IDENTIFICATION AND QUANTIFICATION OF ARCHAEOLOGICAL PROJECTS ARISING FROM AGGREGATES EXTRACTION IN GREATER LONDON

ASLF Project N° 5812
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ALSF Project No. 5812

VOLUME 1: REPORT

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Cover: Iron Age round houses excavated at Stockley Park

Executive Summary

This report details the results of a project to identify and quantify past archaeological investigations arising from hard and soft aggregates extraction in Greater London, which currently have incomplete or inappropriately low levels of dissemination. The study will provide a basis for a future strategy to improve and widen public dissemination of the results of such investigations, including the deposition of data from projects arising from aggregates extraction into a publicly accessible research archive. The Project, presented as a report (two volumes) and an Access database, has been funded by the Aggregates Levy Sustainability Fund (ALSF), administered by English Heritage.

The study was conducted through the comprehensive review of all relevant archaeological journals, newsletters and other publications, along with a trawl of archaeological datasets including the Museum of London Archaeology database of past investigations and the Greater London Historic Environment Record (GLHER). It revealed a currently very low level of appropriate public dissemination for the results and interpretation of archaeological investigations associated with aggregates extraction. Only around 20% of projects were considered to be completely disseminated by modern standards at the time of this project, although another 50.3% are known to be actively progressing towards the publication of their results. The dissemination of 44.9% of these latter projects is being addressed by two ongoing major backlog publications, the East London Gravels project, funded by the ALSF, and the West London Landscapes, funded by the Historic Environment Enabling Programme, along with ALSF-funded publications of archaeological work carried out at Beddington Sewage Farm and Home Farm.

The study revealed a general lack of interpretation as to the likely nature of the archaeological features recorded, and any comparative potential with other similar sites, along with other important information (eg funding body, location of the archive).

Where archaeological sites have been physically removed in aggregates extraction, best practice would be for the result to be made publicly available (the principle of preservation by recording and advancing understanding of heritage asset significance). The report therefore provides recommendations for addressing incomplete dissemination. Projects within nine quarry sites across Greater London have been suggested for publication (including analysis and creating and depositing the site archive, in some cases this may involve attempting to locate missing archives). For projects within three quarries, simple assembly of the archive and deposition is proposed. Approximately 25 archaeological investigations have been carried out within areas of aggregate extraction with some level of reporting (eg to the local planning authority) and the reports for these should be submitted to the GLHER as a minimum level of dissemination.

1 Introduction

1.1 Project background

1.1.1 This report summarises the results of a project carried out to identify and quantify archaeological investigations arising from aggregates extraction in Greater London and to access the extent to which the results of these investigations have been made publicly available. The work was put forward in a Project Design (MOLA March 2009) and undertaken by Museum of London Archaeology (MOLA) between April and September 2009 with funding from the Aggregates Levy Sustainability Fund (ALSF) administered by the English Heritage (EH) Historic Environment Enabling Programme (HEEP). The project (ALSF project no. 5812, hereafter referred to 'ALSF Project') has been carried out in accordance with current English Heritage guidelines including MoRPHE (2006) guidance on the management of research projects, and the Strategic framework for Historic environment Activities and Programmes in English Heritage (SHAPE 2008) guidance. The report is presented in two volumes: Vol 1 Report and Vol 2 Gazetteers and Figures.

1.1.2 Soft aggregate deposits (sands and gravels) form the drift geology for much of Greater London. These deposits originated as a series of Pleistocene river terrace deposits, which represent the former floodplains of the Thames and its tributaries and are arranged in an irregular flight of steps in the valley side, with the oldest at the top and the youngest at the bottom. Palaeolithic-age deposits are typically preserved in locations close to the interface of gravel terraces or within them.

1.1.3 Aggregate deposits around London have been exploited since the foundation of the Roman city in *c* AD 50. Levels of aggregate extraction increased to provide materials for the expansion of London during the later medieval period, the post-medieval period and again with the massive expansion of London at the end of the 19th century. Early extraction typically comprised small-scale hand dug pits. For much of the 20th century aggregate extraction has been undertaken by mechanised means on an industrial scale at many sites in Greater London, with a particular increase occurring during and after World War I and II and during the reconstruction and growth of the metropolis in the 1950s to 1970s. Road improvement schemes of the 1980s and 1990s, including the construction of the M25 led to a further demand for aggregates.

1.1.4 Throughout the history of aggregate extraction in Greater London, extraction sites have typically been located around the fringe of the urban areas. Thus with the expansion of the suburbs around the City of London, there has been a general trend for aggregates extraction to move towards Boroughs around the fringes of Greater London. By the end of the 20th century many former aggregates extraction areas had been exhausted, while other potential resources were located beneath urban areas and were therefore inaccessible. Aggregate extraction in Greater London is therefore a primarily historic feature, having declined dramatically in recent decades. The few remaining extraction sites are located on the outer edge of the metropolis with aggregates extraction continuing to take place to a limited extent in the following London Boroughs:

- Barking and Dagenham;
- Bromley;
- Havering;
- Hillingdon;
- Redbridge; and
- Sutton

1.1.5 The extraction of aggregates has provided an opportunity for the identification and recording of a number of significant archaeological sites and finds in Greater

London since antiquarians began to develop an interest in archaeological remains. Remains recorded through aggregates extraction include those sites and finds recorded by antiquarians and local enthusiasts, those excavated by voluntary groups in advance of extraction, and those excavated following the introduction of the principle of developer funding, ie with the introduction of Planning Policy Guidance note 16 (PPG16) in 1991. In particular, much Palaeolithic and Mesolithic material has been found as a direct result of aggregates extraction. In March 2010, PPG16 was replaced by Planning Policy Statement 5 (PPS5). The temporal scope of the current project pre-dates the introduction of the new PPS.

1.1.6 Prior to PPG16, the pressure to 'rescue' archaeological sites affected by development or extraction often led to a focus on fieldwork, to the detriment of writing up the results. Thus many past excavations, discoveries and projects have been inadequately disseminated, as a result of the backlog in the publication of results, or the lack of funding for post-excavation analysis, by archaeological units or voluntary groups. There are also a number of unfinished or ongoing projects of varying levels of significance. In many cases this currently inaccessible information could transform and enhance understanding of the metropolis and assist in the curation of the Historic Environment.

1.2 Research aims and objectives

Aims

1.2.1 The primary aim of the ALSF Project is to identify and quantify inactive past archaeological investigations relating to soft (sands and gravels drift geology) and hard (crushed bedrock) aggregates extraction, which currently have incomplete and inappropriately low levels of archive completion, assessment, analysis and/or dissemination. This information could then inform a strategy to disseminate archaeological results more widely to interested groups and the general public in order to facilitate an improved understanding of the Historic Environment and the positive aspects of aggregates extraction.

Objectives

- To analyse the data collected to identify trends, significant omissions, possible future research (including the potential for cross-project synthetic research), to aid English Heritage in formulating a strategy to address incomplete archive completion, assessment, analysis and/or dissemination for Historic Environment Projects associated with aggregate areas.
- To allow the database of archaeological investigations and projects in Greater London (created during this ALSF Project) to be integrated into the existing Wessex Sheffield (formerly Archaeological Research and Consultancy at the University of Sheffield/ARCUS) database in order to facilitate future comparison with similar projects across the Country.

1.3 Scope

1.3.1 A pilot project of Derbyshire, Nottinghamshire and Oxfordshire (ARCUS 2007) undertaken in 2007 by ARCUS developed a database and methodology for the identification and quantification of the current status of past archaeological investigations and projects resulting from aggregates extraction. The current study has made use of the ARCUS database and methodology to identify any archaeological investigation resulting from aggregate extraction in Greater London and quantify its present status with regard to the completion of the investigation and the level of dissemination.

1.3.2 The following terms have been used throughout the report:

- Archaeological '**project**' (of which there are 61) refers to an archaeological investigation or series of related investigations carried out to mitigate the impact of quarrying. Archaeological investigations carried out over several years within the same quarry or area of the quarry have been ascribed to the same project when there was no difference on the grid coordinates or the assigned 'site code'.
- Archaeological '**Investigation**' (of which there are 87) refers to a single archaeological intervention event, eg a fieldwalking survey, an evaluation, an excavation etc. Each has a site code.
- Archaeological '**Asset type**' (of which there are 193) refers to a discreet asset type/site of a particular period (eg 'medieval industrial', 'Iron Age settlement'), revealed during an archaeological investigation or during the course of a project.

1.4 Study area

1.4.1 The current ALSF Project has dealt with the entire Greater London areas (excluding the City of London), which has remained an urban area since the Roman period. Therefore it has either had no aggregates extraction (and therefore no opportunity for archaeological fieldwork to result from aggregates extraction) or aggregates extraction took place prior to the development of academic interest in archaeology and therefore any archaeological remains recovered were not recorded.

1.4.2 The study area includes two extensive areas on aggregate geologies within which past archaeological investigations are currently in the process of being analysed for future publication, with English Heritage funding. These projects comprise:

- East London Gravels Project
- West London Landscapes Project

1.4.3 Because this work is still in progress, the past archaeological investigations associated with these two projects have been included within the database with appropriate recommendations for dissemination, even though these recommendations are in the process of being acted upon.

East London Gravels Project

1.4.4 This ALSF project is nearing completion. A popular booklet has been published (Greenwood *et al* 2006) and a MOLA Monograph will shortly follow (Swift *et al*, in prep), containing the thematic synthesis of analysis and research carried out of six archaeological projects, archaeologically excavated in response to aggregates extraction in the southern part of the London Borough of Havering between 1963 and 1997. The projects were carried out by several archaeological organisations but, with the exception of interim reports, none proceeded to full publication.

Table 1 Archaeological investigations that are in the process of enhanced analysis and dissemination as part of the East London Gravels Project

Site Code	Site name	NGR	Year(s)
UP-HH89	Hunt's Hill Farm	556600 183100	1990–1997
R-MHF77 R-MHF79	Moor Hall Farm	554500 182000	1977, 1979–1981
R-126	Great Arnold's Field	554101 181923	1963
UP-WW82	Whitehall Woods	557000 182500	1982–3
UP-GS83	Great Sunning's farm	556700 184520	1983
UP-MF83	Manor Farm	557600 184700	1983 and 1984

West London Landscapes Project

1.4.5 In the 1970s and 1980s, a number of pre-PPG16 archaeological projects were undertaken on the gravel terraces of West London, none of which has been published. Rather than analyse and publish these projects individually, it was considered sensible to assess their research potential together, and to indicate the most suitable form of publication.

