UNDERSTANDING THE EAST LONDON GRAVELS

A post-excavation assessment and updated project design

March 2004

Part 2: an updated project design

THE UNIVERSITY of York

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Planning

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Archaeology Service

UNDERSTANDING THE EAST LONDON GRAVELS
Archaeological excavations on the Thames gravels of Newham, Barking and Dagenham 1963-99

London Boroughs of Newham, Redbridge, Havering, Barking and Dagenham

A post-excavation assessment and updated project design

Part 2: an updated project design

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Executive Summary

This document forms a second revision of part 2 of *A post-excavation assessment and updated project design*. The first revision was sent to English Heritage in November 2004 and prompted the comments of January 26, 2005. This revision is a response to those comments and now includes a fully costed GIS project, an enhanced project team including more prehistoric expertise, and various revisions in answer to the many queries. This UPD also now includes summary quantifications of the assessment data where appropriate, but should still be read with reference to *Part 1: a post-excavation assessment*, which was submitted to English Heritage in March 2004.

The assessment work was carried out using funding from the Aggregates Levy Sustainability Fund (ALSF). The East London Gravels project aims, to consider the research potential of selected rescue archaeological excavations in East London between 1963 and 1999, were set out in the November 2002 document *Understanding the East London gravels: a project design for post-excavation assessment*. The work got underway in January 2003 and was completed in March 2004, an overall duration of 15 months.

The East London Gravels project is unusual in that it is one of a relatively small number of ALSF Round 1–funded projects approved in 2002 that was primarily concerned with the assessment of 'backlog' archives. This ALSF Round 2 proposal may therefore be one of the few proposing backlog analysis of archaeological archives from gravel extraction work. The proposal considers how selected aspects of these important archives can be published as part of a landscape study of an area which has witnessed extensive gravel extraction in the past and is likely to see more extraction in future - extraction continues at several sites at present and there are other licences, both approved and pending, which await exploitation.

The study will be supported by a GIS dissemination project, which is also included and costed here. A significant by-product of the analysis and publication work will be the validation and deposition of the archive and its sign-posting for researchers and other users. This very large and important dataset was haphazardly organised and largely inaccessible prior to the recent assessment. A limited programme of outreach is also proposed.

The site assessments, presented in detail in Part 1 of this document (submitted in March 2004), related to the following sites: Great Sunnings Farm and Manor Farm in the east, Hunts Hill and Whitehall Wood to the south-east, Moor Hall Farm and Great Arnold's Field to the south-southeast, Uphall Camp to the west, and Warren Farm and Fairlop Quarry to the north. The ALSF Round 1 project made considerable progress in assessing the large amount of information held within these site archives and their potential to develop the understanding of an important archaeological landscape. Eleven major research aims were identified in the original Project Design, and these are summarised in Section 2 below. With the exception of Uphall Camp all of the assessed sites have been the subject of aggregates extraction in the past.

English Heritage comments on the assessment, received in July 2004, confirmed that Uphall Camp would not be eligible for ALSF Round 2 funding. It was also noted that both Warren Farm and Fairlop Quarry had been the subject of developer-funded archaeological work and that this planning background might complicate their eligibility for ALSF money. Manor Farm and Moor Hall Farm were both the subject of gravel extraction (see Section 1.2 eligibility). The English Heritage

recommendation was that a proposal for further work should concentrate on publication of a landscape synthesis whose defined extent – both geographically and intellectually – would benefit from a pragmatic and streamlined approach. It was felt that the ALSF would be able to support a synthetic landscape study if it was tightly focussed. The original outreach proposals were seen as overly ambitious and a much more limited programme of dissemination of conservation issues via the web was recommended.

As a result of the comments and after further consideration of the potential of the assessed data, the revised UPD proposes that analysis and publication exclude Uphall Camp and also the Fairlop Quarry and Warren Farm sites. All three of these sites are geographically distant from the main cluster of six sites. This would allow analysis to concentrate on the sites in Upminster and Rainham, which lie in relative proximity to one another, forming a study area of c 30 sq. km. This definition of a study area would facilitate a more focussed proposal for analysis, academic publication and a small, achievable outreach programme, followed by archiving. Study of the Upminster and Rainham sites and their relation to the wider landscape and its context will be enhanced by the inclusion of GLSMR data and selective use of data from PPG16-funded sites from gravel extraction areas and which help us to define the landscape. As suggested in recent comments from English Heritage, the post-Roman sequence will be analysed with reference to existing models such as *Roberts and Wrathmell 2000* and through the use of a GIS and map regression to trace settlement and field patterns back in time. Taken together, the approach will allow discussion of cultural themes spanning a time from the 3rd millennium BC up to the 17th and 18th centuries.

With the exclusion of the Uphall Camp evidence, much of the remaining detail comes from the Hunts Hill Farm archive. Analysis will selectively focus on material that can be tied to the major phases of activity and on evidence from 'key' and secure groups. The work will provide analysed data for manipulation in a GIS environment, and this will be published through the proposed monograph and the complementary GIS project. The primary aim of analysis is to produce a synthetic integrated publication on the developing landscape of the study area. Richard Bradley of the University of Reading, acting as the academic adviser to the project, has commented on the revision of the UPD and supports its goals and thematic direction.

Other sites in the Upminster and Rainham area are the subject of continuing extraction work and a study of the ELG landscape can help to inform curatorial issues concerning future archaeological work in advance of extraction. It is hoped that the East London Gravels Project will promote the conservation and academic understanding of an aggregates extraction landscape, making the proposed work of direct relevance to the aggregates industry, curators, the general public and archaeologists.

The proposed work addresses research aims and is organised around a series of research modules which will be achieved through stated support methods. The programme of work would take place over a period of c 24 months, from March 2005 until March 2007. The work programme is divided into three stages, covering data validation, analysis and feedback, and creation of a draft publication text and a GIS project. The draft text for publication will be submitted to English Heritage in March 2007, with refereeing, editing and production to follow separately.

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Please note that Figures relating to the individual site assessments are bound into *Part 1: a post-excavation assessment*.

List of Tables

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Acknowledgements

The Assessment and Updated Project Design submitted in March 2004 was compiled as a collaborative effort by project teams at the Museum of London Archaeology Service (MoLAS), Essex County Council Field Archaeology Unit (ECCFAU) and the University of York (UofYork). Other contributors included Pamela Greenwood (formerly NMAS), Pat Wilkinson (formerly NMAS), Dr Mark Robinson (Oxford University Museum), Nigel Brown (ECC) and Louise Rayner (Birkbeck). Dr Richard Bradley of the University of Reading has acted as academic adviser. Sue Kirby and other staff at Newham Leisure Services, and Gerard Greene of Redbridge Museums Service, have arranged the loan and transfer of the site archives and provided information on the potential for achievable community outreach work.

This revised proposal has been produced by staff at MoLAS in liaison with colleagues in other organisations and our advisers.

1 Introduction to the updated project design

1.1 Scope of the project

This document forms the revised version of part 2 of *A post-excavation assessment and updated project design*, submitted to English Heritage in March 2004. It should therefore be read with reference to *Part 1: a post-excavation assessment*. It has been prepared using funding from the Aggregates Levy Sustainability Fund. This revision of the Updated Project Design proposes a focussed programme of analysis and publication, allied with the forthcoming popular publication, an existing website and selected outreach work, all intended to disseminate results to users.

The site assessments, presented in detail in Part 1, relate to the following sites: Great Sunnings Farm and Manor Farm in the east, Hunts Hill and Whitehall Wood to the south-east, Moor Hall Farm and Great Arnold's Field to the south-southeast, Uphall Camp to the west, and Warren Farm and Fairlop Quarry to the north. As the order suggests, the sites fall into several pairings and clusters, and these groups of sites tend to have shared attributes.

1.2 English Heritage July 2004 and January 2005 comments and eligibility of the sites

An initial set of comments was received from English Heritage by email on July 16, 2004. These included queries about whether particular sites were the subject of gravel extraction. It was noted that Uphall Camp was not eligible for further ALSF funding in Round 2 as it was not an extraction site. The eligibility of the Fairlop Quarry and Warren Farm sites was queried due to their more complex planning background, as some developer-funded archaeological work had taken place there and might compromise the terms of the ALSF funding. Manor Farm, though technically not excavated under a gravel extraction licence because the planning application failed, was subsequently designated as the site of an agricultural reservoir, and archaeological work took place in advance of gravel extraction by Ayletts (Bretts Aggregates). Archaeological recording at Moor Hall Farm took place in advance of gravel extraction by Cawoods (now part of Redland Aggregates) and rescue work was partly funded by the DoE. The gravel extraction status of the four other sites is beyond doubt.

The July 2004 comments recommended a more focussed approach to develop a synthetic approach to the understanding of an aggregates extraction landscape and complying with ALSF criteria. It was noted that the synthesis should include two other core aims: the securing and organising of the archives, and a limited outreach programme to promote knowledge of conservation issues surrounding gravel extraction. These comments and further consideration of the potential of the assessed data resulted in the November 2004 revision of the UPD, concentrating the work on the main cluster of interventions in Rainham and Dagenham and their broader context.

The revised UPD was the subject of a new circulation within English Heritage and a new set of collated comments were sent to MoLAS on January 26, 2005. These comments expressed 'clear and unambiguous support for the project' but made a number of specific recommendations, including the detailed costing of a GIS dissemination. This February 2005 revision of the UPD is our response to the last set of comments and includes a revised costing and programme for the proposed work.

1.3 Summary of principles and approaches to the synthesis

Now 'landscape' is a capacious mansion with many rooms, and rightly so (Cherry 2003:158)

1.3.1 Introduction

This revised proposal sets out an approach to publication of a landscape synthesis on human habitation on the East London Gravels. Approaches to landscape studies can involve many approaches, from the study of settlement patterns built up from field descriptions and their analysis through to consideration of how the physical landscape is seen in a cultural or symbolic sense. The notion of landscape – an integrated study of humans and their environment - can stretch from geophysical modeling to a deeper understanding of space and place, and landscape analysis would be incomplete without some synthesis (Wandsnider and Dooley, 2004).

The proposed East London Gravels work will use information from a variety of sources to construct a narrative without resorting to the full analysis of the site archives. The proposed reduction in the geographic scope of the analysis, now covering a study area centred on the six gravel extraction sites in Upminster and Rainham, will help both to reduce costs and provide a better focus. Summary results of work at sites such as Fairlop Quarry and Warren Farm can still be included or referenced, along with the results of work on East London Wetland sites to the south and west, and many other recent interventions by MoLAS and others. Analysis of the findings from Hunts Hill Farm and the other main sites in the study area will focus on material that can be tied to major phases of activity and on important environmental material and selected assemblages of artefacts. The work will provide analysed data for use in a GIS environment and a GIS project. Generally speaking categories of registered finds (for instance 'Belgic' bricks and loomweights) will be considered in terms of their spatial distribution and function rather than description, and discussion will take precedence over catalogues. A synthetic publication and complementary GIS-based dissemination programme will be the primary outcomes of the work.

1.3.2 Definition of the revised study area

The study area will be defined as encapsulating the six sites in the Rainham and Dagenham area - from Great Arnold's Field and Moor Hall Farm in the southwest to Hunts Hill Farm and Whitehall Wood in the east and Great Sunnings Farm and Manor Farm in the northeast. The overall area measures c. 6 km east-west by 5 km north-south. Selected information from other sites, including PPG16-funded work, SMR data and other data will be included in the synthesis where it helps in characterising the broader landscape. Archaeological information from interventions outside the study area may be referred to at a 'landscape' level for comparative purposes, and make use of assessed information from sites such as Warren Farm – where the higher

ground was used for the siting of windmills, in contrast to the generally flat agricultural landscape of the Dagenham and Rainham sites.

Fig 1 Location of the selected sites within the revised study area

1.3.3 Types of data considered for inclusion

A GIS-driven approach to the analysis and presentation of data will be developed in Stages 1 and 2 of the project. Spatial analysis will begin with the core site archives, where the phasing of features will be queried and the distribution of selected finds assemblages studied via use of the MoLAS Oracle finds database and ArcView. Subsidiary information will then be brought into consideration in order to extend the dataset – an essential prerequisite to a synthetic landscape study. This will be done as economically as possible. Methods will include use of finds spot data files linked to ArcView, as carried out on the City Prehistory project. The synthesis should also utilise published data from other sites in the area that have important implications for landscape-based study, such as timber trackway evidence (Meddens, F, 1996 'Sites from the Thames Estuary Wetlands, England, and their Bronze Age use' in *Antiquity* 70) and the Bronze Age enclosure at South Hornchurch (Guttman, E B A, and Last, J, 2000 'A Late Bronze Age landscape at South Hornchurch, Essex' in *Proc Prehist Soc* 66, 319–59). Summary evidence from other projects will include work in preparation at MoLAS (ie Holder, N et al, in prep *Later prehistory in the former wetlands of east London*) and at other archaeological contractors such as PCA. GLSMR data has also been collected for a large swathe of land along the Shenfield route of the proposed CrossRail project, running east-west through Romford, just to the northwest of the proposed ELG study area but southeast of Warren Farm. Where possible the synthesis should also include some brief discussion of recent fieldwork such as the PCA-excavated large Bronze Age enclosure at Dagenham.

1.3.4 Thematic focus

The landscape synthesis will focus on a small number of main themes:

- Development of field systems and the agriculture landscape
- Ritual/religious activity within the landscape
- Pattern and nature of settlement

These themes can be examined predominantly on a chronological basis by considering each aspect and how it has changed over time. The first theme, *Development of an agricultural landscape* appears to be the best represented in the core site archives, with sites like Hunts Hill Farm and Moor Hall Farm having long sequences, and this topic may come to form the framework against which the others are placed.

