
	ARC STP 99	1 size 1	9
Bunt flint	ARC 330 98 Zone 2	Boxed with lithics	0.32kg
	ARC SSR 99	Boxed with lithics	1.34kg
	ARC STP 99	Boxed with lithics	7.26kg
	ARC WHR 99	See misc	344g
Pottery (boxes)	ARC 330 98 Zone 1	5 size 1	1383
	ARC 330 98 Zone 2	1 size 1	101
	ARC SSR 99	2 size 1	401
	ARC WHR 99	See misc	
Small finds	ARC 330 98 Zone 1	See ARC 330 Zone 4	1
	ARC 330 98 Zone 2	Boxed with Zone 4	4
	ARC SSR 99	1 box size 1	9
	ARC STP 99	Boxed with misc.	9
	ARC WHR 99	1 box size 1	22
Fired clay (boxes)	ARC 330 98 Zone 2	1 size 1	2.8kg
	ARC STP 99	None	
	ARC SSR 99	1 size 1	1.34kg
	ARC WHR 99	N/a	
Animal Bone (boxes)	ARC 330 98 Zone 1	2 size 1	330
	ARC STP 99	1 size 1	1
CBM (boxes)	ARC 330 98 Zone 1	1 size 1	35g
	ARC WHR 99	See misc	6g
	ARC SSR 99	Boxed with fired clay	0.09kg
Stone (boxes)	ARC SSR 99	Boxed with fired clay	1.02kg
	ARC WHR 99	See misc.	
Metalwork (boxes)	ARC SSR 99	1 size 1	0.1kg
Slag & metalwork debris (boxes)	ARC SSR 99	metalwork	3.5kg
Molluscs	ARC 330 98 Zone 1	See ARC 330 98, zone 4	62
	ARC SSR 99	1 size 1	12
	ARC STP 99	Boxed with animal bone	75
	ARC WHR 99	See flora	6
Animal Bone (boxes)	ARC 330 98 Zone 2	1 size 1	9
	ARC SSR 99	Boxed with fired clay	11
Flora	ARC 330 98 Zone 1	See ARC 330 98, zone 4	
	ARC 330 98 Zone 2	Boxed with Zone 4	
	ARC SSR 99	Boxed with molluscs	
	ARC STP 99	Boxed with animal bone	
	ARC WHR 99	1 size 1	
Flots	ARC 330 98 Zone 1	See ARC 330 98, zone 4	
	ARC 330 98 Zone 2	Boxed with Zone 4	
	ARC SSR 99	1 size 1	
	ARC STP 99	1 size 1	
	ARC WHR 99	See ARC SSR 99, Area 330 Zone 2	
Misc.	ARC SSR 99	1 size 1	
	ARC STP 99	1 size 1	
	ARC WHR 99	2 size 1	

Item	Site code	Number Of Items or boxes or other	No of Fragments or litres or weight
Soil Samples (10 lit. buckets)	ARC 330 98 Zone 1	26	
	ARC 330 98 Zone 2	4	
	ARC SSR 99	30	
	ARC STP 99	34	
	ARC WHR 99	6	
Soil Samples (no. of contexts)	ARC 330 98 Zone 1	13	
	ARC 330 98 Zone 2	4	
	ARC SSR 99	23	
	ARC STP 99	25	
	ARC WHR 99	4	
Soil Samples (Monolith/kubienatin)	ARC STP 99	2	
	ARC WHR 99	3	

Table 6 Fieldwork and research paper archive

Record Group	Site Code	Contents	Comments
Contexts records	ARC 330 98 – Zone 1	89	
	ARC 330 98 – Zone 2	188	
	ARC SSR 99	65	
	ARC STP 99	90	
	ARC WHR 99	87	
A4 plans	ARC 330 98 – Zone 1	13	
	ARC 330 98 – Zone 2	36	
	ARC SSR 99	16	
	ARC STP 99	22	
	ARC WHR 99	34	
A4 sections	ARC 330 98 – ZONE 1	24	
	ARC 330 98 – Zone 2	11	
	ARC SSR 99	19	
	ARC STP 99	26	
	ARC WHR 99	7	
Films (B/W) S=slide; PR=print	ARC 330 98 – ZONE 1	15	73
	ARC 330 98 – Zone 2		160
	ARC SSR 99	2	45
	ARC STP 99	2	18
	ARC WHR 99		43
Films (Colour) S=slide; PR=print	ARC 330 98 – ZONE 1	15	73
	ARC 330 98 – Zone 2		160
	ARC SSR 99	2	45
	ARC STP 99	2	18
	ARC WHR 99		88

*Key to archive box sizes*Cardboard boxes

Size 1 = Bulk box	391mm x 238mm x 210mm	0.020m ³
Size 2 = Bulk box	391mm x 238mm x 100mm	0.009m ³
Size 3 = Bulk box	386mm x 108mm x 100mm	0.004m ³
Size 4 = Bulk box	213mm x 102mm x 80mm	0.002m ³

Plastic boxes

Size 8= Medium	260mm x 184mm x 108mm	0.005m ³
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6 CATALOGUE OF ILLUSTRATED FINDS

Figure 6: The amber beads from body 41 within burial cut 42

1. 21 amber beads <2> and <3> – drawn and photographed.

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