1.4.6 The project, undertaken by MOLA under HEEP funding, covers ten archaeological projects spread over an extensive area some 4km by 7km, ranging from watching briefs to full excavation. With one exception, all lie on the (partially brickearth-capped) Third Thames (Taplow) Terrace, close to Heathrow Airport. Of the 10 projects assessed, those listed in Table 2 below are related to aggregates extraction.

Table 2 Archaeological projects arising from gravel extraction in the process of enhanced analysis and dissemination as part of the West London Landscapes Project

Site Code	Site Address	NGR	Year(s)
WGF79 to WGF85	Wall Garden Farm, Sipson	507750 178350	1979–85
HL80 to HK87	Holloway Lane, Harmondsworth	506700 178000	1980–87
HOM88 and HOM91	Home Farm, Harmondsworth	507000 177500	1988–91
CLH89 to CLH90	Cranford Lane, Harlington	509400 177200	1989–90
CFL94	Cranford Lane, Harlington	509500 177360	1994–5 (planning permission secured pre-PPG16)
SPB85	Stockley Park	508300 180700	1985

1.4.7 The projects were mostly excavated piecemeal, covering only small proportions of the quarried areas, and many of the records lack the detail of modern recording systems (with the exception of the two 1990s excavations). The Early and Middle Saxon evidence from these excavations forms part of a separate publication covering Saxon sites across the London region (Blackmore and Cowie 2008). The data from these investigations both complements and contrasts with that from the Terminal 5 excavations (Elsden *et al, in prep*). An updated publication synopsis has been produced and a monograph proposed.

1.5 Methodology

1.5.1 The methodology is discussed in detail in the appendix (Section 7). It comprised populating an Access database with data on past archaeological investigations carried out as part of aggregates extraction, derived from a review of published sources, primarily local, regional and national journals and newsletters. It included a search of the MOLA in-house ArcGIS database of past archaeological investigations along with a trawl of the Greater London Historic Environment Record (GLHER).

1.5.2 The study also included the correction of GLHER data, as well as the addition of new records of events and monuments/remains not previously recorded by the GLHER. This process forms part of an ongoing correction and validation exercise as part of the transformation of this database into a Historic Environment Record (HER).

1.6 Study data deposition

1.6.1 The Microsoft Access database will be transferred in its entirely to English heritage

(HEEP and the NMR) and Wessex Sheffield and will be available via the publicly accessible Archaeological Data Services (ADS). The report (two vols) will be submitted to English Heritage in bound format, and a pdf version will be compiled for digital dissemination via ADS and the English Heritage website. The database and the report will also be sent to the Greater London Historic Environment Record (GLHER).

2 An overview of the data

2.1 Quarries

2.1.1 The modern quarry industry has focused on the suburbs of Greater London, mainly in areas around Heathrow Airport in Hillingdon or the open dry areas to the east of Rainham in Havering during the last 30 years.

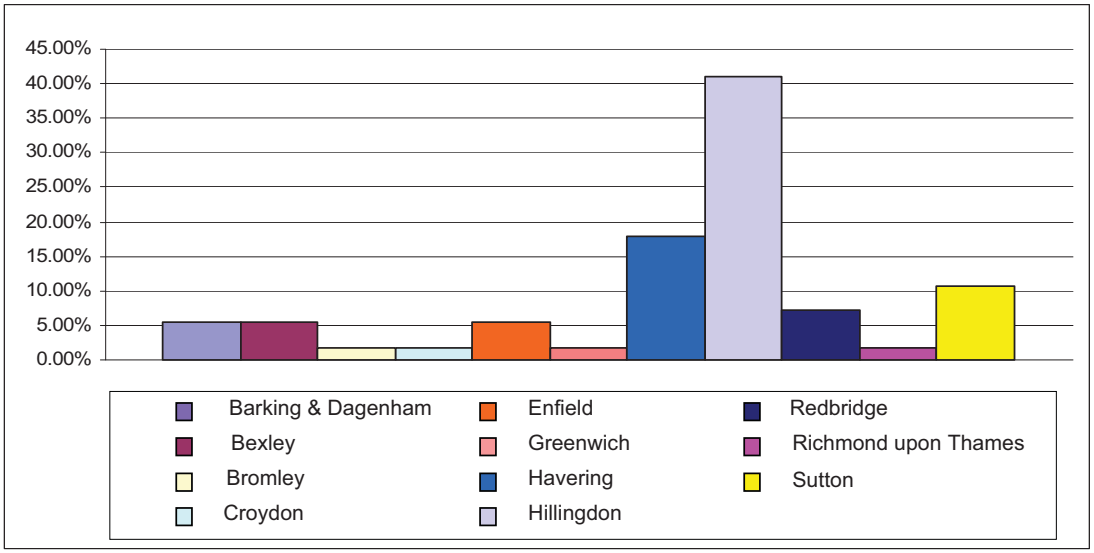
2.1.2 The British Geological Society's *Directory of Mines and Quarries* was used to identify current aggregate extraction sites. Present active quarries are located in the following Greater London boroughs:

- Barking & Dagenham: Marks Warren Farm
- Havering: Ayletts Farm Camp (Rainham) and South Hall Farm (Rainham)
- Hillingdon: Harefield Pit (Harefield), Sipson Lane (Sipson, east of Wall Garden Farm)
- Redbridge: Fairlop (Hainault)
- Sutton: Beddington Farmlands (Croydon)

2.2 The number and distribution of projects

2.2.1 The database contains 61 projects, relating to 87 archaeological investigations and 193 asset types, distributed across 32 different quarries or areas of quarrying in 11 Greater London boroughs (Vol 2: Fig 1 and Table 3). These projects were undertaken between 1908 and 2007.

Graph 1 Percentages of projects by borough



2.2.2 All projects are located on soft aggregate geologies (brickearth, alluvium, terrace gravels). The projects spread over different gravel terraces of The Thames. None were located on hard aggregate geologies (eg stone, chalk).

2.2.3 The projects are mostly located in the western, eastern and southern fringes of Greater London, within the boroughs of Hillingdon, Redbridge, Barking & Dagenham, and Havering, and Sutton (Vol 2: Fig 1). There is a scattering of projects in Bexley, Bromley, Croydon, Enfield, Greenwich and Richmond-upon-Thames, mostly related to pre-PPG16 archaeology planning conditions (Vol 2: Fig 2).

2.3 Period of archaeological intervention

2.3.1 Legislation and national, regional and local planning policies have played a key role

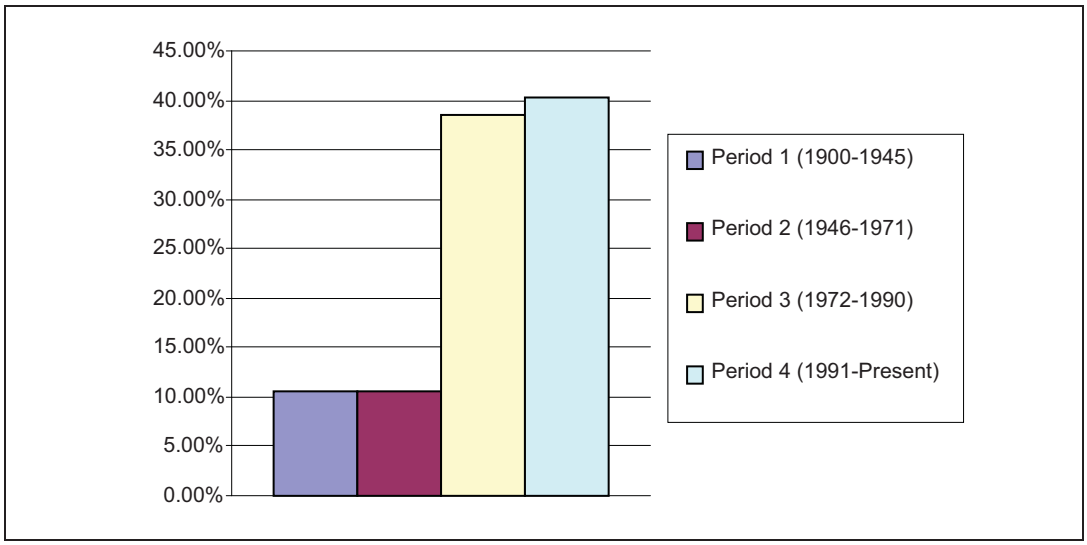
in influencing the nature and extent of archaeological investigation carried out in relation to aggregates extraction in Greater London and beyond. These have been used to define four periods of archaeological intervention from 1900 up to present day. The periods were initially established by the 2007 pilot project (ARCUS 2007) and comprise:

- **Period 1**: 1900–1945. A time where there was no legislation or policy in respect of aggregates extraction.
- **Period 2**: 1946–1971. This period commences with the introduction of the Town and Country Planning Act of 1947, which required planning permission to open a quarry or extract aggregates.
- **Period 3**: 1972–1990. This period commences with the introduction of the Town and Country Planning Act of 1971, which consolidated the previous requirements set out in the Town and Country Planning Act of 1947 and the provisions of the Mines (Working Facilities and Support) Act of 1966.
- **Period 4**: 1991-present. This period commences with the introduction of PPG16, with archaeology established as a material consideration in the planning process.

2.3.2 Graph 2 shows the percentage of archaeological projects carried out within quarries within Greater London by period of intervention. It clearly illustrates, as one would expect, a significant increase in the number of projects in Periods 3 and 4, with increasing awareness of archaeological heritage issues.

2.3.3 Fig 2 (Vol 2) shows the location of projects by investigation period. Period 1 and 2 projects are located in North, South-West and East London. Period 3 and 4 are located in West, South and North-East London.

Graph 2 Percentages of interventions by investigation period for aggregate projects



Period 1 (1900–1945)

2.3.4 Prior to the Town and Country Planning Act of 1947, no planning permission was required to open a quarry or extract gravel. Consequently numerous small-scale quarries and operating gravel pits were spread across Greater London, mainly in the suburbs and occasionally within public parks. Archaeological investigations related to these early to mid-20th century quarries were small scale and undertaken by local associations and/or local enthusiasts without funding (Graph 4). The work was primarily in the form of 'rescue excavation' - rapid recording carried out as archaeological remains were exposed during quarrying. The projects during this

period were typically small or medium size (see Graph 3), reflecting also the scale of the quarrying.