Stratigraphic analysis will concentrate on confirming phasing of the sites and on major landscape features such as field systems (linear features, ditches and waterholes), structural evidence identified at assessment and pits deemed significant by their location at the junctions and boundaries of other features or by association with significant assemblages of artefacts and ecofacts. This work will require completion of spot-dating during Stage 1 of analysis. Miscellaneous pits and postholes will generally not be included in the analysis. Stratigraphic analysis will

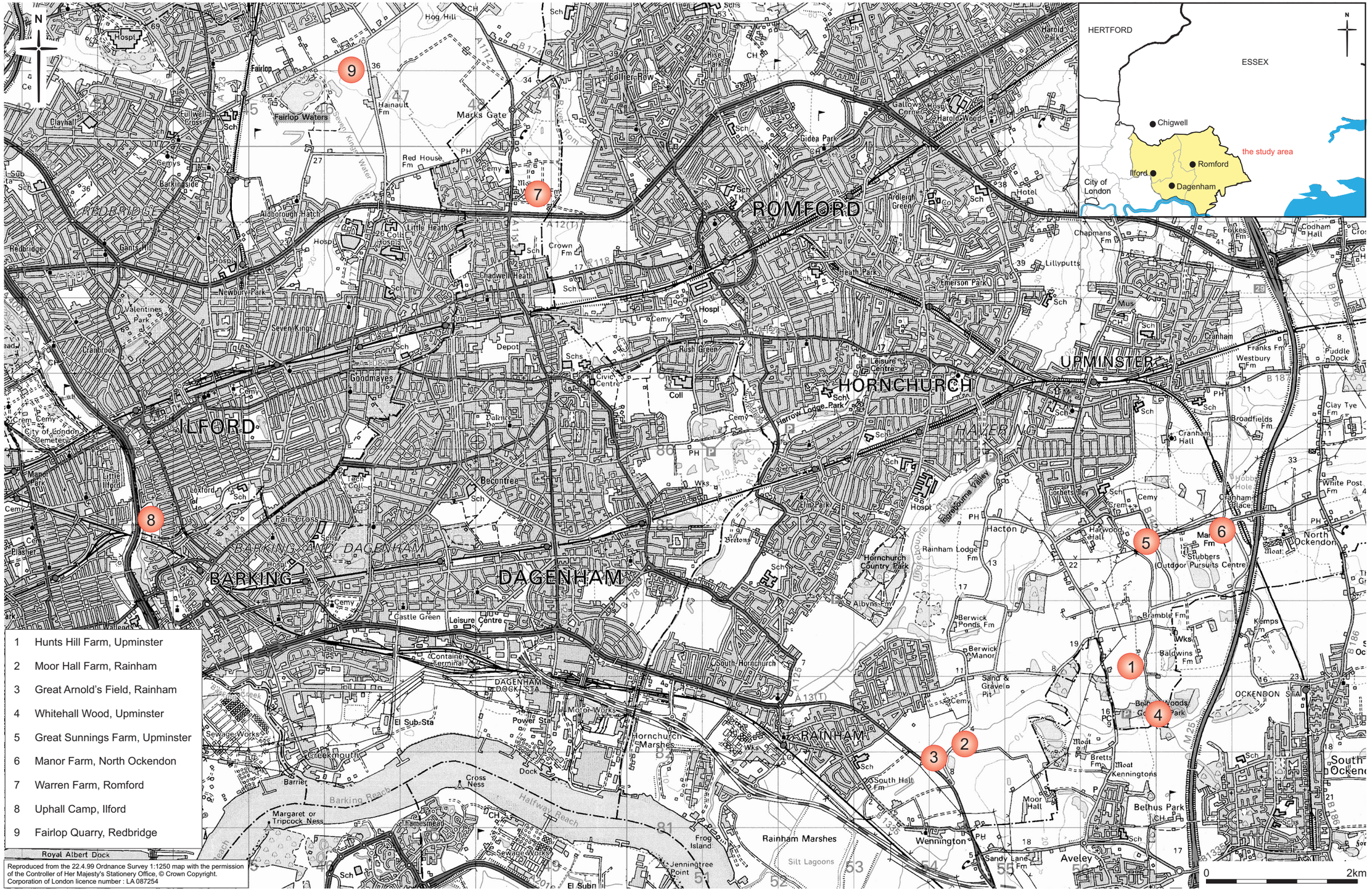

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Fig 1 Site locations

vary significantly from the usual MoLAS methodological approach in that the site sequences will NOT be subgrouped or grouped. Instead the preliminary phasing carried out as part of the assessment will be re-evaluated and, once confirmed, selected parts of it taken forward directly to final site phasing. Oracle and ArcView systems will be adopted to omit the intermediate stages of analysis. This approach, though not suitable for analysing urban sequences or comprehensively recorded 'modern' site archives that could support a greater degree of interrogation, is thought appropriate for the ELG archives and sequence-types.

The selected sequences and features will be the vehicle for exploring the landscape and describing activities within it. They will form an important part of the narrative and the route into the presentation of the general understanding of the landscape. This process is likely to require only selective additional digitising beyond what was done at assessment, followed by validation in ArcView. Features that appear to add little or nothing to our understanding of the landscape will generally be omitted. A variety of data loaded into a GIS project - including selective data from PPG16-funded sites, GLSMR information, geology, topography, ordnance survey and historic mapping - is expected to be more useful in defining the architecture of the broader landscape.

1.3.5 Example content

Evidence from the Neolithic period, particularly from Great Arnold's Field, provides scope for consideration of monumental elements in the landscape compared to evidence for domestic life. It has been noted that the Great Arnold's Field evidence may be of national significance, given the relative scarcity of sites (Kinnes 1979), and that the Mildenhall pottery can be compared to that from Orsett (Hedges and Buckley 1978).

A plot of finds spots across the study area will be useful to the analysis and could include Early Bronze Age beakers. Evidence from the core sites and surrounding landscape for the development of field systems and agricultural economy from the Middle Bronze Age through to Late Roman periods can be analysed and then compared and integrated with other published and available data to examine overall development. More generally, the synthesis of evidence can be both analysed and presented as part of a GIS project, with plots and plans used to illustrate topics such as the morphology of field systems and the evidence for pastoral or arable economy in different periods. Analysis can then consider how settlements were located within the landscape of field systems and how the evidence for ritual activity – such as cremations - fits within it.

A comparison of the study area with other landscape studies should also be attempted, as in the model put forward for the Thames and southern England by David Yates. We will further consider whether a Late Bronze Age regional centre can be identified along the lower Thames, as Yates suggests one should be present.

Other major topics to consider include the evidence for the transition from the Late Bronze Age to the Iron Age, and whether the decline, suggested elsewhere at this time, is apparent in this area. The impact on the landscape of the Roman arrival should also be discussed, as should subsequent developments in the changing agricultural exploitation of London's hinterland.

Specialist analysis of finds groups would select only those assemblages that can help us to understand the nature of these activities. This work would need to be preceded by some additional spot dating of contexts, particularly those identified in meetings between the stratigraphic team and specialists as being important to the dating of key landscape features. Some unrecorded pottery may also be scanned. As stated elsewhere in this report, the emphasis of the registered finds analysis would be placed on spatial distribution rather than on description and cataloguing.

There was not a substantial amount of plant material from the Rainham and Dagenham sites though some attempt can be made to analyse the development of the agricultural economy by looking at the range of crops grown through time and any evidence of spatial variation. The evidence from the core study area sites could then be compared to other evidence. The waterlogged plant remains from Hunts Hill Farm may inform us of the character of the local environment but this may not imply much for the wider landscape.

All of the cremation burials from the core study area sites are from Iron Age or Roman contexts, and there is a single inhumation to consider. They alone do not form a large enough group to allow consideration of changes in burial practices, particularly given that the samples are relatively similar in date, but there are probably sites from the general area with which comparisons could be drawn and used in a thematic text. In any case the cremation data will be supplementary to the general archaeological narrative, providing some data on ritual (for example from pyre temperatures, age and sex). Discussion of the human remains will form part of the theme on ritual and religious activity within the landscape.

1.4 Means of dissemination

The primary means of publication of the synthetic landscape study will be as a short MoLAS monograph, supplemented by journal articles. Preliminary synopses for this work can be found in Section 4.2.

This will be complemented by a GIS project produced on ArcView 9 or later and functioning with a fully documented geodatabase to allow easy migration to ArcIMS. The GIS will be hosted by the MoLAS website.

The GIS project will operate at a series of scale-dependent levels. The first of these will be a site and find distribution linked with very basic broad information. This can be displayed with interpretive landscape zones for each period and supported by associated text. Users will be able to zoom to a smaller scale showing site boundaries. Sites will be linked to a summary text on fieldwork and site interpretations, supported by graphics, including mapping data. At the smallest scale digitised phase plans will be linked to associated text and photographs.

It is proposed that the GIS project platform in ArcIMS be hosted and maintained from its creation in the autumn of 2006, until a date 6 months after project completion in March 2007. This would be the end of September 2007. The site would carry a statement saying that the data and information shown was last updated in March 2007, and it is thought that its reliability and currency of the data is unlikely to be significantly compromised in 6 months. We understand that English Heritage and the ALSF are not able to make a financial commitment to open-ended or recurrent costs relating to supporting a website. Current estimates are that the costs of hosting

the website for a time-limited period will be small if not negligible, based on a data set of 20MB and a small user base which will not require a great bandwidth usage.

The data will also be available by request on CD with a free GIS reader. The CD can also be included in the back of the monograph. By 2007 it should be possible to refer users directly to the archive for the digital data if that archive is the LAARC, as it is expected that the LAARC will have a digital archive download capability by that time.

1.5 Links to other projects

The East London Gravels landscape synthesis proposed here can function as a stand-alone project but it is important to note that there are other ALSF-funded projects and proposals for adjacent areas. These include the *Lea Valley mapping project* (MoLAS 2004) and *An archaeological survey of mineral extraction sites around the Thames estuary* (Historic Environment Branch of Essex County Council and Kent County Council 2004). There is also information available through other initiatives, including the *Historic Environment Strategy for Thames Gateway*, the English Heritage *Characterisation project for the Thames Gateway growth area*, and the BGS *Foundations initiative for the Thames Gateway area*.

Comparison of the East London Gravels landscape with other landscape studies in the London area and Thames valley areas should include the following: *Later prehistory in the former wetlands of east London* (MoLAS in prep), *The prehistory of the City of London: myths and methodologies* (*Archaeol J* 2003) and *West London landscapes* (MoLAS in prep), as well as the papers by Guttman and Last, Meddens, Yates and others. These are listed in the select Bibliography.

1.6 The organisation of this report

The revised Updated Project Design, presented here as Part 2 of the Assessment document, takes an overall view of the value of the material and sets out proposals for further work. The work programme (Section 5) is organised as a series of research modules delivered over three stages.

Eleven major research aims were identified in the original Project Design, derived from broad themes which run through the site objectives and formulated into a series of questions focusing on the most promising elements of the site archives. These are summarised in Section 2. Section 3 summarises the research potential of the project and Section 4 presents the revised research aims. In section 5 the programme of work, made up of modules formed from bundled groups of methodologies, is described. Section 6 contains a concordance table of aims, modules and support methods. This is followed by details of the support methods, set out as tasks 1-178, and a list of the project team members. A select bibliography is presented in Section 7.

2 Original research aims

The East London Gravels project has the potential for analysis of development on the gravel terraces from the 3rd millennium BC up to the 17th and 18th centuries. Eleven major research aims were identified in the original Project Design, derived from broad themes which run through the site objectives and formulated into a series of questions focussing on the most promising elements of the site archives. These are summarised below with reference to relevant research statements in the *English Heritage Archaeology Division research agenda* (English Heritage, 1997) and *A research framework for London archaeology 2002* (Nixon et al, 2002).

- ORA 1: define a study area which will address an emerging research agenda for prehistoric and Romano-British activity in East London (English Heritage 1997, 56 (L4) and 60 (MTD11))
- ORA 2: establish a methodology to assess and reference the prehistoric ceramics and lithics recovered from the sites in a commonly agreed and accepted manner
- ORA 3: develop an understanding of the relationship between the pottery fabrics and forms from the Neolithic through to the Iron Age-Roman transition, facilitating development of a clear chronological framework by establishing a regional pottery sequence supported, where possible, by absolute dates (Nixon *et al* 2002, 19–20, English Heritage 1997, 55 (L3))
- ORA 4: report on the few finds and features of Palaeolithic and Mesolithic date from the sites in this project, and to relate them to known activity in the locality
- ORA 5: collate and present the evidence for ritual or ceremonial activities, and to propose a framework for their development (English Heritage 1997, 44 (PC3)).
- ORA 6: examine the evidence for the transformation from a ceremonial landscape to an enclosed agrarian landscape with increasingly long-lived patterns of settlement during the late 2nd and 1st millennium BC (Nixon *et al* 2002, 21).
- ORA 7: explore the further changes taking place in the agricultural landscape during the 1st millennium BC and the appearance of nucleated settlements in the study area in the late 1st millennium BC and to analyse the associated activity traces (Nixon *et al* 2002, 21, English Heritage 1997, 48 (P8)).
- ORA 8: interpret the evidence for the Late Iron Age-Roman transition, to understand the rate, scale and causes of change (Haselgrove et al 2001, English Heritage 1997, 44 (PC4)).
- ORA 9: characterise the nature of Roman hinterland occupation (Nixon *et al* 2002, 24–5 and 36–7) and consider whether a decline in or change of land use occurred in the study area between the middle of the 2nd century AD and the end of the 3rd century AD.
- ORA 10: characterise the post-Roman development of the East London landscape, identifying foci of activity (English Heritage 1997, 44 (PC5), Nixon *et al* 2002, 38–9).
- ORA 11: recreate landscapes from historical, archaeological, ecological and topographical data, interpret partitioning, alignments and territory and chart the way successive societies used and transformed the landscape; demonstrate the extent to which natural and man-made features influenced later land use and

settlement patterns in the study area and in a regional context (English Heritage 1997, 56 (L4)).