Period 2 (1946–1971)

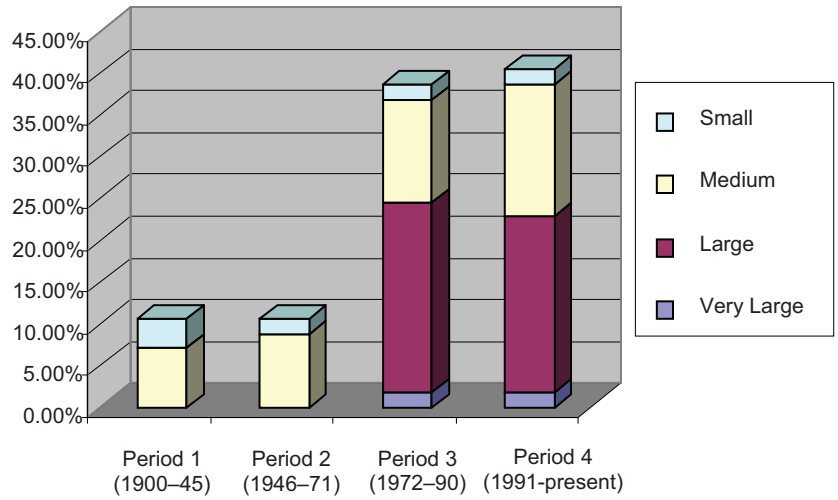
2.3.5 With the introduction of the Town and Country Planning Act of 1947, planning permission was required to open a quarry and extract aggregates. The process did not however make provision for the protection of the cultural heritage, and consequently, as with Period 1, archaeological investigations were largely conducted as watching briefs or 'rescue' excavations by local societies and amateurs when archaeological remains were exposed during quarrying (Graph 4).

2.3.6 The projects during this period were typically small or medium size in the area covered (see Graph 3), reflecting also the scale of the quarrying. Towards the end of this period, in the 1960s, large scale aggregates extraction in Greater London had begun in Hillingdon in West London. This took place in the vicinity of Heathrow Airport and was presumably associated with the expansion of the airport.

Period 3 (1972–1990)

2.3.7 After the Town and Country Planning Act of 1971, archaeological investigations increased significantly (from six in Period 1 and 2 to 22 in Period 3, see Graph 2 above). It consolidated the previous requirements set out in the Town and Country Planning Act of 1947 and the provisions of the Mines (Working Facilities and Support) Act of 1966. This period corresponded with the beginnings of a more organised and professional approach to archaeology, with the establishment of permanent area-based field units in London. These investigations were voluntary or funded by government bodies, although after the late 1980s, they were sometimes funded by the aggregates industry after agreements to investigate a specific site/quarry.

Graph 3 Size of projects by investigation period

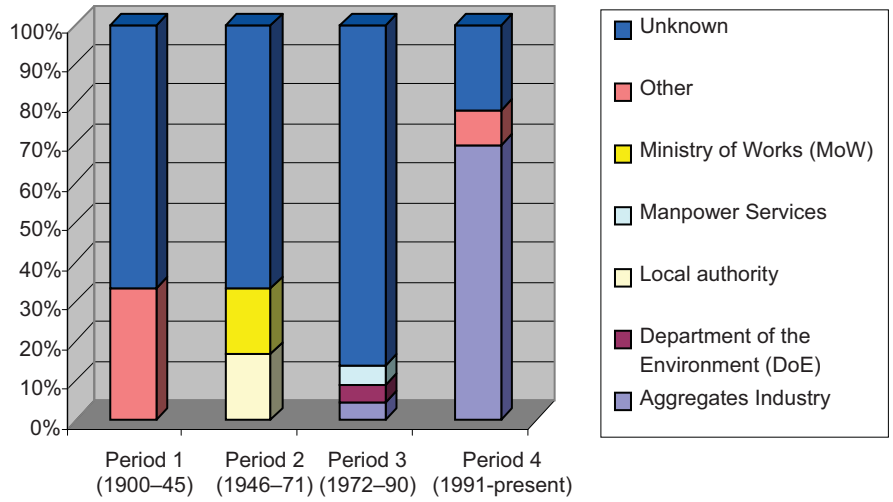


Period 4 (1991-present)

2.3.8 Following the publication of PPG16, archaeological investigations have been primarily undertaken by professional archaeological organisations funded by developers. The number of investigations increased slightly during this period (from 22 in Period 3 to 28 in Period 4), and are mostly represented by medium and large

scale investigations undertaken prior to gravel extraction. These are more extensive than in Periods 1 and 2, but appear simply to reflect the size of the extraction site: the overall percentage of the impact area examined seems to have been broadly similar.

Graph 4 Funding bodies by investigation period



Professionalization of archaeology industry

2.3.9 Improved awareness of archaeology within the planning process over the last 30 years, in particular with the introduction of PPG16, has resulted in an increasing professionalization of archaeological fieldwork. This has resulted in the establishment of a number of professional archaeological units and a more comprehensive approach to investigation. Large projects typically have several phases of work, from preliminary desk- and site- based survey and evaluation (intrusive and non-intrusive) to archaeological excavation and subsequent publication. Although the absolute number of projects being undertaken by local societies and enthusiasts may not have decreased their percentage involvement has reduced significantly, given the major increase in the number of investigations being carried out.

2.3.10 Graph 5 indicates that the primary fieldwork during Periods 1 and 2 comprised archaeological excavation with very little preliminary evaluation surveys. The fact that no planning permission was necessary to open a quarry or dig for aggregates meant that archaeological investigations were carried out as rescue/salvage excavations once the archaeological remains had been uncovered during quarrying.

2.3.11 In the early 1970s, at the beginning of Period 3, archaeological excavation continued to form the main type of intervention, with a significant increase in the number of projects. This was due to the establishment of pressure groups such as Rescue and an increasing awareness of the threat (and opportunity) presented by development schemes of all types, with regard to the buried heritage. Much of the archaeological fieldwork was still carried out as 'rescue archaeology' without developer funding or any formal planning condition. This period saw the establishment of a number of professional and semi-professional archaeological units, such as the predecessors of MOLA.

2.3.12 From 1983, professional archaeological work within the metropolis was mostly carried out by the Museum of London's Department of Greater London Archaeology (DGLA) which took responsibility over the northern, western and southern areas of Greater London, and the Museum of London's Department of Urban Archaeology

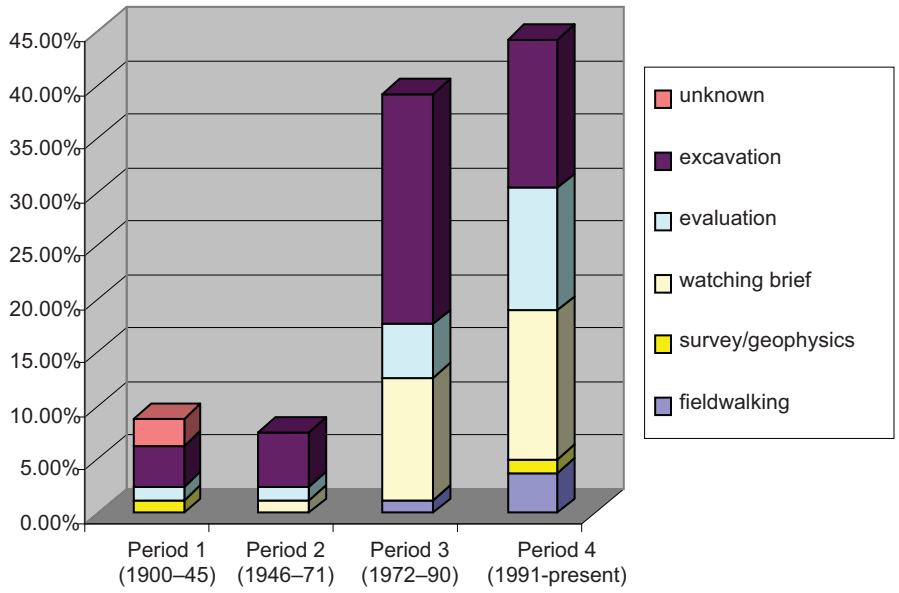
(DUA) within the City of London. Other organisations also had professional units, including Passmore Edwards Museum (later the Newham Museums Service) covering the north-eastern area of Greater London, and the Kent Archaeological Rescue Unit (KARU) in the south-eastern area. Amateur archaeologists continued to support the professional organisations or carrying out field projects as members of the historical and archaeological local societies. This period also saw the initial stages of the development of the mitigation approach with the appearance of preliminary surveys, such as fieldwalking, geophysics and evaluation, to identify areas of archaeological potential, as well as an increase in watching briefs (see Graph 5).

2.3.13 The late 1980s saw the end of the property boom and a decline in funding from the government bodies, which largely ceased with publication in 1991 of PPG16. The new guidance meant the integration of archaeology into the planning process, administered by local authorities and with archaeological work being funded by the developers of individual sites on a commercial basis.

2.3.14 The developing approach to archaeological investigation within Period 4 is clearly shown in Graph 5, with developer-funded projects encompassing fieldwalking, evaluation surveys, watching briefs, targeted evaluations and excavation of specific areas.

2.3.15 Fig 5 (Vol 2) shows the distribution of projects in relation to planning requirements. Whilst Fig 6 shows the distribution association to funding body. The pattern broadly reflects the distribution of sites by investigation period.

Graph 5 Nature of fieldwork by investigation period



2.4 Chronological periods represented

2.4.1 The terrace gravels within the London region have been a first choice for settlement and farming from the earliest periods of human activity. The soils are well drained and fertile, more easily worked with a plough than the heavy London Clays of the London basin to the north and south. The Thames and its tributaries were readily accessible and provided a predictable range of sources such as food (hunting and fishing), water and craft materials, as well as a natural communication/transport route. The extensive human settlement and land use activity on the gravels from the

prehistoric period onwards is demonstrated by cropmarks of archaeological features visible on air photographs, in those rural areas of Greater London that have never been extensively developed, and also the results of spatially extensive archaeological investigations of such areas, for example at Heathrow Terminal 5.

2.4.2 Gravel extraction by its very nature therefore takes place in areas attractive to early human settlement and other activity. The chronological periods represented have a broad range, with a high number of multi-period sites recorded, and with a high percentage dated to the prehistoric and Roman periods (see Graph 6 to Graph 9). Gravel extraction takes place in areas that are currently undeveloped, beyond areas of modern settlement that have typically grown up on and around the centres of historic settlement, in what would have been a predominantly rural and agricultural landscape throughout the medieval and post-medieval periods. Unless damaged by modern mechanical ploughing, and archaeological features within such undeveloped areas are likely to have a relatively good state of preservation.

2.4.3 The 61 projects contained in the database represent 193 assets of a particular period. These vary in date from the prehistoric to post-medieval and modern periods. The number of assets of each period is as follows:

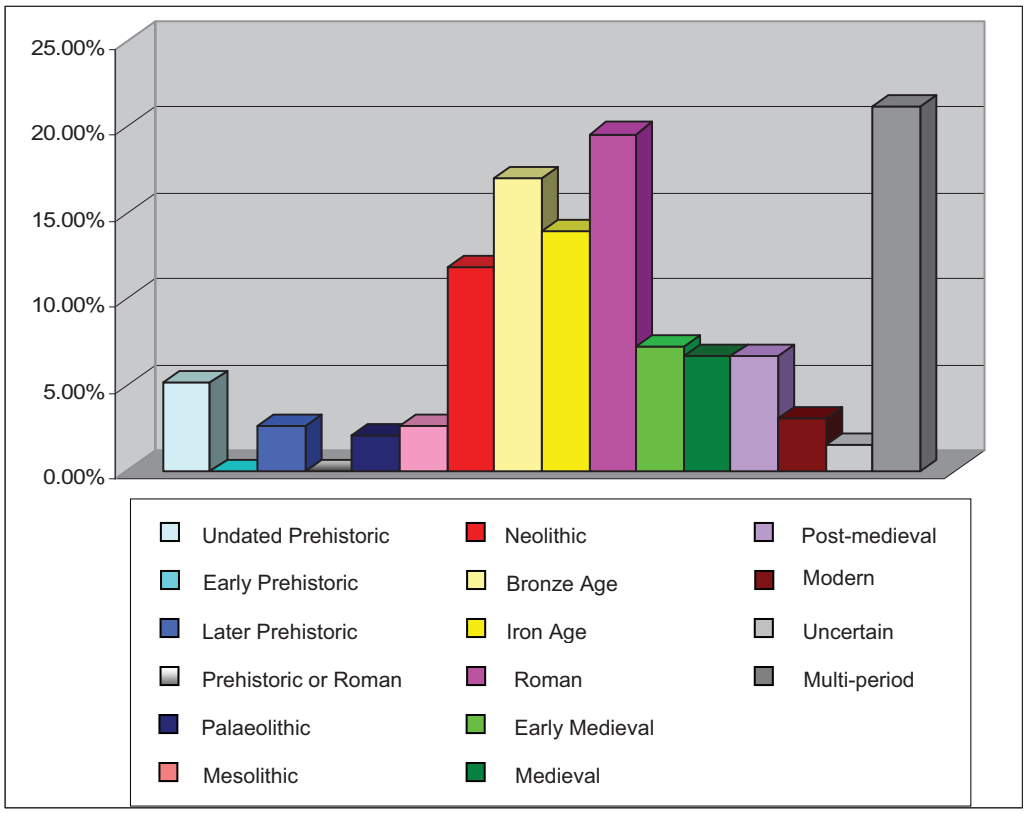
- Prehistoric - 106 assets;
- Roman - 37 assets;
- Early/later medieval - 27 assets
- Post-medieval - 13 assets;
- Modern - 6 assets; and
- Unassigned - 3 assets.

2.4.4 Forty-one of the assets (*c* 20% of the total) are 'multi-period'. These have been noted in the database as 'multi-period' although, as stated in the methodology, the separate periods have also been noted. Graph 6 shows the percentage of assets by period.

2.4.5 Graph 7 represents a distribution of the chronological periods (colours) in the different quarries (each bar). The graph shows that the majority of quarry sites hold assets of multiple periods. A very basic interpretation suggests continuity in occupation from the late prehistoric to Roman period. Few quarry sites have evidence of a continuation of human activity into early medieval/medieval periods, although for those which do, the activity generally continues through to the post-medieval period.

2.4.6 Of those quarry sites within which a single chronological period has been recorded, six have Roman remains only, one has Neolithic remains only, one has later prehistoric remains only, and one has early medieval remains only. It is interesting to note that archaeological discoveries within those quarry sites that have only a single period of activity were recorded during investigations undertaken during Periods 1 and 2, in the era of unfunded rescue archaeology. The recording is likely to have focused on the most obvious and important remains exposed during quarrying and on sites/monuments that were already known about from documentary, cartographic or other sources. The greater number of single Roman period quarry sites might reflect a preference for investigating remains of this period (eg Roman villas).

Graph 6 Percentages of sites by chronological period

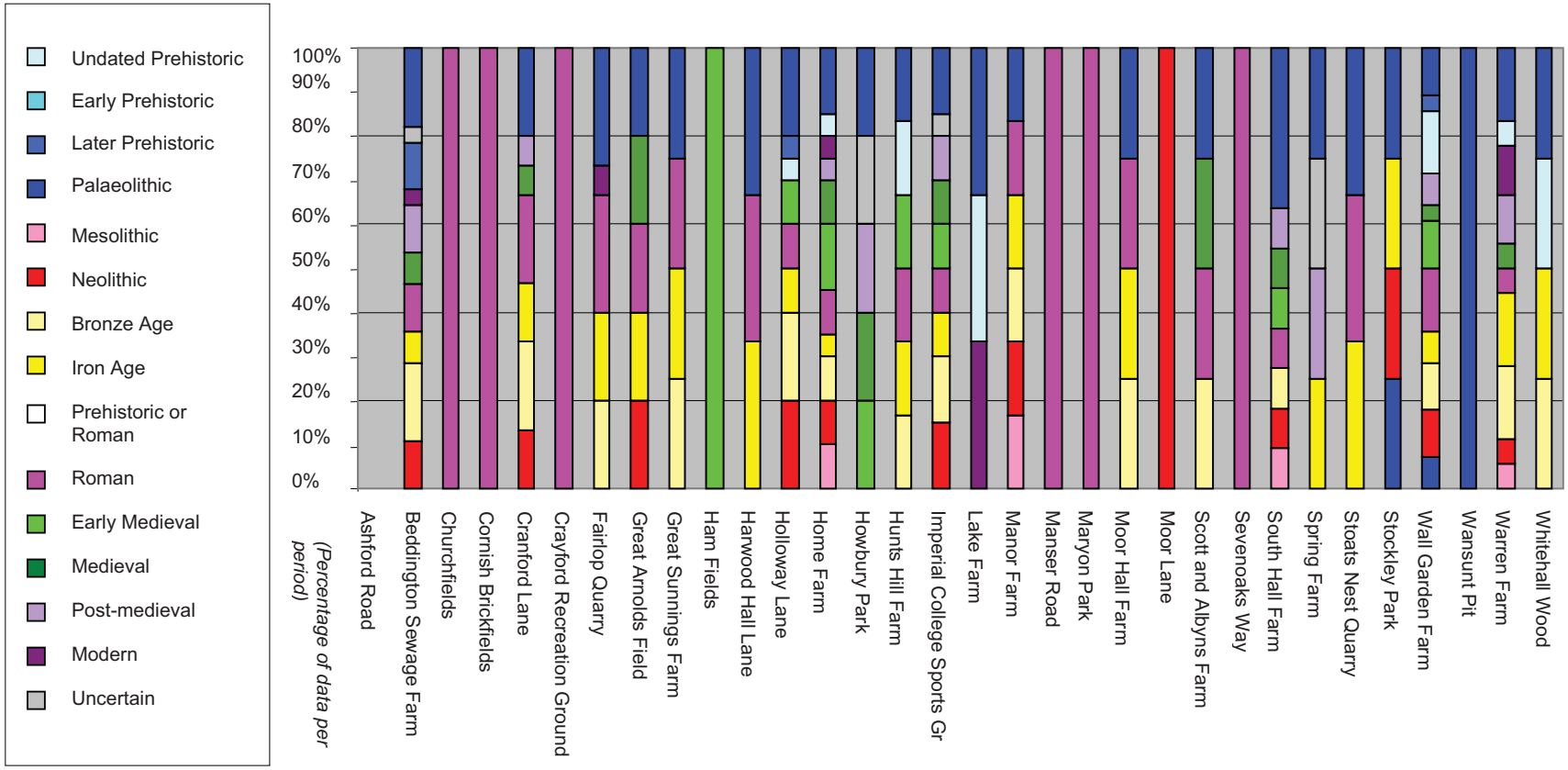


2.4.7 Only one quarry site with multi-period activity was investigated during Period 2 (Coulsdon Wood evaluation), which recorded continuity in the activity from the Iron Age to the Roman period. This quarry was investigated at the end of Period 2 and seems to have adopted a wider scientific view, without focussing on a certain period or asset type.

2.4.8 As discussed in section 2.2.2, Periods 3 and 4 represent the development of the archaeology profession and of its techniques, which resulted in the more accurate identification of different chronological periods during archaeological investigation, as reflected in the increase of multi-period assets shown on the graph.

2.4.9 Fig 7 to Fig 17 (Vol 2) show the distribution of assets for each period. Palaeolithic and Mesolithic assets are located exclusively in West and East London. From the Neolithic, and particularly from the Roman period, there is a broader distribution of activity across the various quarry sites. The distribution is once again limited largely to West and East London in the early medieval and medieval periods (less so in the post-medieval), perhaps reflecting the predominantly rural nature of the landscape in these periods, as discussed above.

Graph 7 Percentages of chronological periods within each quarry site



2.5 Types of sites represented

2.5.1 The 61 projects contained in the database represent 193 archaeological asset types. The breakdown is shown in Graph 8 and is as follows:

- Agriculture and subsistence - 15 assets;
- Domestic - 16 assets;
- Industrial - 1 asset;
- Religious or funerary activity - 8 assets;
- Objects (residual isolated finds or groups of finds recovered during an investigation) - 28 assets; and
- Unassigned - 95 assets.
- Multiple – 30 assets

2.5.2 Forty-one of the projects contained multiple, rather than a single, asset type. As stated in the methodology, these were noted in the database as 'multiple' but were also broken down into the separate asset types (with period also assigned).