The Project Design set out to consider the potential of the project at four levels:

- ability to reconstruct the architectural settings and types of occupation and activities which occurred within the evolving landscape of what is now East London
- potential for constructional, depositional and environmental evidence to expand current understanding of particular research themes, within a regional and national framework for prehistoric, Roman and later studies
- potential of the overall dataset to contribute to the regional model of changing landscapes
- usefulness of existing interim reports and earlier assessments in identifying gaps in our knowledge, allowing a targeted selection of tasks needed to assess potential

3 Summary of research potential

Site-specific statements of research potential can be found in Part 1, Section 3 of the post-excavation assessment, where the potential and significance of the sites is considered. The recent assessment work has made it possible to refine the previously known potential of the material and identify some additional areas for research.

Areas of research potential can be related to many of the period-specific research objectives listed in Nixon et al 2002, *A research framework for London archaeology 2002*, particularly P1, P4-6, R2, S2, M2 and L2. A landscape study supported by a GIS project also has excellent potential to address major themes relating to topography (TL1, TL2, and TL3), development (TD1, TD2) and in a lesser way to many other themes. Summaries of potential relating to particular aspects of the work have been twinned with the revised research aims (RRAs) in Section 4, and a short statement of the overall potential of the project is set out below.

The West London Landscape project is currently the subject of analysis work by MoLAS and, with Framework Archaeology's post-excavation analysis of findings from Heathrow T5, these initiatives will generate models for the study of that landscape. The East London Gravels project calls for the development of an interpretation of social development in the landscape east of London but is unlikely to be exactly comparable or achieved through the use of a single 'template' – the work must take into account the differing limitations presented by the site records and, more important perhaps, differences in the nature of human occupation east and west of London. The large size of the assessed ELG Study Area and chronological sweep of the material is challenging, and will remain so even with the focus restricted to the Rainham and Dagenham sites and the 30 sq. km. study area surrounding them.

The East London Gravels analysis will concentrate on providing a landscape study of the area, with some comparison to other areas. The work will first involve establishment of a validated and analysed dataset relating to the site archives and then move out to consider the evidence in the context of the broader landscape. This will be achieved through the inclusion of geological, topographical and historic mapping data, the review of GLSMR data, selected information from PPG16-funded sites and other archaeological work, documentary records and other evidence, which will be brought together in a GIS supporting the main text. An updated research framework for the area will form part of the final publication.

The publication will contribute to recognised academic aims and also help to inform other users in the community through Outreach initiatives. The work will make an important contribution to models of social development and landscape which can then be compared to other landscape types and river valleys. To sum up, the potential of the project lies at three levels:

- establishing a validated and analysed dataset relating to occupation within the East London Gravels landscape defined by the study area and its boundaries
- generating narratives for academic researchers and public programmes, expanding the understanding of conservation issues, archaeological periods and themes within regional and national studies
- contributing to a regional landscape model and the discussion of broader social and cultural themes

4 Revised research aims

The revised research aims (RRA) are presented below. They are categorised according to the 11 major original research aims (ORA), listed in the Project Design and reiterated in Section 2 above, from which they have evolved.

Each aim is followed by a summary statement of the potential and reference to the methods by which the aim can be achieved, with reference to the broad methodological modules set out in Section 5.2 (Modules M1-M6) and individual methods (stratigraphic analysis, ceramic typology, digital mapping etc). The latter are listed as Support Methods in Section 5.3 and numbered from SM1-SM22. Module 1 (public programmes and outreach) and Support Methods SM15-SM22 are common to all RRAs.

4.1 Revised aims

It should be noted that site-specific statements of research potential can be found in Part 1, Section 3 of the post-excavation assessment, where more detailed revised research aims are listed on a site by site basis. It is likely that other, overarching landscape themes will emerge during analysis.

4.1.1 RRA 1: define a study area which will address an emerging research agenda for prehistoric and Romano-British activity in East London (ORA 1)

Potential RRA 1: The identity of the revised study area is based on the selected sites situated on the east London gravel terraces, and the assessed findings from them. Analysis will contribute to the further development of a defined study area which includes many other instances of archaeological intervention, including relevant information from PPG16-funded sites and other fieldwork not within the present post-excavation project. The final identification and selection of these sites will be made at the start of the stratigraphic analysis work.

The revised study area, measuring c 6km east-west by 5km north-south, includes six sites in what was primarily a ceremonial and agricultural landscape for nearly three millennia.

Method RRA 1: digitising and mapping, stratigraphic analysis

Relevant Modules: M1, M2, M3, M4, M6

Support methods: SM1, SM3, SM15-22

4.1.2 RRA 2: move towards a regional ceramic dating typology through a common approach to analysis of prehistoric ceramics and lithics (ORA2)

Potential RRA 2: The study of the prehistoric ceramics has taken place largely on a site-by-site basis, looking at local typologies and with little cross-correlation. The ELG project will help the move towards a regional approach, providing a range of dates securely tied to pottery chronologies.

Example: At Hunts Hill Farm the date of the decorated tub from [4342] should ideally be established by dating the carbonised residue from the interior of some of the sherds from the vessel. As the vessel is not a classic Deverel-Rimbury style flint-tempered fabric, if the dating confirms a Middle Bronze Age date this will contribute to how we characterise Middle Bronze Age fabrics. Attempts should also be made to refine the dating for shell-tempered ware found in association with the Neolithic pottery at Great Arnold's Field.

Method RRA 2: ceramics and lithics analysis; AMS dating of carbonised residues

Relevant Modules: M1, M2, M6

Support methods: SM5, SM6, SM15-22

4.1.3 RRA 3: develop a clear chronological framework for the ELG sites by establishing a regional pottery sequence through absolute dating (ORA 3)

Potential RRA 3: The lack of a regional fabric reference collection hinders the examination of links between the different local and imported fabrics and forms. The ELG project will help improve this situation, although it is recognised that the assemblages are not sufficient to develop a regional typology. The prehistoric pottery assemblages were assessed with the aim of producing a fabric type series for prehistoric pottery. Although this type series has proved useful in categorising and recording the pottery, there are doubts whether the material can provide a framework for coarse flint-tempered fabrics. Not enough well-defined forms are present for the majority of the earlier prehistoric ceramics, based upon the sample of the pottery examined in the assessment.

Examples: Radiocarbon dating will be used to provide absolute dating for the prehistoric ceramic sequence in order to improve the phasing of the individual site sequences. The LIA/Roman and prehistoric pottery specialists will also work together to refine the classification and dating of shell-tempered wares in the Middle Iron Age and Late Iron Age/early Roman transition.

Method RRA 3: prehistoric and LIA/Roman pottery analysis, radiocarbon dating

Relevant Modules: M1, M2, M3, M6

Support methods: SM2, SM5, SM6, SM15-22

4.1.4 RRA 4: identify finds and features of Palaeolithic and Mesolithic date from the sites, and relate them to known activity in the locality (ORA4)

Potential RRA 4: The palaeolithic and mesolithic periods are rarely found in the archaeological record of Greater London and their rarity means that all finds of these dates should be reported. Patterns of deposition or distribution will also be discussed through the analysis of the sequence and the material will be put into its landscape setting. The types of raw materials used will be examined, together with a discussion of the types of activities represented.

Example: The Great Arnold's Field site's significance is centred on the Mesolithic and Neolithic period evidence. The lithics assemblage and the excavated features of the site can contribute to this aim.

Method RRA 4: lithics analysis, graphics

Relevant Modules: M1, M4, M5, M6

Support methods: SM1, SM4, SM6, SM15-22

4.1.5 RRA 5: collate evidence for ceremonial activities and their development (ORA5)

Potential RRA 5: One of the more intriguing aspects of the east London prehistoric landscape is the apparently ritual or ceremonial aspect of many features within it. It is important that this ceremonial attribute, where present, is carefully characterised in terms of its architecture and associated deposits, in order to help us to begin to understand the complexities of the evidence. Analysis will look at residues of activities and relate them to the more visible monumental remains, to allow research into the interaction of the domestic with the more formal aspects of society.

Example: At Great Sunnings Farm apparent Early Iron Age cremations and structured deposition was recorded. If genuine this would be rare and significant, and the character of this activity and associated assemblages need to be analysed. It might be possible to directly date the cremated bone using AMS. Cremation deposits from Manor Farm may contribute to the study of pyre technology and inter-period comparison. At Hunts Hill Farm some artefacts and features may indicate ritual activity. The Great Arnold's Field Mesolithic and Neolithic lithics may also relate to ceremony.

Method RRA 5: prehistoric pottery analysis, lithics analysis, radiocarbon dating, stratigraphic analysis, accessioned finds, digitising, faunal remains, palaeobotany, graphics, timber recording, human bone

Relevant Modules: all

Support methods: SM1, SM2, SM3, SM4, SM5, SM6, SM7, SM8, SM9, SM10, SM11, SM12, SM13, SM14, SM15-22

4.1.6 RRA 6: examine the transformation from a ceremonial landscape to an enclosed agrarian landscape during the late 2nd and 1st millennium BC (ORA 6)

Potential RRA 6: This period redefines the landscape across the London region and can be compared to information from West and Central London and elsewhere, reflecting a wider picture of the emergence of the formalised field and settlement systems of farming communities. Using stratigraphic, lithic, ceramic, and environmental evidence the project can examine this transformation. Retention or continuity of the earlier landscape will also be discussed.

Example: The nature of Bronze Age activity at Hunts Hill Farm needs to be examined to see if there is a visible change from a ritual landscape to an agrarian settlement. Scattered evidence comes from manner of the other ELG sites, where LBA/EIA and early Roman enclosures may reveal the nature of settlement.

Method RRA 6: prehistoric pottery analysis, lithics analysis, radiocarbon dating, stratigraphic analysis, accessioned finds, digitising, faunal remains, palaeobotany, graphics, timber recording, human bone

Relevant Modules: all

Support methods: SM1, SM2, SM3, SM4, SM5, SM6, SM7, SM8, SM9, SM10, SM11, SM12, SM13, SM14, SM15-22

4.1.7 RRA 7: explore the changes taking place in the agricultural landscape during the 1st millennium BC (ORA 7)

Potential RRA 7: The east London site sequences include evidence for field systems dated to the Late Bronze Age onwards. Analysis of changes in patterns and shifts in the focus of activity between the LBA and the Early Iron Age and Middle Iron Age may shed light on environmental change and the presence or absence of settlement.

Example: An Iron Age double enclosure recorded at Great Sunnings Farm contributes to this research aim. At Hunts Hill scattered timber and earthen structures such as roundhouses, enclosures and wells can help us to characterise the appearance of the Bronze and Iron Age settlements and identify evidence of a transition. LBA to EIA field boundaries were also evident at Whitehall Wood.

Method RRA 7: prehistoric pottery analysis, lithics analysis, radiocarbon dating, stratigraphic analysis, accessioned finds, digitising, faunal remains, palaeobotany, graphics

Relevant Modules: all

Support methods: SM1, SM2, SM3, SM4, SM5, SM6, SM7, SM8, SM9, SM10, SM11, SM12, SM15-22

4.1.8 RRA 8: interpret the evidence for the appearance of nucleated settlements in the Late Iron Age and the subsequent Roman transition (ORA8)

Potential RRA 8: The east London site sequences include evidence for a LIA/Roman transition at some sites but not others. Analysis of changes in patterns and activity between the LIA and early Roman periods may reveal social, environmental, political and economic change.

Examples: The Great Sunnings Farm sequence includes an Iron Age double enclosure and transition to a Roman field system relevant to this research aim. A clearer understanding of the dating and extent of these features will be of benefit. Analysis of the 'Belgic' bricks from Manor Farm and Hunts Hill Farm may help to define the nature of the Iron Age occupation of the sites and contribute to the area-wide spatial study of this artefact. The evidence from Hunts Hill Farm and Whitehall Wood should also be analysed for evidence of change in the nature of occupation. The Moor Hall Farm evidence for the Late Iron Age-Roman transition may be of particular use in understanding the rate, scale and causes of change. The Great Arnold's Field evidence should be considered as a subset of Moor Hall Farm.

The Late Iron Age/Roman pottery assessments show that the sites fall into three main groups: sites whose pottery assemblages have relatively high potential and justify detailed analysis - Hunts Hill Farm, Moor Hall Farm and Great Sunnings Farm; sites whose pottery assemblages have relatively limited potential, but where selective analysis might contribute to the research aims - Manor Farm; and sites whose assemblages have no potential and where further work is not justified - Great Arnold's Farm and Whitehall Wood.

Method RRA 8: LIA/Roman pottery analysis, radiocarbon dating, stratigraphic analysis, accessioned finds, digitising, faunal remains, palaeobotany, graphics

Relevant Modules: all

Support methods: SM1, SM3, SM4, SM5, SM7, SM8, SM9, SM10, SM11, SM12, SM15-22

4.1.9 RRA 9: characterise the nature of Roman hinterland occupation and consider whether a decline in or change of land use occurred in the study area between the middle of the 2nd century AD and the end of the 3rd century AD (ORA9)

Potential RRA 9: As in the case of the West London Landscape, the ELG sites offer the opportunity to examine the physical evidence for the emergence of a Romano-British rural landscape from its pre-Conquest base, and to examine the way in which that system evolved over time. Analysis will consider how the Roman conquest influenced patterns of continuity and change with pre-Roman land use, and characterise the forms of occupation that were present. Later Roman changes in the countryside and their relationship with other evidence for economic decline will also be reviewed in order to improve our understanding of the late Roman landscape.