2.5.3 Almost half (47.8%) of the assets are unassigned. As stated in the methodology, an additional level of interpretation was not added during the data entry. Authors of short journal notes or short articles typically provide a description of the features revealed during an archaeological investigation and their date, but may not include interpretation of the features. It may simply be that no interpretation was possible based on the evidence, or reflects a trend of cautiousness on the part of the excavators. As a result, there is a gap in our knowledge and understanding of the nature of human activity across those areas examined, in particular the suburban fringe of Hillingdon, Redbridge, Havering, Barking & Dagenham or Sutton, where the largest archaeological projects are located.

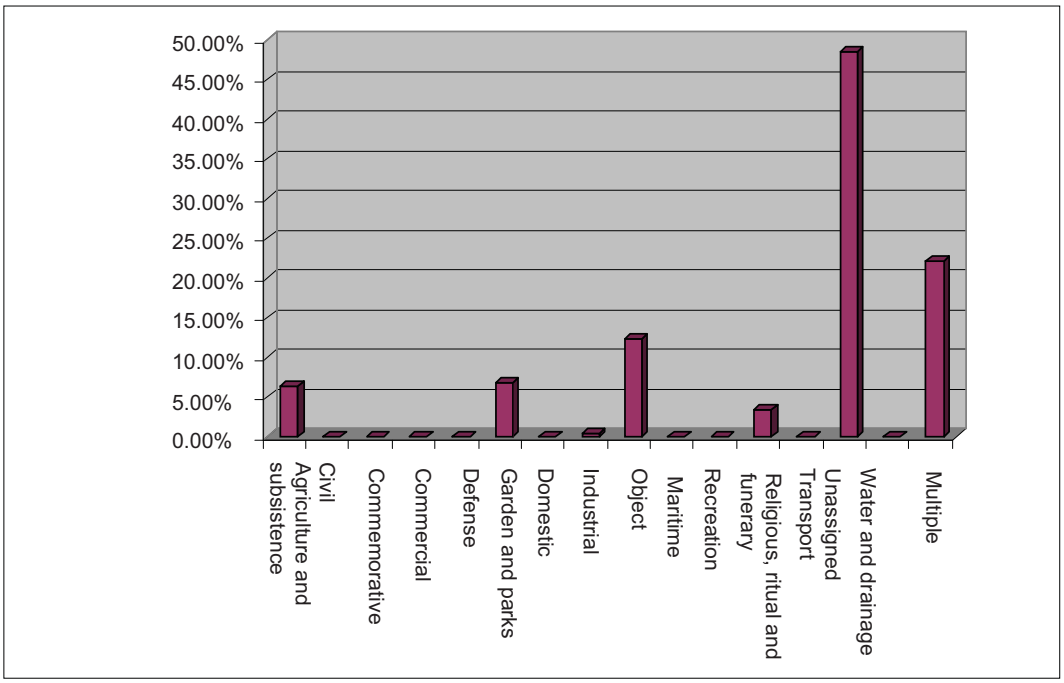
2.5.4 For those investigations where the author has provided an interpretation of the asset(s), typically within a larger journal article or a monograph, multiple types of asset and multiple periods are frequently recorded within a single quarry site. The distribution of the known types of asset is therefore apparently more closely associated with level of dissemination (ie longer journal articles or a monograph) rather than reflecting a concentration of activity in specific areas.

2.5.5 Only five asset types (17.3% of the total) are present from a list of 14 types (excluding 'Unassigned' and 'Multiple'). The lack of representation of certain types of site, eg 'Defence' does not necessarily mean that structures representing this activity/type have not been recorded, but that the excavators/authors have not provided an interpretation of the features.

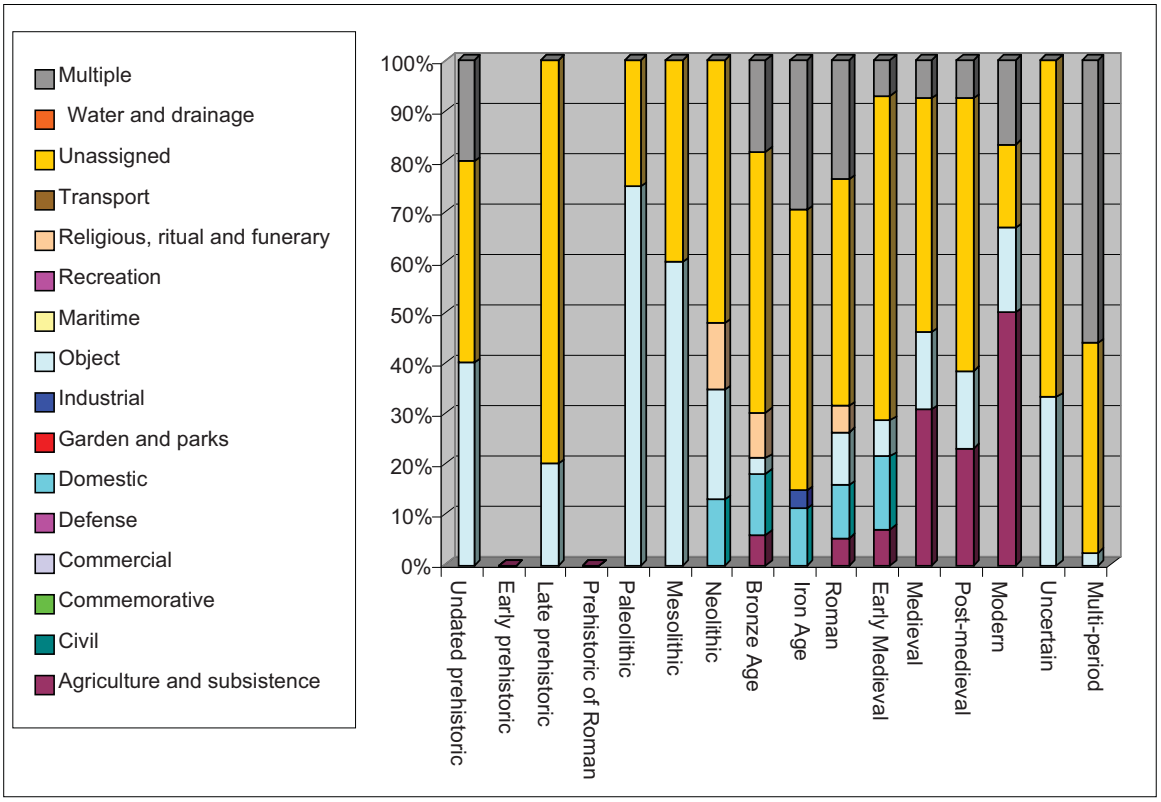
2.5.6 Graph 9 shows the asset types by period. The graph shows that 'multiple', 'Object' and 'Unassigned' predominate for each chronological period. The graph also shows that the ritual or funerary sites are concentrated in the late prehistoric and Roman periods. Domestic activity is recorded from the Neolithic to the early medieval periods. Agricultural and subsistence activity is recorded from Roman to modern periods.

2.5.7 A very basic interpretation suggests a general trend of prehistoric and Roman ritual and domestic activity being substituted firstly by small agricultural settlements during Roman and early medieval periods, and then by agricultural activity from the later medieval period onwards. This broad interpretation of data may not be correct bearing in mind that almost half of the asset types are unassigned. Future analysis and dissemination arising from recommendations of the present study may provide a clearer picture.

Graph 8 Percentages of assets by type



Graph 9 Percentages of assets by chronological/cultural period



2.6 Significance of the data

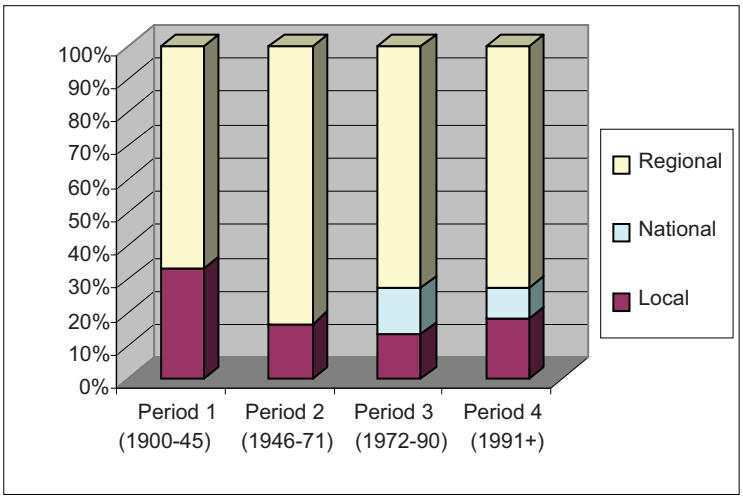
2.6.1 The 61 projects within the Access database have been assigned the following significance in local, regional and national terms, on the basis of the data that they can potentially provide:

- National - 5 projects;
- Regional - 46 projects;
- Local - 11 projects.

2.6.2 Graph 10 compares the known or perceived significance of the 61 projects with the period of archaeological investigation (Periods 1–4 defined in section 2.2.2). Projects of regional significance predominate in all four Periods, reflecting the rich resource of human activity across the landscape of the gravel terraces.

2.6.3 Periods 1 and 2 have no projects with potential data considered to be of national significance. This is perhaps related to the nature of archaeological investigation conducted during these periods, mainly savage excavations by local enthusiasts of archaeological remains uncovered during quarrying. Within Periods 3 and 4, the development of the archaeology profession, an improving planning framework, better investigative techniques, larger extraction sites, and a greater contextualisation of human activity within a broader landscape, mean that projects of national significance emerge.

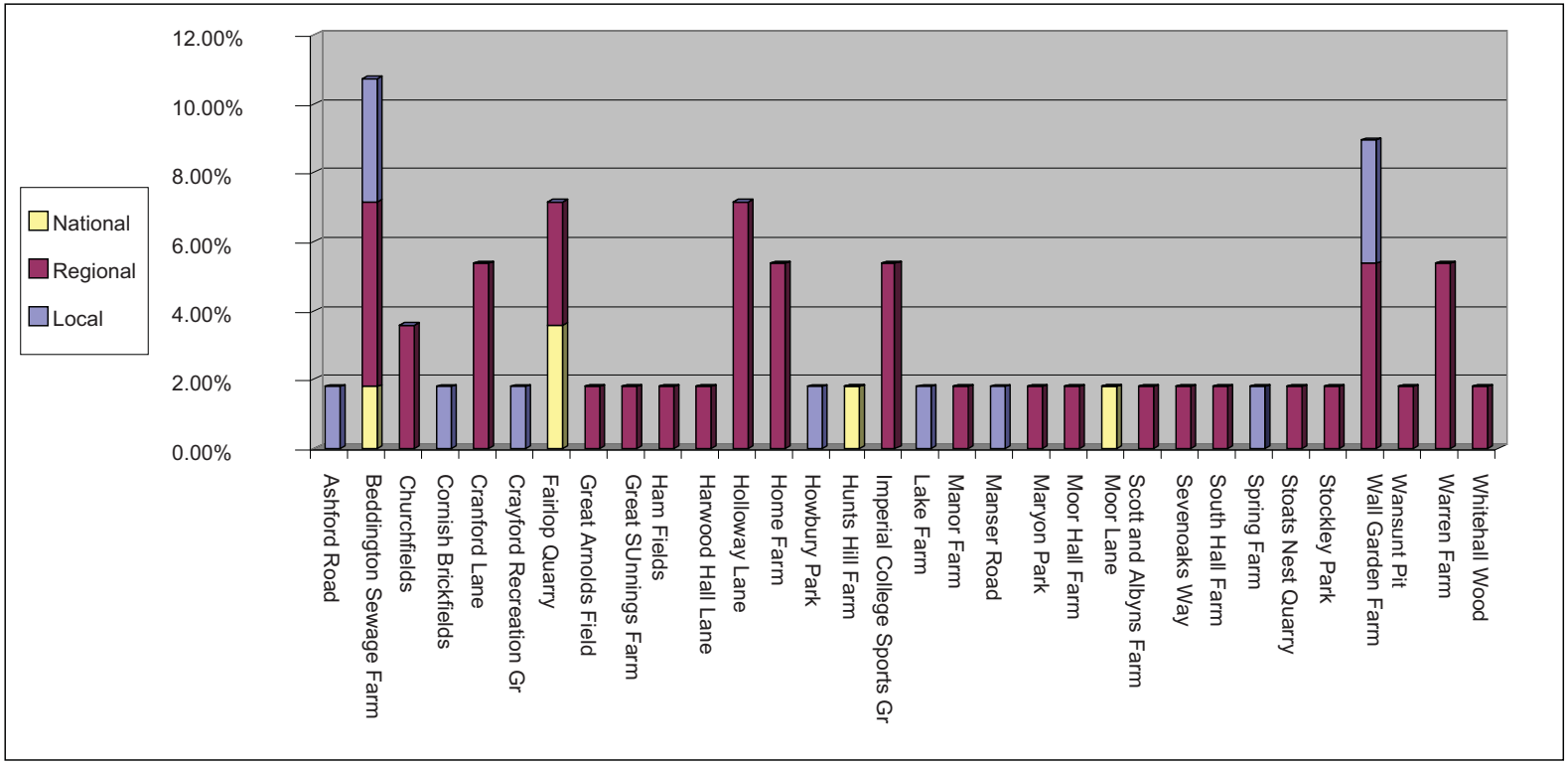
Graph 10 Significance of projects by investigation period



2.6.4 Graph 11 shows the breakdown of the significance of the data from the projects in relation to each quarry site. A collective significance has been assigned to the project as a whole rather than the individual archaeological assets within it. The importance of the assets within a project is likely to vary. An initial appraisal as to the significance of the historic assets.

2.6.5 Four of the quarry sites have projects which have produced information of national significance (Beddington Sewage Farm, Fairlop Quarry, Hunts Hill Farm and Moor Lane). The majority of quarries have project with data of regional significance. Seven quarry sites have produced archaeological data of local significance only.

Graph 11 Significance of projects by quarry site



3 Assessing trends in levels of dissemination

3.1 Introduction

3.1.1 The primary objective of the current study is to identify and quantify past archaeological investigations relating to aggregates extraction, which have incomplete and inappropriately low levels of archive completion, assessment, analysis and/or reporting of the results, with a view to forming a strategy to disseminate this more widely. In doing so, it is hoped that this would facilitate an improved understanding of the Historic Environment and the opportunities provided by aggregates extraction in Greater London by stakeholders, including the general public.

3.1.2 The study found that the majority, just under **four-fifths (80.3%), of the projects were inadequately disseminated** at the time of this project, although **many (50.3%) are currently progressing towards publication**. Currently only **one fifth (19.7%) were considered to be complete** in terms of appropriate dissemination.

3.1.3 The sections below consider the levels of dissemination at the time of this project. Whilst the overall proportion of the projects that are currently in the process of publication (ie largely through the East London Gravels and West London Landscapes projects) is noted, for the purposes of analysing the history of dissemination and how effectively it has been carried out, most of the analysis refers to the 'complete' and 'incomplete' levels at the time of writing.

3.1.4 In order to identify any possible past trends within projects associated with the completeness or incompleteness of dissemination, a series of queries were carried out of various data in the Access database. The queries have been represented under subheadings below, and the data tabulated with the main theme of the query in the first column and the level of dissemination (complete or incomplete) in the right hand column.

3.2 Quarry site

3.2.1 Table 3 shows levels of dissemination in relation to the 32 different quarry sites identified during the current study.

3.2.2 The results of archaeological investigations in only seven of the quarry sites have been properly disseminated at the time of this project. These projects were fairly small with investigations carried out over a relatively short period (less than one year). One quarry site, Beddington Sewage Farm, provided data considered to be of national significance. Three provided data of regional significance, comprising Wansunt Pit, Ham Fields, and Scott and Albyns Farm. Five provided data of local significance, comprising Beddington Sewage Farm, Cornish Brickfields, Howbury Park, Lake Farm and Wall Garden Farm. One, Ashford Road, provided negative evidence only.

3.2.3 For Beddington Sewage Farm and Wall Garden Farm, the two quarries with the largest number of investigations carried out over an extended period of up to *c* 20 years, only about half of each project has been disseminated (4.9% of the total projects in this study). Steps have been made to rectify the latter as this falls within the West London Landscapes Project (see section 1.3). Other quarry sites in the table that in ***bold italic*** are also in the process of being analysed and published, within the same project or as part of the East London Landscapes.

Table 3 Levels of dissemination in relation to quarry site

Name of quarry	No. of projects	Level of dissemination (% of total of all 61 projects)		
		Complete	***Incomplete***	***In process of dissemination***
Ashford Road	1	1.6%		
Beddington Sewage Farm (before 1989)	6	4.9%	4.9%	
Churchfields?	2		3.3%	
Cornish Brickfields	1	1.6%		
Cranford Lane	***3***		***4.9%***	***4.9%***
Crayford Recreation Ground?	1		1.6%	
Fairlop Quarry	4		6.5%	6.5%
Great Arnolds Field	***1***		***1.6%***	***1.6%***
Great Sunnings Farm	***1***		***1.6%***	***1.6%***
Ham Fields	1	1.6%		
Harwood Hall Lane/Bush Farm?	1		1.6%	
Holloway Lane	***4***		***6.5%***	***6.5%***
Home Farm	***3***		***4.9%***	***4.9%***
Howbury Park	1	1.6%		
Hunts Hill Farm	***1***		***1.6%***	***1.6%***
Imperial College Sports Ground	***3***		***4.9%***	***4.9%***
Lake Farm	1	1.6%		
Manor Farm	***1***		***1.6%***	***1.6%***
Manser Road/Mardyke Farm?	1		1.6%	
Marks Warren Quarry/Warren Farm	4		4.9%	4.9%
Maryon Park?	1		1.6%	
Moor Hall Farm	***1***		***1.6%***	***1.6%***
Moor Lane West/Accommodation Lane?	1		1.6%	
Scott and Albyns Farm	1	1.6%		
Sevenoaks Way?	1		1.6%	
South Hall Farm	4		1.6%	
Spring Farm	1		1.6%	
Stoats Nest Quarry	1		1.6%	
Stockley Park	***1***		***1.6%***	***1.6%***
Wall Garden Farm/RMC Land	***6***	***3.3%***	***6.5%***	***6.5%***
Wansunt pit	1	1.6%		
Whitehall Wood	***1***		***1.6%***	***1.6%***
Total	**61**	**19.7%**	**80.3%**	**50.3%**

3.3 Funding body

3.3.1 Table 4 shows levels of dissemination related to the funding body for the archaeological work carried out. It is not generally known whether the bodies that funded the investigation also funded the publication and dissemination of the data. Fig 6 (Vol 2) shows the distribution.

3.3.2 For over half (54.9%) of the 61 projects, information on the source of the funding was not readily identified as part of the present study and was noted as 'unknown'. The majority of these (one fifth) had incomplete dissemination.

3.3.3 Almost one-third (30.4%) of the projects were funded by the aggregates industry, with a high level (one fifth) of incomplete dissemination for such projects at the time of this project. Both figures are a little surprising in light of current planning policy,

since the principle of preservation by record within planning policy implies an undertaking by the developer to fund not only the archaeological investigation but subsequent publication of the results. It should be noted that many of these projects (50.3%) are now currently progressing towards publication.

3.3.4 A relatively small portion of the work was funded by the government or local authority, presumably prior to PPG16. Some of these projects were disseminated appropriately and some were not at the time of this project.

Table 4 Levels of dissemination in relation to funding body

Funding body	No. of projects	Level of dissemination (% of total of all 61 projects)	
		Complete	***Incomplete****
Unknown	31	10.7%	44.6%
Aggregates Industry	22	4.9%	31.1%
Other	4	1.6%	4.9%
Department of the Environment (DoE)	1	1.6%	
Local authority	1		1.6%
Manpower Services	1	1.6%	
Ministry of Works (MoW)	1		1.6%
Total	**61**	**19.7%**	**80.3%***

** Incomplete at the time of the project: 50.3% are currently in the process of dissemination.*

3.4 Archaeological organisation

3.4.1 Table 5 shows levels of dissemination related to which archaeological organisation carried out the fieldwork. It should be noted that occasionally the analysis and publication of an investigation is carried out by a different organisation. This is not included in the table.