Examples: Evidence for Roman field systems was recorded at Great Sunnings Farm, Hunts Hill Farm, where cremation deposits with environmental data may also provide evidence of pyre technology, and the nearby Whitehall Wood site. At Moor Hall Farm the stratigraphy, pottery, accessioned finds and environmental analysis of the Roman sequence should help to characterise the nature of hinterland occupation. The decline in pottery deposition after AD 130 and the increase in deposition after c AD 350, together with the evidence for later Roman buildings on the site, may be of particular significance. The Great Arnold's Field evidence should be considered as a subset of Moor Hall Farm.

Analysis should also consider the changes in pottery supply between the early and late Roman periods, by looking at large key groups quantified by estimated vessel equivalents (EVEs), and more general analysis of assemblage composition by fabrics/forms present in well-dated contexts quantified by sherd count and weight. Pottery evidence should be considered along with other finds to characterise the economy and status of individual sites, to enable comparison to be made with Roman London and other sites in its hinterland.

Method RRA 9: LIA/Roman pottery analysis, stratigraphic analysis, accessioned finds, digitising, faunal remains, palaeobotany, graphics, human bone, timber recording

Relevant Modules: M1, M3, M4, M5, M6

Support methods: SM1, SM3, SM4, SM5, SM7, SM9, SM10, SM11, SM12, SM13, SM14, SM15-22

4.1.10 RRA 10: characterise post-Roman settlement and land use on the east London landscape (ORA 10)

Potential RRA 10: The east London site sequences include important instances of Saxon and medieval occupation which contribute to regional research aims. However, the recent collated comments on the November 2004 UPD have questioned whether the evidence from the historic period is sufficiently coherent to contribute to a meaningful landscape analysis. Rather than drop the post-Roman from the project, it

has been suggested that the later evidence be analysed with reference to existing models such as Roberts and Wrathmell and their use of 19th-century maps to inform earlier settlement patterns. This will be the approach taken and the GIS, allied to map regression, will be used to test whether settlement and field patterns can be traced back from the early modern era.

Examples: Saxon activity at Manor Farm was represented by Early Saxon pottery. Shell-tempered fabrics were found at Hunts Hill Farm and the adjacent Whitehall Wood. These should be compared with other sites in southern Essex to inform us of regional pottery production and distribution. The form and function of the Norman hall house from Hunts Hill Farm is also worthy of analysis and publication. The Whitehall Wood post-Roman sequence and Saxon pottery can contribute particularly to RRA 10. The Saxon sherds should be included in a programme of chemical (ICPS) analysis for the project as a whole so that their chemical profile can be established..

Great Arnold's Field also includes evidence for medieval settlement, although there were no extant buildings. Thin section and chemical analysis of shell-tempered wares can help in understanding the composition and dating of the distinctive medieval pottery assemblage and its comparisons locally and regionally.

Method RRA 10: post-Roman pottery analysis, stratigraphic analysis, accessioned finds, digitising, faunal remains, palaeobotany, GIS and map regression

Relevant Modules: M1, M3, M4, M5, M6

Support methods: SM1, SM3, SM4, SM5, SM7, SM9, SM10, SM11, SM12, SM15-22

4.1.11 RRA 11: recreate landscapes from historical, archaeological, ecological and topographical data, interpret partitioning, alignments and territory and chart successive uses of the landscape (ORA 11)

Potential RRA 11: The establishment of a research agenda investigating the evolving landscape and the influence of natural and human activity is a principal aim of the East London Gravels project. The themes and patterns emerging from research will be collated and the principal authors, in association with the academic adviser, will write a synthesis on the mechanics and reasons for change in the landscape of east London. This pattern will be compared to conclusions reached by researchers in the wider region, with reference to existing settlement and land-use models (see RRA10).

The largest data set is from Hunts Hill Farm. The analysis of Hunts Hill and the other sites will focus on key assemblages, major phases of activity and economic evidence from secure groups. Spatial analysis of the evidence using ArcView will drive the synthetic publication and this will be complemented by a GIS project available via the web through ArcIMS.

Example: The larger sites such as Hunts Hill Farm and Moor Hall Farm offer the opportunity to trace human impact on the landscape through successive periods of activity and consider how it was shaped by the existing natural landscape.

Method RRA 11: all

Relevant Modules: all

Support methods: all

4.2 Preliminary publication synopsis

As stated elsewhere in this document, the results of the programme of analysis will be published as part of a landscape synthesis. Dissemination will also take place using a GIS ArcIMS project hosted by the MoLAS website for a time-limited period and available on CD by request. The overall project work will also be flagged up through regular updating of the existing project website. The outline synopses set out below will no doubt change in light of the analytical work, and will be reviewed during the course of the project. A PPS paper on the Great Arnold's Field ring-ditch and associated Neolithic flint and pottery is also proposed. Radiocarbon dating work by Alex Bayliss will contribute to the *National database of radiocarbon dates*.

4.2.1 The East London landscape: a synthetic study (MoLAS Monograph)

Julian Hill, Dan Swift and Isca Howell with Jon Cotton, Charlotte Thompson, Louise Rayner, Angela Wardle, John Giorgi and others; academic adviser Richard Bradley

Of the 6 key sites which form the core of the revised proposal none justify a traditional stand-alone site sequence publication. However the site archives do contain important aspects deserving of selective publication. A synthetic study will bring site-specific findings together and use them to interpret social development within the landscape.

Publication would take the form of a short monograph. The publication proposed here envisages a series of major thematic essays followed by thematic aspects and supported by selected site narratives. The text will integrate stratigraphic, finds and environmental evidence as well as interpreted map data, GLSMR information and other evidence. Selective information from PPG16-funded sites will be used to help characterise the landscape in the study area. These sites will be targeted on zones with gravel extraction licences, the information taken from the Essex Minerals Maps and from other sources. Site information from wetlands that define the edge of the extractable resource may also be included in a synthetic form to help define landscape limits.

Interpretation and presentation will be driven by a programme of analysis using ArcView and will be supported by a GIS ArcIMS project. The publication will not include catalogues or appendices, with users referred to the supporting research archives and reports which we expect to be accessible through the LAARC. The target length of the synthetic publication is 75,000 words. A basic outline is set out below but will be developed into a detailed synopsis at the end of the analysis stage.

Introduction (5,000 words)

The landscape - major themes (25,000 words)

- Early and ceremonial activity within the landscape
- Development of field systems and the agriculture landscape
- Pattern and nature of settlement

Thematic aspects (25,000 words)

- Dating frameworks and typologies
- Routeways and links
- Settlements and hinterland

Examples of continuity and change

Environmental issues

Spatial analysis of cultural artefacts

Burial practices

Mapping settlement pattern shift

Modelling the historic landscape

Comparing landscapes (10,000 words)

East London Gravels landscape compared and contrasted with the East London wetlands and selected river valley evidence

The thematic discussions and aspects will be illustrated through a narrative based on broadly phased chronologies, important features and key assemblages for the core sites in the study area. The archive data will be supplemented by selective use of mapping data, GLSMR finds spots and other recent work analysed spatially in ArcView. The synthesis will not attempt to present a single chronological narrative for each of the 6 sites in the study area, which would be of limited interest, but will draw on evidence from some of the following areas:

The palaeo-environment; geology and topography; environment and stream channels

Mesolithic finds: Later Mesolithic at Hunts Hill Farm

Neolithic finds: Early Neolithic at Hunts Hill Farm, Moor Hall Farm and Great Arnold's Field; Late Neolithic at Hunts Hill Farm and Moor Hall Farm

Early Bronze Age: Hunts Hill Farm and Moor Hall Farm

Middle Bronze Age: Hunts Hill Farm

Late Bronze Age/Early Iron Age Transition and Early Iron Age: the Hunts Hill Farm unenclosed settlement; Whitehall Wood agricultural land; Manor Farm; Moor Hall Farm settlement; Great Sunnings Farm cremations

Middle Iron Age: the Hunts Hill Farm enclosure and settlement, evidence of metalworking; Manor Farm enclosure; Great Sunnings Farm double enclosure

Late Iron Age and Late Iron Age/Roman transition: the Hunts Hill Farm Romano-British settlement; Whitehall Wood agricultural land; Manor Farm enclosed settlement; Moor Hall Farm enclosed settlement

Early Roman (c. AD 70-200): Hunts Hill Farm agricultural land and cemetery; Moor Hall Farm agricultural land

Late Roman (AD 200-400): Hunts Hill Farm; Manor Farm agricultural land and cemetery; Moor Hall Farm building and agricultural land

Early Saxon: Hunts Hill Farm; Whitehall Wood settlement; Manor Farm agricultural land

Middle and Late Saxon: Hunts Hill Farm; Whitehall Wood settlement; Great Arnold's Field

Medieval: Hunts Hill Farm hall house and agricultural land

Post-medieval: Hunts Hill Farm agricultural land

Research agenda for the East London Gravels: (5,000 words)

A developed archaeological research agenda providing more detailed resource assessment summaries based on the emerging data, cross-referenced to the *Research framework for London archaeology* and its relevant objectives. This chapter will also clearly indicate which datasets were not analysed as part of the ELG project.

Bibliography, Endnotes and Index (5,000 words)

4.2.2 The neolithic ring ditch and associated lithics from Great Arnold's Field (PPS)

MoLAS author and Lynne Bevan with others

Publication of the Neolithic ring ditch and the pottery and flint assemblage from Great Arnold's Field would add to understanding of the 'ritual or ceremonial' taking place in the landscape. The worked flint from Great Arnold's Field is of considerable regional, if not national, significance. Much of the worked flint appears to have been derived from contexts also containing a broad range of dated Neolithic pottery, which further increases the dating potential of the assemblage and offers the opportunity to study changing core reduction strategies through time and the composition of cross-material culture assemblages. Comparisons can be sought with material from Mildenhall Fen, Suffolk (Clark 1960), and local sites. Text and illustration requirements will be finalised after analysis but the paper is likely to be less than 10,000 words in length.

4.2.3 Content of the GIS project

The GIS project will be produced in ArcView 9 or later, with a fully documented geodatabase migratable to ArcIMS. Ordnance Survey base mapping will be used in a modified form with project data, watermarked and showing the OS Licence Agreement Number. Information from the British Geological Survey (BGS) will also be used in the IMS installation but will be viewed and approved by BGS before going live.

The project will operate at a series of scale-dependent levels allowing sites and finds distribution to be linked with broad information and displayed with interpretive landscape zones for each period and supported by an associated text. Users can then 'drill down' to a smaller scale to reveal site boundaries, fieldwork text and interpretations. This could be supported by mapping data, digitised site plans, text and images.

Key spatial datasets will include:

- archaeological phase plans (polygon)
- site and find distributions (point)
- study area extent (polygon)

- site outlines (polygon)
- landscape interpretations (polygon)
- geology base maps from BGS (image)
- topography (image)
- historic mapping (image)
- ordnance survey mapping (raster image)

GIS project content will be developed by the authors during analysis. They will cleaning, digitise and develop interpretive maps, historic maps and other material. This will be used to produce relevant metadata so that the project is useful to external users. An explanatory text and photographs will be linked with the map data.

Preparation of the datasets for use in ArcIMS will include creating comprehensible and short attribute column names, removal of unnecessary column data, preparation of appropriate copyright and disclaimer notices, legend editing, obscuring of raw OS and BGS data and the definition of project boundary as maximum extent of data (both of which are required under their data web usage rules) Hyperlinks will be created between spatial elements and related text and images as appropriate.

Much of the material will first be developed in ArcView, which will make use of shape files and georeferenced image files managed within the ArcCatalog module. There may be some use made of RDBMS storage of spatial data – which will also be managed through ArcCatalog. Preparing and porting the datasets for use with ArcIMS will involve use of a web server which is externally hosted. The preparation phase will also include the 'pruning' of unnecessary attribute data from GIS data sets to optimise web performance.

The ArcIMS project will be tested to ensure that the project is working with data correctly attributed and documented. Project web pages will also be prepared to describe the project and provide links to the ArcIMS content. Porting the ArcIMS project and data to the web server will occur near the end of the project and at that point will become publicly viewable.

As stated in Section 1.4 the data will also be available by request on CD with a free GIS reader. It should also be possible to refer users directly to the LAARC as it should have a digital archive download capability by 2007.

5 Methodology

5.1 A modular approach to analysis and public programmes

The proposed work can be divided into 5 modules of tasks (M1-5) 'bundled together' as a means of organising and tracking the programme (see Section 5.2). The main work programme will be divided into three stages of c 8 to 9 months each, with reviews at the end of each stage. The stages are concerned with data validation, analysis and feedback, and creation of a narrative. An iterative approach to the analysis will allow the modules to develop as work progresses. Completion of the modules will be achieved through the application of the support methods (SM1-21) described in Section 5.3 below and the tasks listed in Section 6.

5.2 Modules for analysis and dissemination (M1-M6)

5.2.1 Outreach (Module 1)

Web-based dissemination

An ELG web site was designed as part of the assessment stage of the project and is linked to English Heritage, ALSF and Museum of London web sites. The ELG web site went live in September 2004. As part of the continuing development of the web site, community-based web sites will be offered content or links. The proposed project includes funded time for liaison with user groups and the updating of webpages throughout the life of the project.

Popular booklet

The ELG popular booklet was funded as part of the assessment phase of the project and a draft was completed in March 2004. The draft has been revised in response to English Heritage comments received in October 2004, and is currently being typeset for publication in May 2005. It will be promoted through the usual MoLAS and English Heritage outlets and arrangements.