3.4.2 The table shows that the largest group comprises 'unaffiliated' - amateur archaeologists and enthusiasts, operating prior to PPG16 on rescue excavations. Most of the work produced has not been disseminated, reflecting a lack of funding and/or availability of those individuals involved.

3.4.3 The work carried out by half of the various professional archaeological organisations shows a low record of appropriate dissemination at the time of this project, even though much (but not all) of the work would have been carried out under PPG16 planning conditions. It should be noted however that many (50.3%) of these projects are currently processing towards publication.

Table 5 Levels of dissemination in relation to archaeological organisation

Archaeological organisation	No. of projects	Level of dissemination (% of total of all 61 projects)	
		Complete	***Incomplete****
Unaffiliated	9	3.3%	12.5%
Wessex Archaeology	7		12.5%
West London Archaeology Field Group	7	3.3%	8.4%
MOL DGLA (West)	8	1.6%	12.5%
Passmore Edwards Museum	8		14.3%
Museum of London Archaeology Service	5	3.3%	4.9%
AOC Archaeology Ltd and AOC Archaeology Group	3		4.9%
Newham Museums Service	2		3.3%
Archaeological Solutions Ltd	3		4.9%
British Museum	1	1.6%	

Archaeological organisation	No. of projects	Level of dissemination (% of total of all 61 projects)	
		Complete	***Incomplete****
MOL DGLA (South West)	1	1.6%	
Essex County Council Field Archaeology Group	2		3.3%
Edmonton Hundred Historical Society	1		1.6%
Hertfordshire Archaeological Trust	1	1.6%	
Sutton Archaeological Services	1	1.6%	
Tempus Reparatum	1	1.6%	
John Samuels Archaeological Consultants	1		1.6%
Total	**61**	**19.7%**	**80.3%***

** Incomplete at the time of the project: 50.3% are currently in the process of dissemination.*

3.5 Period of archaeological intervention

3.5.1 Table 6 shows levels of dissemination in relation to the period of archaeological intervention (Periods 1–4). The table shows that most (80.3%) archaeological investigation associated with aggregate extraction was carried out during Periods 3 and 4, for reasons outlined in section 2.2.2.

3.5.2 Perhaps surprisingly, Period 1 has the best level of dissemination, with approximately half of the projects in this period disseminated appropriately, reflecting some credit on the local individuals and societies who carried out most of the early fieldwork (although this is across a small number of projects). Periods 2 and 3 have the worst levels of incomplete dissemination, possibly reflecting the lack of a suitable archaeological mitigation framework despite increasing quarry sizes. Within Period 4, just under one third of projects have complete dissemination at the time of this project. This is very low in light of the requirement of PPG16 to publish the results of fieldwork. It might be explained by fieldwork carried out under a planning condition secured prior to PPG16 (ie with no obligation on the part of the developer to fund subsequent publication), and also should be noted that many of the projects are currently progressing towards publication.

Table 6 Levels of dissemination in relation to investigation period

Period of intervention	No. of projects	Level of dissemination (% of total of all 61 projects)	
		Complete	***Incomplete****
Period 1 (1900–1945)	6	3.3%	6.5%
Period 2 (1946–1971)	6	1.6%	8.9%
Period 3 (1972–1990)	22	6.5%	32.1%
Period 4 (1991-present)	27	8.9%	30.4%
Total	**61**	**19.7%**	**80.3%***

** Incomplete at the time of the project: 50.3% are currently in the process of dissemination.*

3.6 Project size

3.6.1 Table 7 shows levels of dissemination related to the size of the project at the time of this report. Very large projects, long term and spatially extensive, make up the smallest number (3.3%). All of these projects have incomplete dissemination. Fig 3 (Vol 2) shows the distribution.

3.6.2 Large and medium sized projects form the majority (87.5%). These comprise extensive evaluation, survey and excavation, reflecting the size of the impact area. Large projects have low levels of dissemination (one sixth only). Medium-sized projects are slightly better disseminated (approximately one third).

3.6.3 Small projects, comprising test pitting and watching briefs, are not numerous as they are generally not the most appropriate method of mitigating extensive areas of aggregate extraction. Over half of these small projects have appropriate dissemination. In most cases this would be at a minimum level, ie grey literature report and GLHER entry etc, which probably explains the higher level fulfilling the criteria for complete dissemination.

Table 7 Levels of dissemination in relation to size of project

Project size	No. of projects	Level of dissemination (% of total of all 61 projects)	
		Complete	***Incomplete****
Very Large	2		3.3%
Large	27	4.9%	39.3%
Medium	27	11.5%	32.8%
Small	5	3.3%	4.9%
Total	**61**	**19.7%**	**80.3%***

** Incomplete at the time of the project: 50.3% are currently in the process of dissemination.*

3.7 Nature of fieldwork

3.7.1 Table 8 shows levels of dissemination related to the nature of archaeological intervention at the time of this project. This shows that over half (57.4%) of the projects involved archaeological excavation, in many cased following on from preliminary field evaluation. Fig 4 (Vol 2) shows the distribution.

3.7.2 All archaeological excavations within the database that have no form of associated secondary fieldwork are incompletely disseminated ('secondary fieldwork' refers to an archaeological investigation that is associated with the primary fieldwork but is not as extensive, as opposed to a later stage). This forms the largest fieldwork type (26.2%). With the introduction of PPG16, most excavations follow on from some sort of preliminary survey, and where this is lacking it might indicate a pre-PPG16 (ie rescue) excavation: such work typically lacked funding for post-excavation analysis and publication.

3.7.3 Projects comprising an evaluation or watching brief only have the highest levels of dissemination (over half). This is likely to be low-level, ie grey literature report and GLHER entry etc. The lack of associated archaeological excavation suggests that the discoveries were not notable enough to warrant further investigation, or a higher level of dissemination.

Table 8 Levels of dissemination in relation to nature of fieldwork

Nature of fieldwork (primary)	Nature of fieldwork (secondary)	No. of projects	Level of dissemination (% of total of all 61 projects)	
			Complete	***Incomplete****
Excavation	---	16		26.2%
Watching Brief	---	9	6.5%	8.2%
Excavation	Watching Brief	8	1.6%	11.5%
Evaluation	---	7	4.9%	6.5%
Excavation	Evaluation	7	3.3%	8.2%
Excavation	Geophysics	2		3.3%
Unknown	---	6	1.6%	8.2%
Evaluation	Watching Brief	1		1.6%
Excavation	Fieldwalking	1		1.6%
Fieldwalking	---	1	1.6%	
Fieldwalking	Watching Brief	1		1.6%
Watching brief	Excavation	1		1.6%

Nature of fieldwork (primary)	Nature of fieldwork (secondary)	No. of projects	Level of dissemination (% of total of all 61 projects)	
			Complete	***Incomplete****
Watching Brief	Fieldwalking	1		1.6%
Total		**61**	**19.7%**	**80.3%***

** Incomplete at the time of the project: 50.3% are currently in the process of dissemination.*

3.8 Regulatory condition

3.8.1 Table 9 shows levels of dissemination related to the nature of the regulatory conditions associated with the archaeological intervention. In almost half of the cases (46.4%) this information was not readily accessible and was not identified in the sources consulted. The majority of these have incomplete dissemination. The high percentage of unknown regulatory conditions makes difficult to ascertain any trends. Fig 5 (Vol 2) shows the distribution.

3.8.2 One-third of the projects, identified as having been carried out under the terms of a planning condition, ie *preservation by record* with a standard requirement to publish the results, have low levels of dissemination (less than one third) at the time of this report. It might be explained by fieldwork carried out under a planning condition secured immediately prior to PPG16 (ie with no commitment to publication), and also should be taking into account that many of the projects are currently progressing towards publication.

Table 9 Levels of dissemination in relation to regulatory conditions

Fieldwork required by regulatory conditions	No. of projects	Level of dissemination (% of total of all 61 projects)	
		Complete	***Incomplete****
Unknown	26	9.8%	32.8%
Planning condition	23	6.5%	22.9%
Not required	12	3.3%	16.4%
Total	**61**	**19.7%**	**80.3%***

** Incomplete at the time of the project: 50.3% are currently in the process of dissemination.*

3.9 Chronological period

3.9.1 Table 10 shows levels of dissemination related to the chronological periods of the discoveries at the time of this report, although it should be noted that many of the projects recording these periods are now currently progressing towards publication. The table shows low levels of dissemination across the assets of all periods. In particular, multi-period sites (16.5% of the total) have low levels of dissemination at the time of the project (approximately only one-sixth are adequately disseminated).

3.9.2 All Neolithic assets - almost 10% of the total - and Mesolithic assets (2.2% of total) have incomplete dissemination. Assets dating to the various prehistoric periods, and the Roman period, have low levels of dissemination. The medieval and post-medieval periods have the highest levels of complete dissemination, although this is still less than half of the total assets of these periods across all projects, and in any case these make up a small portion of the total assets of all periods across all projects.

Table 10 Levels of dissemination in relation to chronological/cultural period

Chronological period	No. of projects	Level of dissemination (% of total of all 61 projects)	
		Complete	***Incomplete****
Undated Prehistoric	10	1.3%	3.0%
Early Prehistoric	0		

Chronological period	No. of projects	Level of dissemination (% of total of all 61 projects)	
		Complete	***Incomplete****
Palaeolithic	4	0.4%	1.3%
Mesolithic	5		2.2%
Later Prehistoric	5	0.9%	1.3%
Neolithic	23		9.9%
Bronze Age	33	1.3%	12.9%
Iron Age	26	0.9%	10.3%
Prehistoric or Roman	0		
Roman	37	1.7%	14.2%
Early Medieval	14	0.9%	5.2%
Medieval	13	1.3%	4.3%
Post-medieval	13	1.7%	3.9%
Modern	6	0.4%	2.2%
Multi-period	40	2.6%	14.7%
Uncertain	3	0.4%	0.9%
Total	**232**	**13.8%**	**86.2%***

** Incomplete at the time of the project: 50.3% are currently in the process of dissemination.*

3.10 Site type

3.10.1 Table 11 shows levels of dissemination at the time of this project in relation to asset types recorded during archaeological investigations. Almost half of the asset types are unassigned (see section 2.4 regarding lack of interpretation), and of these only one eight are completely disseminated.