Display at Thames Chase Forest Visitor Centre

The Thames Chase Forest Centre in Cranham is housed in a 17th-century barn. This facility is due to open in October 2004 and will be open 7 days a week. There is space here for a non-technical display for school parties and park users. Discussions with the Country Park staff have indicated that they are interested in having a display and site visits made. English Heritage Education Officers were also contacted in 2004 but did not respond. The proposed display would be 2-D information panels, which will be simple to produce and maintain. Advice from the Museum of London has indicated that a 3-D display of artefacts requiring showcases would be prohibitively expensive. Arrangements will be finalised upon English Heritage confirmation of

funding but a cost estimate has been produced both for the preparation of information and procurement of materials and installation of the outsite. All of these costs are included in the current proposal.

Other outreach proposals which have not been taken forward

During the assessment stage of the project consideration was given to a number of other outreach opportunities, as follows: (1) Signage proposals for Thames Chase Forest, (2) Temporary exhibitions and travelling display, (3) Public lectures and handling sessions and (4), a hands-on history: 'boxes for schools' scheme. It has been decide not to recommend expenditure in any of these areas as the costs would be substantial and would require detailed development whilst the public benefits or demand remains unproven.

5.2.2 Dating typologies (Module 2)

In practice there is a risk that the potential for establishing a dated ceramic typology for the East London Gravels sites will be limited, especially for the prehistoric material. A review of the material at the start of analysis is recommended before deciding whether to proceed with full quantification, and some additional spot dating will be needed to finalise site phasing. Ceramic analysis will concentrate on 'key' assemblages. Radiocarbon dating will try to establish a chronological framework and may also help in the selection of pot for chemical analysis to establish any patterns in local manufacture. Dendrochronological dating may contribute to this.

Assessment of prehistoric pottery fabric types may not provide a framework for coarse flint-tempered fabrics due to the paucity of well-defined forms, although this view is based on a sample of the pottery. There is in any case scope for the dating of individual fabrics to enhance the understanding of crucial areas in site sequences. Radiocarbon dating of carbonised food residues adhering to the internal surfaces of potsherds would be used for sherds which are typologically diagnostic.

In the case of the Middle and Late Iron Age material there is some potential for enhancing current understanding of ceramic typologies and chronologies. Particular note has been made of the material from Hunts Hill. Radiocarbon dating may make a significant contribution to this work and add to the national database of radiocarbon dates.

5.2.3 Phasing and spatial modelling (Module 3)

The post-excavation assessment has built upon the existing datasets to provide an audit of the material and assess its potential, creating the platform for analysis. It is important to note that the assessment confirmed that the site sequences, recorded under rescue conditions, had used a variety of recording systems which present serious limitations to their comprehensive analysis and interrogation. Whilst the archives undoubtedly hold important information they do not lend themselves to the creation of a progressive, hierarchical interpretation of each sequence using a standard array of analytical tools.

Stratigraphic analysis will therefore focus on a broad phasing of the sites, based on major landscape features, structural evidence and contexts containing significant or datable assemblages of artefacts and ecofacts. Stratigraphic analysis will not subgroup or group the full sequence, but selected sequences will be evaluated and

taken forward directly to final site phasing. Oracle and ArcView systems will be adopted to omit hierarchical stages of analysis. This approach can be justified by the general nature of the archaeological sequences - primarily an agricultural landscape represented by field boundaries and other cut features, with some occupation evidence - and the variable quality of the field record.

This analytical approach will result in the creation of a database of features and periods supported by a digital library of the more important planned features. Features that do not appear to contribute to the understanding of the landscape, such as undated stakeholes, will be omitted from the analysis work. Spatial modelling will include both stratigraphic analysis and study of the distribution of finds and environmental assemblages in ArcView and the GIS project. Consideration of the broader context of the sites will be achieved through analysis of mapping data, selected PPG16-funded site information, GLSMR data and other archaeological evidence. This work will form the basis for the writing of the landscape narrative.

- Stratigraphic analysis: creation of validated site phasing, forming the analytical basis for specialist analysis and spatial research.
- Creation of a spatial dataset: the digital component of the analysed stratigraphic sequences and finds and environmental assemblages will form an important and accessible resource for future research, which can also be made available online.
- Contribution to other analyses: site phasing is a prerequisite of most other areas of proposed analysis, including the importation and study of mapping data, GLSMR finds spots and other archaeological summaries.

5.2.4 Selected finds and environmental analysis (Module 4)

The post-excavation assessment has identified finds and environmental material from specific assemblages which are of sufficient significance to the understanding of the overall landscape to justify analysis. With the exclusion of the Uphall Camp evidence, much of the remaining material is from Hunts Hill. Work will focus on assemblages that can be tied to the major phases of activity and on economic evidence from secure groups. Analysis will place an emphasis on spatial distribution of artefacts and will take place largely through the use of ArcView. Analysis of food residues on some of the pots will also be attempted.

5.2.5 Synthetic landscape study (Module 5)

The analysis of the collected data will contribute to an overall study and allow synthetic publication to discuss the evolution of the East London Landscape, its influences and meaning. The anchor publication output will be a MoLAS Monograph, supplemented by one or more journal articles. This traditional publication will be supported and complemented by a GIS project (see below).

5.2.6 GIS project (Module 6)

A GIS project will be produced on Arcview 9 and include a fully documented geodatabase in order to allow easy migration to ArcIMS. The GIS project will operate at a series of scale-dependent levels beginning with site and find distribution information linked to landscape zones for each period and supported by text. Users will be able to interrogate this information and proceed to more detailed scales and datasets. Much of the information will derive from the main project analysis and

publication and will be hyperlinked. Once loaded into ArcIMS the project will be tested and developed before being put on the web server, where it will be maintained for a time-limited period of 6 months after March 2007. More details can be found in Section 4.2.3 above.

5.3 Specific post-excavation support methods (SM1-SM22)

5.3.1 Stratigraphic analysis (SM1)

Despite its limitations, the recorded stratigraphic sequence from each site forms the single most important element of the archive, as it provides a representation of the layout and development of the landscape. The existing assessment phasing will be reviewed and then placed on the MoLAS Oracle database, forming the basis for analysis. Key, datable features will provide the structure for understanding change in a landscape containing field systems, enclosures, hut circles and more recent buildings. The definition of these landscape features will enable direct inter-site comparisons to be undertaken which will be important for understanding the sequence and the spatial distribution and function of artefacts. The post-Roman or historic period will also be analysed in relation to existing theoretical models and using map regression techniques. Overall, the data will be analysed both sequentially and spatially in a GIS environment and in conjunction with environmental, finds, and other dating information, to produce an integrated narrative.

5.3.2 Radiocarbon dating (SM2)

If material is available from suitable deposits, then a programme of radiocarbon dating will be used to attempt to refine the local pottery sequence. Assessment work has demonstrated the potential for providing a framework within which to review the dating evidence from the East London sites and make a significant contribution to this regional aim. The programme will be achieved through the construction of a sampling strategy by staff from English Heritage and the relevant specialists, to identify suitable deposits and numbers of samples to be dated.

In the comments of January 2005 the English Heritage Scientific Dating Section said that 'the programme of radiocarbon dating, if still intended, should explicitly mention radiocarbon on the Hunts Hill Farm material.' A programme of radiocarbon dating prehistoric activity and palaeoenvironmental records at Hunts Hill Farm would contribute greatly to Revised Research Aims 5-7. The site of Hunts Hill Farm provides one of the largest assemblages of prehistoric potsherds with carbonised residues in the East London area, and so the dating on any pot sherds will contribute not only to these three research aims, but RRAs 2 and 3 as well.

Along with carbonised residues, samples of plant macrofossils will be selected to assist in dating the substantial remains of prehistoric metallurgical activity. Further samples will be required to date changing prehistoric settlement patterns at Hunts Hill Farm. There are 15-20 roundhouses attributed to the late Bronze – late Iron Ages, and dating should focus on 4-5 roundhouses from each period. Of particular interest are several (at least four) wells or waterholes, whose fills contain sealed assemblages of prehistoric ceramics, as well as waterlogged and carbonised plant remains and other palaeoenvironmental evidence.

5.3.3 Digitising, scanning and mapping data (SM3)

A large number of plans were selected and digitised during assessment. A selection of additional important features will require digitisation at the beginning of analysis to enable spatial comparison of the various assemblages and to inform the site phasing. Locating the sites in relation to the Ordnance Survey National Grid was done as part of the assessment but some work on fixing elements of the individual area grids remains to be completed. The stratigraphic specialist will prepare additional plans for digitising during the grouping stage. Post-medieval features will generally not be included.

Selected features will be digitised at either single context level or 'feature' level to allow interrogation of distribution patterns and landscape organisation. This work will require some initial preparation of plans by the stratigraphic specialist.

Geological, topographical and historic map data will be added to the project map library so that unexcavated areas and evidence from surrounding areas can be analysed as part of the overall landscape study. Evidence from the post-Roman or historic period can be tested against known models, following methods used by Roberts and Wrathmell. In their *Atlas of Rural Settlement in England* 19th-century sources were used to map the distributions of nucleated and dispersed settlement across England. They argue that the resulting patterns reflect in general terms earlier types of distribution, including Roman farms, pagan burials, pre-Norman place-names and Domesday woodland.

It was initially proposed that the project should also include aerial photography information and its analysis but we have been advised by English Heritage that access to this data and its validation by approved contractors will be particularly difficult within the time frame necessary. We have had this view confirmed by our academic adviser. As a result aerial photography has been dropped from the proposed project and work will instead be concentrated on the interpretation of other types of mapping data. It is understood that there is a possibility that aerial photography from the East London area will be done as part of the National Mapping Programme in the next year, and if this proves to be the case there may be an opportunity to include its use in the latter stages of the project as a content variation and without any direct project costs.

5.3.4 Graphics (SM4)

Sequence illustration (SM4.1)

Each period or phase will be illustrated with AutoCad generated plans enhanced to publication standard using CorelDraw. The graphics will also include more detailed plans showing individual structures, site phases or distributions of finds.

Finds review and illustration (SM4.2)

The final figure list will be compiled and captions for all illustrations produced. Artefacts will be illustrated where they are needed to complement text or support thematic discussions. The illustration and photography requirements will be confirmed at a finds review immediately after the initial finds analysis and prior to the production of a revised publication synopsis. Finds will be drawn either from life or from X-rays, or photographed, as appropriate.

Photography (SM4.3)

Site photographs will be selected to illustrate the publication. Existing photographic exposures will be catalogued for archiving and new exposures of artefacts and other items will be taken to provide appropriate illustration of the various product media.

5.3.5 Ceramics (SM5)

Ceramic analysis will begin with a review of the material before a final decision on which aspects of the assemblage to concentrate on, as it is already known that the prehistoric pottery may not be capable of delivering a dated ceramic typology. The emphasis of the work may move from C14 dating *per se* to the use of C14 and other dating methods to identify pottery for chemical analysis in order to establish evidence for local manufacture.

Review of the Roman pottery assemblage will first consider whether quantification of the remaining unquantified material is justified. Reduced quantification may be the best approach, as complete datasets are needed in order to gain an overall picture of the assemblage.

Beyond these review steps, and where appropriate, key ceramic assemblages will be quantified by count and weight. The records will be used to facilitate intra- and inter-site comparison with other assemblages and allow the material to be placed within the local and regional ceramic sequence. Additional spot dating of selected assemblages will be undertaken as required. During the pottery recording more sherds may be selected for analysis of residues. Analysis will concentrate on important closed groups and previously unillustrated forms, fabrics and decoration. Methodologies applicable to specific ceramic period assemblages are described below.

Prehistoric pottery (SM5.1)

The ceramic specialist will identify and record the assemblages using a binocular microscope with magnification of x20. The characteristics to be recorded for prehistoric pottery include fabric, vessel form, abrasion, decoration, surface treatment, manufacturing technique, and firing conditions in accordance with the guidelines produced by the *Prehistoric Ceramics Research Group* (1995). The pottery will be quantified by count and weight. This information will be transferred to the MoLAS database, allowing the material to be placed within a local/regional ceramic sequence.

The database will be interrogated to investigate the relationship between pottery fabrics and form traditions. The fabrics will be described and quantified in relation to different form traditions and changes through time. The pottery will also be examined on a spatial basis and by function or evidence for use, where present.

Late Iron Age Roman pottery (SM5.2)

The Late Iron Age/Roman pottery assessments for individual sites concluded that the sites fall into three main groups related to their potential. These range from those for which further work is considered not to be justified (Great Arnolds Farm and Whitehall Wood), those for which a selective approach is warranted (Manor Farm), and those for which complete quantification and analysis is justified by the potential (Hunts Hill Farm, Moor Hall Farm and Great Sunnings Farm).

The overall methodology to be employed includes completing the spot-dating of the assemblages from Moor Hall Farm and Great Sunnings Farm, which were only sampled during the assessment. Although previous records exist for part of these sites, the assessment has identified inconsistencies in fabric identification and dating. These inconsistencies will be rectified as part of the completion of the spot-dating programme bringing the entire assemblages for these sites to a uniform standard. Three boxes of pottery from Hunts Hill were not available at the time of assessment, and these should also be recorded.

Once the basic pottery record is complete, the general approach will be to prepare dating evidence summaries and finalise phasing before proceeding to analysis of more specific research questions. Analysis to address the research aims will be based on two main methodologies. Quantification of large or 'key' groups by estimated vessel equivalents (EVEs) would provide a basis for comparison with other sites in and beyond the region. However, only very few groups are suitable for quantification by EVEs, so much of analysis will be based on a more general study of assemblage composition. This level of analysis will concentrate on examining the range of fabrics/forms from well-dated contexts, measured by the basic quantification of sherd count and weight already recorded in the pottery database during spot-dating. The analysis of assemblage composition will rely mainly on the sites with high potential, supplemented by a few selected well-dated or otherwise significant contexts from the sites with more limited potential. This will allow general questions to be asked of the data to support the discussion of the quantified groups.

Saxon, medieval and post-medieval pottery (SM5.3)

The post-Roman ceramic assemblages have the potential to address a number of the original research objectives and additional research aims which have been proposed. The size, condition and chronological range of the pottery suggest that some of the assemblages could be studied in relation to socio-economic questions, as well as for ceramic research.

A selection of pottery types requiring closer study will be made and will concentrate on those relating to local production sites. Where necessary some pottery will be selected to illustrate the publications. In order to extract the maximum information from the pottery and realise its full potential the pottery will be quantified by EVEs, in addition to the sherd count and minimum vessel count carried out during spot dating. It will also allow the closer identification of individual forms and types necessary in order to refine local and regional type-series. For all periods, quantification will greatly facilitate the comparison of relative proportions of fabrics and forms, both within the site and with comparable assemblages. This level of analysis forms the essential underpinning for all subsequent research on the pottery from the sites.

Ceramic building material (SM5.4)

Selected material may be scanned and data added to the Oracle database. The daub from sites with good evidence for building remains will be examined for information on constructional techniques. The daub will also be scanned for evidence of textile impressions and other surface treatment such as limewash. The distribution of building materials will be analysed in order to help locate more closely the areas of occupation. Spatial analysis of the Belgic bricks is strongly recommended by our

academic adviser and will be carried out by a registered finds specialist using GIS ArcView.

5.3.6 Lithics (SM6)

The important lithics assemblages from Great Sunnings Farm and Great Arnold's Field require cataloguing to bring all the assemblages to the same level of recording. Further work is recommended for various post-Mesolithic elements of the assemblages worthy of analysis, reporting and illustration. This includes three refitting flakes from a large core of probable Bronze Age date (F77) from Whitehall Wood, which should be investigated further and illustrated in order to show how the flakes fit together. Further work is also recommended on an assemblage of 50 probable Neolithic flakes from Moor Hall Farm which appear to originate mainly from the same core (E622), in order to investigate the core reduction process.

The Neolithic flint assemblage from Great Arnold's Field contributes to the understanding of ritual or ceremonial landscapes and is considered to be of regional or national significance, as it appears to be associated with a ring ditch. Selected pieces would require illustration. This work would complement analysis of associated Neolithic pottery.

5.3.7 Accessioned finds (SM7)

Some basic recording and identification remains to be completed before analysis of the material can be undertaken. The accessioned finds work will be integrated with the stratigraphic data. Identifications of the types and functions of the finds and, where available, any dating information will aid the interpretation and phasing of the sites. The types of artefacts recovered may be able to aid the interpretation of the function of certain areas or features. A number of the finds may also be of use for dating purposes, particularly the coins. Analytical conservation work will contribute to the accessioned finds analysis (see below). In general the study of the various classes of accessioned finds will concentrate on spatial distribution and functional analysis rather than on the production of illustrated catalogues.

5.3.8 Technological analysis (SM8)

Analysis of the accessioned finds and their associated investigative and analytical conservation may lead to limited metallurgical or other technical analysis.

5.3.9 Investigative conservation (SM9)

Assessment has identified a number of items requiring investigative cleaning to reveal function, decoration and other features in support of analysis work. Analytical work is itemised in the individual conservation assessments. The work can be placed into two categories:

- objects needing X-raying again using different views and/or exposures, to aid identification and illustration. Certain items will need preliminary cleaning to remove bulky corrosion before X-raying.
- investigative cleaning (either of sections or of whole objects) to reveal features such as inlays, decorative marks on surfaces, shape, construction, mineral preserved organics. This will aid identification, clarify function, and prepare selected objects for photography and illustration.

Some items were identified from the accessioned finds assessment survey as needing some conservation input to prepare them for drawing and photography, although illustration work will be very selective. The conservation methodology will follow the guiding principle of minimum intervention and reversibility. Whenever possible preventative rather than interventive conservation strategies are implemented. Procedures aim to obtain and retain the maximum archaeological potential of each object: conservators will therefore work closely with finds specialists and archaeologists.

5.3.10 Conservation for curation and storage (SM10)

A large number of the east London finds, both bulk and accessioned, are currently not packaged to Museum of London archiving and conservation standards. The archive needs to be repacked in new bags and crystal boxes, using pre-printed labels. Finds are presently packed in area groups and these need to be resorted by material and context.

All the metalwork from the project needs to be repacked to prevent any further deterioration. Most of the metalwork appears to be stable but should be transferred to a controlled low-humidity environment to ensure long-term preservation. Over half the copper alloy was treated at the fieldwork stage and the majority of it is stable. Ten items were found to be actively corroding and will require stabilisation.

The importance of the iron assemblage and the projected extent of the finds research requires an extensive programme of conservation work. It is very noticeable that iron objects from sites that have been packed in cardboard boxes have a higher percentage of actively corroding items compared to iron objects that have been placed in a controlled environment.

All conserved objects will be packed in archive quality materials and stored in suitable environmental conditions. Paper records of all conservation work will be kept and stored at the Museum of London.

5.3.11 Palaeobotany (SM11)

An integrated approach to the study of the palaeobotany remains is proposed so that more general environmental changes and influences can be mapped across the east London landscape.

Samples identified for further study will be examined using a stereo-microscope with magnifications of between 10 and 40 times. Modern seed reference collections and reference manuals will be used (e.g. Anderberg 1994 and Berggren 1981). Where flots are less than 100 ml in volume, they will be fully sorted for charred plant remains, using a low-powered microscope. Larger flots will be divided using a riffle box and one or more sub-samples sorted. Large food remains, such as peas, beans and *Prunus* stones, were relatively rare, and can be rapidly sorted and

recorded. This may be done for samples related stratigraphically to those undergoing full analysis. Plant remains from the sample residues will also be recorded. Charred plant remains will be fully quantified, but any waterlogged remains will be recorded by approximate abundance.

Charred wood will be identified using a microscope, modern reference material and reference manuals (e.g. Schweingruber 1978). Identifications will be made of fragments with sizes greater than 5mm^3 from each sample until new taxa ceases to be identified. Average age and size of the wood taxa used can be measured and this information will support existing research into woodland management can fuel production during these periods. Plant type, frequency and mode of preservation will be recorded onto record sheets and transferred to the Oracle database that contains habitat and economic codes for each species. The charred remains (apart from wood fragments) will be counted and the quantity of waterlogged and mineralised remains will be estimated.

Analysis of the plant remains will include calculation of plant items per litre of deposit, ratios of grain, chaff and weed seeds; and ratios of different cereal types. These will be used to identify any patterns of distribution both spatially and chronologically, within and between sites. The habitat preferences and ecological groupings of weed species will also be investigated. Once the analysis is complete appropriate reports will be prepared discussing the assemblages in terms of landscape features with thematic discussion addressing specific research aims.

If, during the work, a requirement is found for further palynological recording to that carried out in the past, then appropriate arrangements will be considered and notification given to English Heritage. Any work would follow standard pollen procedures for preparation, examination and identification work.

5.3.12 Faunal remains (SM12)

The major objective of any further study of the faunal remains will be to provide a thorough understanding of animal usage throughout the East London area. There will be a focus on particular assemblages that will contribute to both this wider aim and those which have potential to answer more specific research aims.

5.3.12.1 Animal bone (SM12.1)

Several important assemblages of animal bone have been identified from the sites assessed, highlighting areas for further research. To achieve the research aims recording will be limited to particular aspects of the bone assemblages, as detailed below. The size of the context assemblage can be directly linked to the possibility of redeposition, and so there should also be a limitation on the size of assemblages studied. The lower limit for these sites should be set at 2kg. The hand collected bone will be recorded at a rate of 20–25kg a day and between 5–10 sample assemblages a day, this dependant upon the abundance of fish bones. A number of sites provided very little information and show little, or no potential value with respect to the research aims. As a result they will been excluded from further analysis except where particular assemblages have potential to contribute to other strands of investigation.

CATALOGUING

The bones will be described and recorded directly onto the MoLAS Oracle animal bone database. Identification will be made using internal and external comparative reference collections, and standard manuals. Recording will be limited, with the exception of fish, to those bones which can be identified to species, and these, in turn, will be limited to skull, including horncore and maxilla, mandibles and all limb bone articular ends. This method of recording will allow for the quantification of the species using Epiphysis Only method (after Grant 1975 and 1984). All fish bones, if identifiable to species, will be recorded.

MODIFICATION

Butchery marks will be identified and recorded on all bones (those listed under Cataloguing) which have been worked or that could represent waste from certain industrial processes, as horncores, metapoidals and phalanges.

AGEING AND SEXING

Epiphyseal fusion states and tooth eruption/wear stages will be scored particularly for the major domesticates. Sex will be attributed whenever possible using morphological and metrical characteristics.

METRICAL STUDIES

Whenever possible, all adult mandibular tooth rows, adult horncores, complete fused limb bones and distal tibias and metapoidals will be measured. Measurements will be recorded in millimetres (to the first decimal place) with additional measurements as necessary to meet analytical aims. Whenever appropriate, estimates of withers ('shoulder') height will be calculated using conversion factors. These metrical data will be used to study stature and proportion ('build'), particularly of the major domestic mammals

5.3.12.2 Molluscs (SM12.2)

Where selected, these will be identified to species by comparison with modern reference material and analysed at the context level. Specific reference will be made to the research aims especially where concerned with dietary significance, environmental indicators and structural function.

5.3.12.3 Insect remains (SM12.3)

The invertebrates are an important source of information on ecological habitats and may enhance other environmental analyses. Sub-samples selected for plant macrofossils will be selected for insect analysis. Processing using paraffin flotation methods will be used to concentrate beetle remains which will be identified using a binocular microscope and suitable reference collection. The results of the identification process will show diversity and abundance present and can be used to interpret the various ecological habitats.

5.3.13 Timber recording and dendrochronology (SM13)

Selected timber assemblages may warrant the production of fully referenced and illustrated reports, supported by dendrochronological dating where possible. The timber studies would principally deal with the well timber and roundwood groups. As

a result of the additional recording new information may emerge concerning woodworking technology, the life history of the timber structures, phasing, woodmanship data, and the origins of reused timbers.

5.3.14 Human bone (SM14)

There is limited potential for the remains to contribute to a wider understanding of the landscape, however a number of the cremations require some further analysis to investigate pyre technology and cremation practice. A catalogue of the remains will be prepared and integrated with evidence for the presence of animal bone in the samples and other environmental remains.

5.3.15 Publication (SM15)

The analytical programme will result in publication in a form appropriate to the academic importance of the findings and the needs of the various users that have been identified. This will include a MoLAS monograph (see Section 4.3 preliminary publication synopses) as well as a GIS ArcView-based platform accessed via the internet.

A detailed synopsis will be prepared after analysis has been completed, setting out the scope of the report, a summary of content and details of the proposed word counts and illustrations. Amendments to proposals in the updated project design will be made at that time. The content of the synopses will be discussed with Pamela Greenwood and Jon Cotton, who will offer their prehistoric expertise to the principal authors. The synopsis will then go to the project's academic adviser for comment and will subsequently be sent to English Heritage if required. After agreement of the detailed publication synopsis the landscape narrative will be written. The emphasis will be thematic, integrating phasing and spatial analysis of features with the distribution and analysis of key finds and environmental assemblages.

5.3.16 Project management (SM16)

The project management team will be made up of Peter Rowsome (overall logistics and budget manager for the project), Gordon Malcolm and Charlotte Thompson (programming), and Roy Stephenson or Fiona Seeley (specialist liaison and support). The management team will monitor expenditure and completion of tasks to required standards, prepare and ensure adherence to the project programme, facilitate communications with internal and external sections and monitors, arrange and chair project meetings and report on progress. External staff will be employed on a consultancy basis, including those of ECCFAU.

5.3.17 Management support (SM17)

The project management team will be supplemented by a part-time Project Officer who will co-ordinate management and liaison tasks relating to the programme of public outreach.

5.3.18 Academic adviser (SM18)

Richard Bradley has been appointed academic adviser to the project. During analysis he will continue to attend major project meetings, receive and comment upon written

work, comment on progress of the project as a whole and be available to offer advice relating to its wider context. He will be involved with the production of the Updated Publication Synopsis and the first draft report. The adviser will be consulted on any recommended methodological changes.

5.3.19 Editing (SM19)

Publication drafts will be internally edited in accordance with agreed practice and according to the instructions of the Senior Manager (Peter Rowsome) and the Managing Editor (Sue Hirst and Susan Wright). Technical editing of text will form part of a post-referee EDIT stage.

5.3.20 Archive loan and curation (SM20)

The assessment project has taken place under a 2-year loan agreement between MoLAS and the relevant London Boroughs of Newham, Havering and Redbridge and their archive officers. Arrangements have already been put in place for the existing loan agreement for the six sites retained for analysis work to be extended for 3 years, to the end of March 2007. The other three site archives (Uphall Camp, Fairlop Quarry and Warren Farm) will be returned to the Redbridge and Newham archives as soon as the project remit is confirmed by English Heritage.

At the end of analysis it is envisaged that the archives may be deposited at the LAARC, and this is the preferred outcome. It is understood that discussions are currently taking place between the Museum of London and the London Borough of Havering over the general transfer of archives to the LAARC. If agreements have been made with Newham by April 2007 then deposition in the LAARC would be appropriate. If not, then the archives will be returned to the boroughs at the conclusion of the loan period. Archiving arrangements, and the associated costs and criteria, will reflect the option chosen and at the moment are estimated.

5.3.21 Health and safety statement (SM21)

All work carried out on this project is subject to the health and safety policy statement of MoLAS as defined in *Health And Safety Policy*, MoLAS 2003. This document is available on request. It is MoLAS policy to comply with the requirements of the *Health and Safety at Work Act 1974*, the *Management of Health and Safety at Work Regulations 1992* and all Regulations and Codes of Practice made under the Act which affect MoLAS operations.

5.3.22 IT support (SM22)

The project will benefit from a full support package provided by the MoLAS and MoL in-house IT section who provide the project team with networked computers supporting normal Word applications as well as a true relational database (Oracle) linked to ArcView, allowing full GIS analysis. In addition the IT team, led by Pete Rauxloh, will provide research and developmental support for the creation of a GIS project hosted on the website in ArcIMS. Further technical details appear in Section 4.2.3 above.

6 Detailed methodologies and tasks

6.1 Concordance table of research aims, modules, methods and key tasks

The following concordance chart shows the relationship between the revised research aims, proposed project modules and support methods described in Sections 5.2 and 5.3. See Section 6.2 for the estimated resources for each task. The programme would be spread over a period of a little over 2 years, being completed in mid-March 2007, and is divided into three stages of c 8 to 9 months each.

revised research aim	modules	support methods	key groups of tasks
RRA1: define the study area	M1-M4, M6	SM1, SM3, SM15-22	6.2.2, 6.2.20
RRA2: analyse prehistoric ceramics and lithics	M1, M2, M6	SM5, SM6, SM15-22	6.2.3, 6.2.4, 6.2.6
RRA3: investigate pot fabrics and forms	M1, M2, M3, M6	SM2, SM5, SM6, SM15-22	6.2.3, 6.2.5, 6.2.6, 6.2.7
RRA4: report on palaeolithic and mesolithic finds	M1, M4, M5, M6	SM1, SM4, SM6, SM15-22	6.2.3, 6.2.4, 6.2.6
RRA5: analyse ceremonial evidence	M1, M4, M5, M6	SM1, SM4, SM6, SM15-22	6.2.2, 6.2.6
RRA6: transformation from a ceremonial to agrarian landscape	M1-M6	SM1-22	6.2.2, 6.2.6, 6.2.8 to 6.2.15
RRA7: the changing agricultural landscape	M1-M6	SM1-12, SM15-22	6.2.2, 6.2.6, 6.2.8 to 6.2.15
RRA8: the LIA/Roman transition	M1-M6	SM1, SM3-5, SM7-12, SM15-22	6.2.2, 6.2.5, 6.2.8 to 6.2.15
RRA9: the Roman hinterland	M1, M3-6	SM1, SM3-5, SM7, SM9, SM10-22	6.2.2, 6.2.5, , 6.2.8 to 6.2.15
RRA10: post-Roman development	M1, M3-6	SM1, SM3-5, SM7, SM9-12, SM15-22	6.2.2, 6.2.7, 6.2.20
RRA11: recreate landscapes and consider in study area and regional context	M1-M6	SM1-22	6.2.19, 6.2.20

Table 1 Concordance of revised research aims, modules, support methods and key tasks

6.2 Task list

Note that standard MoLAS and Specialist Service work rates apply to all categories of material. The proposed 27-month programme of work has been divided into three stages: Stage 1 (January to September 2005) – data validation; Stage 2 (October 2005 to June 2006) – analysis and feedback; and Stage 3 (July 2006 to March 2007) – compilation of a landscape narrative. Stages are indicated where relevant. The resources requested for a task are based upon the quantification of the proposed work and described in relevant parts of the Assessment report. Additional concordance data linking the Assessment and UPD task list can be supplied separately if required.

6.2.1 Outreach and public programmes

All stages

Task 1 liaison with EH, MoL, LPAs, community and end users	*5 pdays*
Task 2 update webpages throughout project (website technician)	*5 pdays*
Task 3 design content of a 2-D display at Country Park outsite	*20 pdays*
Task 4 materials for 2-D display at Country Park outsite; delivery, set-up, installation	*£2,000*
Task 5 liaison by Project Officer in support of the 2-D display	*5 pdays*

Total: 35 pdays and fees of £2,000

6.2.2 Stratigraphic and geomatics

Stage 1

Task 6 final validation and checking of photographic indexes from the 6 sites	*5 pdays*
Task 7 select added features and digitise; set up ArcView GIS; Great Sunnings	*5 pdays*
Task 8 select added features and digitise; set up ArcView GIS; Manor Farm	*1 pday*
Task 9 select added features and digitise; set up ArcView GIS; Hunts Hill	*20 pdays*
Task 10 select added features and digitise; set up ArcView GIS; Whitehall Wood	*3 pdays*
Task 11 select added features and digitise; set up ArcView GIS; Moor Hall Farm	*4 pdays*
Task 12 define contexts from notebooks and relate to finds; Great Arnold's Field	*3 pdays*
Task 13 create database and validate matrix in BONN; Great Arnold's Field	*3 pdays*
Task 14 select features and digitise; set up ArcView GIS; Great Arnold's Field	*2 pdays*
Task 15 identify and select PPG16-funded sites to include in the project, targetting those sites which coincide with extraction licence zones, thereby defining boundaries of the gravel landscape and/or helping to characterise it	*10 pdays*
Task 16 select and validate GLSMR data for study area; set up GIS	*15 pdays*

Stage 2

Task 17 discuss and apply dating evidence to preliminary phasing; Great Sunnings *1 pday*

Task 18 discuss and apply dating evidence to preliminary phasing; Manor Farm *1 pday*

Task 19 discuss and apply dating evidence to preliminary phasing; Hunts Hill *10 pdays*

Task 20 discuss and apply dating evidence to phasing; Whitehall Wood *1 pday*

Task 21 discuss and apply dating evidence to phasing; Moor Hall Farm *3 pdays*

Task 22 discuss and apply dating evidence to phasing; Great Arnold's Field *1 pday*

Task 23 identify structures, land uses and periods; write notes; Great Sunnings *5 pdays*

Task 24 compile period/phase plans in ArcView; Great Sunnings *1 pday*

Task 25 identify structures, land uses and periods; write notes; Manor Farm *4 pdays*

Task 26 compile period/phase plans in ArcView; Manor Farm *3 pdays*

Task 27 assess proximate sites; Great Sunnings and Manor Farm *2 pdays*

Task 28 identify structures, land uses and periods; write notes; Hunts Hill *25 pdays*

Task 29 compile period/phase plans in ArcView; Hunts Hill *5 pdays*

Task 30 identify structures, land uses and periods; write notes; Whitehall Wood *5 pdays*

Task 31 compile period/phase plans in ArcView; Whitehall Wood *1 pday*

Task 32 assess proximate sites; Hunts Hill and Whitehall Wood *2 pdays*

Task 33 identify structures, land uses and periods; write notes; Moor Hall Farm *10 pdays*

Task 34 compile period/phase plans in ArcView; Moor Hall Farm *5 pdays*

Task 35 identify structures, land uses and periods; write notes; Great Arnold's Field *2 pdays*

Task 36 compile period/phase plans in ArcView; Great Arnold's Field *1 pday*

Task 37 assess proximate sites to Moor Hall Farm and Great Arnold's Field *3 pdays*

Task 38 interpret and link mapping data, SMR and other site data in study area including selected information from the chosen PPG16-funded sites and AP data if available *20 pdays*

Task 39 analyse the post-Roman evidence using existing models and through the use of a GIS and map regression for the study area *10 pdays*

Total: 192 pdays

6.2.3 Prehistoric pottery

Note that spot dating and cataloguing will be subcontracted to Surrey County Council

Stage 1

Task 40 review prehistoric pottery with SS specialists; make final selection *2 pdays*

Task 41 complete spot dating; Hunts Hill *15 pdays*

Task 42 complete spot dating; Moor Hall Farm *10 pdays*

Stage 2

Task 43 prepare catalogue of the illustrated sherds from Great Sunnings Farm *0.5 pdays*

Task 44 parallels for forms and fabrics, including vessel [5077]; Hunts Hill *5 pdays*

Task 45 prepare catalogue note for the single illustration; Whitehall Wood *0.5day*

Task 46 rim typology for the Mildenhall type vessels; Great Arnold's Field *3 pdays*

Task 47 shell-tempered sherds in Neolithic contexts; Great Arnold's Field *2 pdays*

Task 48 catalogue of illustrations; Great Arnold's Field *2 pdays*

Total: 40 pdays

6.2.4 Worked flint

Stage 2

Task 49 compile catalogue from handwritten original; Great Sunnings Farm *0.5 pday*

Task 50 prepare publication text; Manor Farm *2 pdays*

Task 51 analysis of Later Mesolithic item; selected Neolithic and BA; Hunts Hill *2 pdays*

Task 52 analysis of re-fitted core F77; Whitehall Wood *0.5 pday*

Task 53 analysis blade [741] & knapping debris [622]; Moor Hall Farm *0.5 pday*

Task 54 analysis, cataloguing and reporting of assemblage; Great Arnold's Field *5 pdays*

Task 55 reorganisation of existing illustrations; Great Arnold's Field *2 pdays*

Total: 12.5 pdays

6.2.5 Late Iron Age and Roman pottery analysis

Note that spot dating may be subcontracted to ECCFAU or Surrey County Council, depending upon staff availability

Stage 1

Task 56 review LIA/Rom pottery and read Essex ceramics literature to establish approach to reduced quantification resulting in complete dataset *5 pdays*

Task 57 complete the spot-dating record: Moor Hall Farm (c. 60 boxes); Gt Sunnings Farm (22 boxes); Hunts Hill Farm (3 boxes); Samian and amphorae; all sites *30 pdays*

Stage 2

Task 58 liaison with Paul Sealey and other ECCFAU specialists *5 pdays*

Task 59 refine dating and write dating summaries: Moor Hall Farm, Hunts Hill Farm, Great Sunnings Farm and Manor Farm *5 pdays*

Task 60 quantify and write up key groups: Moor Hall Farm, Hunts Hill Farm, Great Sunnings Farm and Manor Farm *5 pdays*

Task 61 analyse and write up selected well-dated contexts to address research themes *10 pdays*

Task 62 rebox pottery in accordance with modern archive standards *5 pdays*

Total: 65 pdays

6.2.6 Radiocarbon and chemical dating

Stage 1 and 2

Task 63 English Heritage Scientific Dating team administration (no cost to project) *(10) pdays*

Task 64 scientific dating costs (not charged to project) *fees*

Task 65 locate prehistoric sherds with residues, complete forms; all sites (SA) *11 pdays*

Task 66 Hunts Hill Farm: locate MIA sherds; complete forms (SA) *2 pdays*

Programme note: Prehistoric pottery sample selection and submission can begin as soon as spot dating is completed and some phasing is available. Two rounds of dating are envisaged. Under normal conditions, this means that the full results will be available 1 year from the end of the pottery analysis; under ALSF tender conditions, this may be reduced to 6 months. Radiocarbon dating and liaison would also feed into decisions on chemical dating.

Task 67 locate/select plant macrofossil samples from Hunts Hill Farm (botanist) *2 pdays*

Task 68 complete submission forms for plant macrofossil samples (botanist) *8 pdays*

Task 69 consultation meeting time for MoLAS staff *6 pdays*

Task 70 liaison by specialists to select sherds for chemical dating potential *1 pday*

Task 71 chemical dating analysis of LIA/Rom sherds; fee *£500*

Task 72 chemical dating analysis report by Louise Rayner and others *5 pdays*

Total: 35 pdays and fees of £500

6.2.7 Saxon, medieval and post-medieval pottery method statement

Stage 1 and 2

Task 73 select sherds for thermoluminescene, thin section & chemical analysis; all sites *1 pday*

Task 74 scientific analysis; all sites *fee £500*

Task 75 comparative research into Essex pottery *1 pday*

Task 76 write text; Manor Farm *1 pday*

Task 77 record selected remaining medieval sherds: Hunts Hill *1 pday*

Task 78 verify date of problematic Iron Age/Saxon sherds; Hunts Hill *1 pday*

Task 79 prepare fabric codes and descriptions; Hunts Hill *2 pdays*

Task 80 study distribution of Saxon and medieval pottery; Hunts Hill *2 pdays*

Task 81 write text on local and regional context; settlement patterns etc *2 pdays*

Task 82 write text; Whitehall Wood *1 pday*

Task 83 write text; Moor Hall Farm *1 pday*

Task 84 verify boxes, update fabric codes and quantify pottery; Great Arnold's Field *1 pday*

Task 85 revise existing report; Great Arnold's Field *2 pdays*

Task 86 repack pottery in line with modern; all sites *5 pdays*

Total: 21 pdays and fees of £500

6.2.8 Building material

Stage 1 and 2

Task 87 scan remaining c 90 boxes of CBM, select analyse and report; all sites *10 pdays*

Task 88 identify stone types (National History Museum) and report; Hunts Hill *1 pday*

Total: 11 pdays

6.2.9 Worked Timber

Stage 1 and 2

Task 89 sample select timber toolmarks; Hunts Hill *2 pdays*

Task 90 Sp. ID and tree-ring sampling; Hunts Hill *2 pdays*

Task 91 record and sample selected timbers and roundwood samples; all sites *4 pdays*

Task 92 wrapping and labelling of conserved timbers; all sites *1 pday*

Task 93 analyse and write report on woodworking technology, the life history of the timber structures, phasing, woodmanship and the origins of reused timbers; all sites *3 pdays*

Total: 12 pdays

6.2.10 Accessioned finds method statement

Stage 2

Task 94 integration of stratigraphic and finds data; all sites *5 pdays*

Task 95 examine fired clay 'bricks' and weights; all sites *5 pdays*

Task 96 discussion and research into 'bricks' and weights; all sites *5 pdays*

Task 97 write overall discussion; Great Sunnings Farm *2 pdays*

Task 98 write overall discussion; Manor Farm *1 pday*

Task 99 examination of MIA crucibles and copper waste; Hunts Hill *1 pday*

Task 100 write overall discussions; Hunts Hill *5 pdays*

Task 101 add draft lithics catalogue to database; all sites *2 pdays*

Task 102 write overall discussion; Moor Hall Farm *2 pdays*

Task 103 project wide comparison of selected finds such as 'bricks' using GIS; all sites *5 pdays*

Task 104 use coins to refine dating; Hunts Hill and Moor Hall Farm *2 pdays*

Total: 35 pdays

6.2.11 Iron slag and high temperature material

Stage 2

Task 105 analyse assemblage for smithing; report; Hunts Hill *3 pdays*

Task 106 examine slag from features [371], [373] and [515]; report; Moor Hall Farm *2 pdays*

Total: 5 pdays

6.2.12 Botanical method statement

Stage 1 and 2

Task 107 liaison with specialists and review of pollen data *2 pdays*

Task 108 sort, identify & quantify selected charred plant assemblages; Hunts Hill *3 pdays*

Task 109 process, sort, identify & quantify selected waterlogged plants; Hunts Hill *7 pdays*

Task 110 identification of charcoal from samples; Hunts Hill *1 pday*

Task 111 compile tables (including editing); Hunts Hill *2 pdays*

Task 112 analysis & publication text; Hunts Hill *3 pdays*

Task 113 carry out recommendations of Dr Mark Robinson to examine waterlogged plant and insect remains from wells and water-holes; Hunts Hill *15 pdays*

Task 114 sort, identify & quantify charred plant assemblages; Moor Hall Farm *3 pdays*

Task 115 sort, identify & quantify waterlogged plant assemblages; Moor Hall Farm *2 pdays*

Task 116 identification of charcoal (and wood from planks); Moor Hall Farm *1 pday*

Task 117 compile tables (including editing) ; Moor Hall Farm *1 pday*

Task 118 analysis & publication text (with D deMoulins); Moor Hall Farm *3 pdays*

Task 119 analysis & publication text for other sites (Great Sunnings Farm, Whitehall Wood and Manor Farm) based on existing analytical reports by D deMoulins) *3 pdays*

Total: 46 pdays

6.2.13 Insect remains

Stage 2

Task 120 process and analyse 6 beetle assemblages; D. Smith; Hunts Hill *7 pdays*

Task 121 process and analyse 2 beetle assemblages; D. Smith; Moor Hall Farm *3 pdays*

Total: 10 pdays

6.2.14 Human bone

Stage 2

Task 122 analysis of cremated bone and bone colour; all sites	*1 pday*
Task 123 analysis of inhumation	*0.5 pday*
Task 124 data input and archiving; all sites	*0.5 pday*
Task 125 write report; integrate environmental data; all sites	*1.5pdays*

Total: 3.5 pdays

6.2.15 Animal bone

Stage 2

Task 126 identification and recording of dated assessed bone; all sites	*4 pdays*
Task 127 analysis of data; all sites	*4 pdays*
Task 128 preparation of report; all sites	*4 pdays*

Total: 12 pdays

6.2.16 Conservation method statement

All stages

Task 129 repacking of bulk finds and accessions; Great Sunnings	*5 pdays*
Task 130 stabilisation for the archive; Manor Farm	*4 pdays*
Task 131 analysis and investigative work; Hunts Hill	*3 pdays*
Task 132 conservation for illustration; Hunts Hill	*2 pdays*
Task 133 stabilisation for the archive; Hunts Hill	*20 pdays*
Task 134 repacking of bulk finds and accessions; Whitehall Wood	*2 pdays*
Task 135 stabilisation for the archive; Whitehall Wood	*2 pdays*
Task 136 investigative conservation; Moor Hall Farm	*2 pdays*
Task 137 conservation input for illustration; Moor Hall Farm	*1 pday*
Task 138 repacking of bulk finds; Moor Hall Farm	*10 pdays*
Task 139 repacking of accessioned objects; Moor Hall Farm	*5 pdays*
Task 140 stabilisation for the archive; Great Arnold's Field	*1 pdays*

Total: 57 pdays

6.2.17 Graphics

Stage 3

Task 141 Belgic brick & pottery; Great Sunnings	*1 pday*
Task 142 prepare phase plans; Great Sunnings	*4 pdays*
Task 143 prepare phase plans; Manor Farm	*2 pdays*
Task 144 prepare phase plans; Hunts Hill	*10 pdays*
Task 145 prepare phase plans; Whitehall Wood	*2 pdays*
Task 146 prepare phase plans; Moor Hall Farm	*5 pdays*
Task 147 prepare phase plans; Great Arnold's Field	*3 pdays*
Task 148 flint illustrations; all sites	*2 pdays*
Task 149 prehistoric pottery; Hunts Hill	*2 pdays*
Task 150 building materials; all sites	*1 pday*
Task 151 timber reconstruction drawing revetted Late bronze Age 'waterhole'	*2 pdays*
Task 152 artistic reconstruction of roundhouses, enclosures, wells	*5 pdays*
Task 153 Saxon and selected medieval pottery rims; all sites	*3 pdays*
Task 154 prehistoric pottery; Moor Hall Farm	*1 pday*
Task 155 accessioned finds; Moor Hall Farm	*3 pdays*
Task 156 Belgic bricks; Moor Hall Farm	*2 pdays*
Task 157 prehistoric pottery; Great Arnold's Field	*3 pdays*
Task 158 check existing drawings and revise; Great Arnold's Field	*2 pdays*
Task 159 LIA/Roman pottery has largely been drawn in the past; selected dwg work may be required after spot-dating completed and existing pottery drawings will be checked against publication needs	*5 pdays*
Task 160 prepare/convert GIS-generated output to publication format	*10 pdays*

Total: 68 pdays

6.2.18 Photography

Stage 3

Task 161 scan selected photographs; some external reprographic fees	*5 pdays and £600*
Task 162 finds photography; all sites	*7 pdays*
Task 163 features photography; all sites	*5 pdays*

Total: 17 pdays and fees of £600

6.2.19 Publication tasks

Stage 3

ELG landscape synthesis

Task 164 finds reviews by principal authors and specialists	*5 pdays*
Task 165 read all specialist reports and edit for appropriate integration	*5 pdays*
Task 166 prepare detailed publication synopsis and detailed GIS proposal	*15 pdays*
Task 167 integrated analysis of selected assemblages using GIS to determine patterning across sites and overall study area for use in synthetic publication; all sites	*25 pdays*
Task 168 prepare final revised period and phase plans, labels and captions	*10 pdays*
Task 169 write integrated publication text; all sites and themes	*80 pdays*
Task 170 thematic contribution by Jon Cotton	*5 pdays*
Task 171 write research agenda chapter with resource assessment summaries etc	*5 pdays*
Task 172 select other illustrations and paste up for draft	*5 pdays*
Task 173 internal edit and corrections	*5 pdays*
Task 174 collate paper copy for academic adviser and EH referee	*1.5 pdays*
Task 175 print and bind 3 copies and send to EH commissions; fee	*£150*

Total: 161.5 pdays and fees of £150

Great Arnold's Field Neolithic paper for PPS

Task 176 write text for publication; select illustrations etc	*12 pdays*

Total: 12 pdays

6.2.20 GIS project and dissemination

Task 177 liaison between authors, IT and geomatics prior to start of analysis	*3 pdays*
Task 178 liaison between authors, IT and geomatics after analysis	*2 pdays*
Task 179 prepare draft outline of content	*2 pdays*
Task 180 identify key spatial data sets	*3 pdays*
Task 181 verify and clean data sets	*8 pdays*
Task 182 create specific interpretative data sets, landscape zones etc	*2 pdays*
Task 183 select historic maps and rectify	*2 pdays*
Task 184 create geodatabase(including metadata)	*5 pdays*
Task 185 produce related textual content	*5 pdays*

Task 186 prepare figures and photographs	*5 pdays*
Task 187 prepare ArcIMS data	*2 pdays*
Task 188 transfer data from ArcView to ArcIMS	*0.5 pdays*
Task 189 create and test ArcIMS project	*2 pdays*
Task 190 prepare explanatory project web pages	*1 pday*
Task 191 port ArcIMS project and data to web server	*2 pdays*
Task 192 licensing costs for BGS and OS mapping	*nil*
Task 193 website bandwidth and maintenance costs until September 2007	*nil*
Task 194 master CD and GIS reader – preparation and test	*2 pdays*

Total: 46.5 pdays

6.2.21 Archive deposition

Stage 3

Task 195 order and handover records to MoLAS archivist; all sites	*5 pdays*
Task 196 preparation for deposition	*40 pdays*

Total: 45 pdays

6.2.22 Project management and transport

All stages

Task 197 project wide for c 24 months	*36 pdays*
Task 198 finds liaison management for c 24 months	*12 pdays*
Task 199 archive management	*5 pdays*
Task 200 transport: archive movements (van and driver)	*£465*

Total: 53 pdays and £465

6.2.23 External consultants

All stages

Task 201 advice and consultancy from Pamela Greenwood	*12 pdays*
Task 202 liaison with ECCFAU management (Patrick Allen)	*3 pdays*
Task 203 advice and consultancy provided by Jon Cotton	*10 pdays*

Total: 25 pdays

6.2.24 Academic adviser

All stages

Task 204 academic advice from Dr Richard Bradley *10 pdays*

Total: 10 pdays

6.2.25 Meetings

All stages

Task 205 project wide for c 24 months, including the environmentalists on the team *30 pdays*

Total: 30 pdays

6.2.26 Cost of this revised UPD

Task 206 liaison with project team and compilation of two revisions to UPD *8 pdays*

Total: 8 pdays

Total staff time for tasks 1-206: 1,068 pdays

Total fees: £4,215

Note: for total estimated costs, including consumables, overheads and indexed price increases for future financial years please see the Excel chart in Section 6.4

6.3 Project team

Name	Initials	Organisation where applicable	Expertise
Alan Pipe	AP	SS	Animal bone
Andy Chopping	AC	MoLAS	Photography
Angela Wardle	AW	SS	Accessioned finds
Charlotte Thompson	CT	SS	Prehistoric pottery specialist
Damian Goodburn	DG	SS	Ancient timber
Dan Swift	DS	MoLAS	Stratigraphy/Principal author
Faith Vardy	FV	MoLAS	Graphics/finds
Fiona Seeley	FS	SS	finds project manager
Gordon Malcolm	GM	MoLAS	Programme management
Hilary Major	HM	ECC	Finds specialist
Ian Betts	IB	SS	Ceramic building material
Isca Howell	IH	MoLAS	Stratigraphy/Principal author
Jon Cotton	JC	MoL	Academic advice and themes
Julian Hill	JH	MoLAS	Stratigraphy/Principal author
Jeremy Ottevanger	JO	MoL	IT website design
John Giorgi	JG	SS	Plant remains/Enviro project manager
Joyce Compton	JC1	ECCFAU	LIA/Roman pottery
Liz Barham	LB1	SS	Conservation
Lynne Bevan	LB2	external	Lithics specialist
Lyn Blackmore	LB3	SS	post-Roman pottery
Louise Rayner	LR	external	Prehistoric pottery
Nathalie Cohen	NC	MoLAS	Archivist
Natasha Powers	NP	SS	Human bone specialist
Pamela Greenwood	PG	external	Post-excavation consultant
Patrick Allen	PA	ECCFAU	Iron Age/Roman pottery management
Paul Sealey	PS	Colchester Museum	Late Iron Age/Roman pottery consultant
Penny McConnorran	PM	SS	Finds management
Peter Hart-Allison	PHA	MoLAS	Graphics/strat dwgs
Peter Rauxloh	PX	MoL	IT systems manager
Peter Rowsome	PR	MoLAS	Senior project management
Richard Bradley	RB	University of Reading	Academic advisor
Rob Poulton	RP	Surrey County Council	Prehistoric pottery subcontract manager
Roy Stephenson	RS	MoL	Archive manager
Rupert Featherby	RF	SS	Samian and other pottery
Sarah Jones	SJ	MoLAS	Geomatics
Sue Hirst/Sue Wright	SH	MoLAS	Managing editor

Table 2 Project team

6.4 Costs

A spreadsheet showing the projected costs of the revised proposal for analysis and publication is included overleaf. This cost Excel represents a revision of the spreadsheet included in the November 2004 updated project design and reflects our response to the English Heritage collated comments of January 2005. The work now includes a more detailed costing of the GIS-dissemination of the work and additional academic advice and support. Costs are calculated at 2004/5 rates and indexed cost increases for the following two financial years.

6.5 Timetable

The Gantt chart setting out the proposed timetable for the programme will be supplied following initial comments on this revision. This proposal currently assumes a March 2005 start-up, with an overall programme window estimated as a maximum of c 24 months, from March 14, 2005 to March 1st, 2007. As stated earlier in this proposal, the programme of work has been divided into three stages which reflect analytical requirements. These are: Stage 1 (March to September 2005) – data validation; Stage 2 (October 2005 to June 2006) – analysis and feedback; and Stage 3 (July 2006 to March 2007) – compilation of a landscape narrative. Once the programme is confirmed, a series of internal Performance Indicators and review points will be agreed and linked to staged payments.

7 Bibliography

The full bibliography for the ELG project can be found in the March 2004 version of the Assessment and Updated Project Design. The following is a selection of updated bibliographic references referred to during compilation of the November 2004 and January 2005 revisions.

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