3.10.2 Sites with multiple asset types make up just under a quarter of the total, but only one in nine have been completely disseminated. 'Object' and 'Domestic' types have better levels of dissemination. 'Agriculture and subsistence' and 'Industrial' types all have incomplete levels of dissemination. Nine of the 14 known single asset types are not represented at all in the data.

Table 11 Levels of dissemination in relation to asset type

Asset type	No. of asset types	Level of dissemination (% of total of all 61 projects)	
		Complete	***Incomplete****
Unassigned	111	5.2%	42. 7%
Multiple	53	2.6%	20.3%
Object	28	4.3%	7.8%
Domestic	16	2.6%	4.3%
Agriculture and subsistence	15		6.5%
Religious, ritual and funerary	8	0.4%	3.0%
Industrial	1		0.4%
Civil	0		
Commemorative	0		
Commercial	0		
Defence	0		
Garden and parks	0		
Maritime	0		
Recreation	0		
Transport	0		
Water and drainage	0		
Total	**232**	**13.8%**	**86.2%***

** Incomplete at the time of the project: 50.3% are currently in the process of dissemination.*

3.11 Current project status

3.11.1 Table 12 shows levels of dissemination related to project status at the time of this report, although many of these projects are currently progressing towards publication. The table indicates that the just over 90% of projects (57 out of 61) are considered to be 'complete' in that the fieldwork has finished and a final report produced (the latter at least for post-PPG16 projects). Despite this, over one-third of the projects are considered to merit more analysis and dissemination under the criteria of the current study.

3.11.2 The projects which are not known to be complete or incomplete are those which have been undertaken in the last five years within areas quarried for decades, in some cases with further work expected.

Table 12 Levels of dissemination in relation to current project status

Current project status	No. of projects	Level of dissemination (% of total of all 61 projects)		
		Complete	***Incomplete***	***In process of dissemination***
Complete	57	18.0%	67.2%	50.3%
Not known	4	1.6%	4.9%	0%
Total	**61**	**19.7%**	**80.3%**	50.3%

3.12 Project significance

3.12.1 Table 13 shows the levels of dissemination related to the known or perceived significance of the archaeological data at the time of this report, although many of these projects are currently progressing towards publication. Fig 19 (Vol 2) shows the distribution (along with recommended dissemination, discussed later in the report).

- Projects with data considered of national significance have mostly not been disseminated with only one project having a complete level of dissemination.
- Projects of regional significance, almost three-quarters of the total, have low levels of dissemination - just less than 1 in 12 projects have complete dissemination.
- Projects producing data of local significance (18.0% of all projects) have the highest percentage of complete dissemination; this is probably due to the low level of dissemination they require to fulfil the criteria (eg grey literature report, GLHER entry).

Table 13 Levels of dissemination in relation to significance of data retrieved

Project significance	No. of projects	Level of dissemination (% of total of all 61 projects)	
		Complete	***Incomplete****
National	5	1.6%	6.5%
Regional	45	4.9%	68.8%
Local	11	13.1%	4.9%
Total	**61**	**19.7%**	**80.3%***

** Incomplete at the time of the project: 50.3% are currently in the process of dissemination.*

3.13 Archive details

3.13.1 Table 14 shows levels of dissemination in relation to whether the archive location is known or not. Archaeological investigations discussed in journals and newsletters in almost all cases fail to mention details of the project archive, such as the archive

location. Where possible, the archive location was identified following consultation with LAARC or council museums and archives services.

3.13.2 For just over half (36 out of 61) of the projects, the archive locations were identified. Of these, half were for projects incompletely disseminated at the time of this report, although many are currently progressing towards publication.

3.13.3 For a high percentage of projects (25 out of 61) the archive location was not readily apparent and was not identified as part of the present study. Projects with no archive details mainly predate the 1960s and are associated with the lack of formal archiving deposition and/or possibly the misplacement of the archive records. A portion of projects with unknown archive details have been carried out in the last decade. Such projects may be currently active (eg Aldborough Hall Farm), or could represent backlogs in the archiving process.

Table 14 Levels of dissemination in relation to archive location

Archive location	No. of projects	Level of dissemination (% of total of all 61 projects)	
		Complete	***Incomplete****
Known	36	8.2%	50.8%
Unknown	25	11.5%	29.5%
Total	**61**	**19.7%**	**80.3%***

** Incomplete at the time of the project: 50.3% are currently in the process of dissemination.*

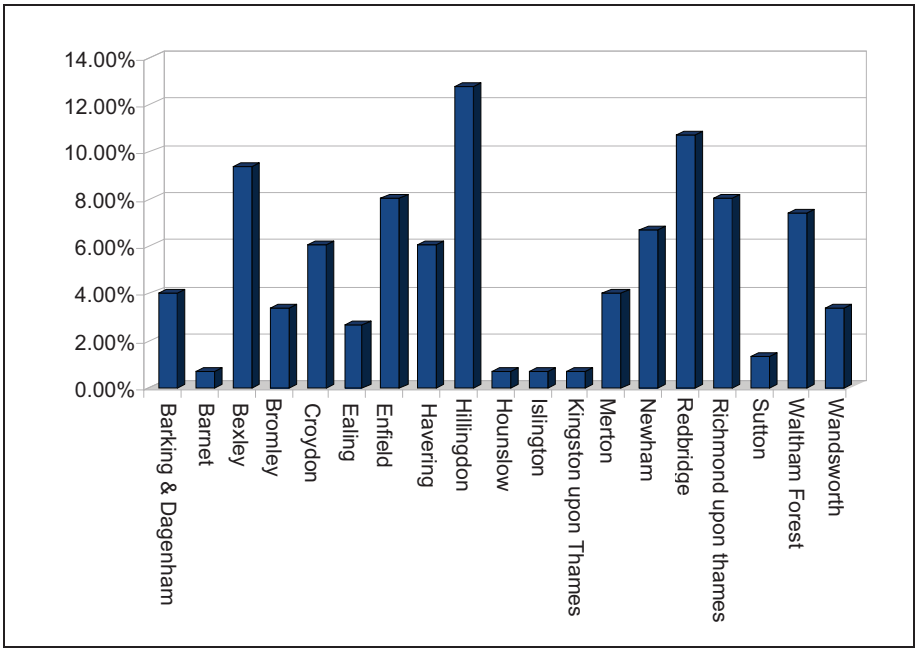
3.14 GLHER monuments data not associated with archaeological intervention

3.14.1 The GLHER records a number of features and findspots in quarries that are not associated with any known archaeological intervention, for example isolated chance finds, and archaeological features visible as cropmarks or earthworks on air photographs. The distribution of these is similar to the distribution of remains recorded during field investigations. Fig 18 (Vol 2) and Graph 12 show the distribution of features/findspots with higher concentration in the London suburbs such as Hillingdon, Redbridge or Bexley, matching the trend observed in the archaeological field projects.

3.14.2 Chance finds comprise mostly artefacts such as flintwork, pottery, human and animal remains from Palaeolithic to early medieval periods. A number of these remains are known to be archived in the local museums. Archaeological cropmarks and earthworks shown in air photographs have in many cases been removed by aggregate extraction (ie before the development of current planning frameworks).

3.14.3 A review of these features and chance finds has the potential to complement the results of field investigations as part of any future analysis and publication.

Graph 12 Percentage of assets per borough in relation to extraction



3.15 Summary of trends

3.15.1 Two main themes emerged from the database query. The first is the lack of certain important information within the journal and newsletter articles (and GLHER entries) examined, namely information on the funding body, why the work was carried out, the location of the archive, and the general lack of interpretation as to the likely nature of the archaeological features recorded.

3.15.2 For over half (50.8%) of the 61 projects noted in the database, the funding body was not stated. In many cases journal/newsletter notes and articles do not state why the work was carried out (ie quarrying activity or building development).

3.15.3 For just under half (41.0%), and all pre-1960s projects, the location of the archive was not identified as this information was not readily apparent in the journal/newsletter notes and articles, and even after LAARC was consulted.

3.15.4 Almost half (47.8%) of the archaeological assets were noted as 'Unassigned' and only five of the single asset types out of a total of 14 types were noted. The excavators/authors typically failed to offer an opinion as to the nature of remains recorded. This might represent a professional cautiousness by the person(s) perhaps best placed to give an interpretation. Future assessment, analysis and dissemination of the data recorded across the different projects is necessary to reduce the number of 'Unassigned' types and allow a better understanding of the nature of human activity recorded in past investigations in areas of aggregate extraction.

3.15.5 The second theme is the low level of appropriate dissemination noted by the study, even post-PPG16, although it must be taken into account that many of these projects are currently progressing towards publication. Only one fifth (19.7%) of projects were considered to be complete in terms of fulfilling the study criteria for having an appropriate level of dissemination. Even though 90% of the projects are 'complete' in that the fieldwork has been finished and a final report produced (the latter for post-PPG sites), a number of them are considered to merit more analysis and dissemination. Notably, one third of investigations carried out as a PPG16 planning condition have incomplete dissemination. This level of dissemination refers to the lack of a copy of the project report hold by the GLHER and/or the requirement

of a higher grade of dissemination (i.e. publication) due to the significance of the data retrieved by the archaeological project. This group comprises 39.3% of all archaeological work carried out in quarries from 1908 to present day. Large and very large projects, and projects with remains of national or regional significance, have notably low levels of dissemination.

3.15.6 Small-scale investigations (ie watching brief, test pitting), and those investigations which recorded only remains of local significance, have the best levels of appropriate dissemination. This trend is to be expected as the criteria for complete dissemination is fairly minimal and easy to achieve, ie a grey literature report submitted to the GLHER and GLHER entry.

4 Current levels of dissemination

4.1 Projects with complete dissemination

4.1.1 Projects carried out within 9 of the 32 quarries are considered to be properly disseminated. These are show on Fig 19 (Vol 2) and comprise:

- *Ashford Road.* The investigation carried out in 1981 did not record any archaeological evidence. The brief journal note published for the project was considered appropriate.
- *Beddington Sewage Farm (projects prior to 1989)*. The early/mid 1980s investigations recorded important Roman remains and the findings were published in a monograph. Subsequent work in 2003 recorded residual Roman finds and the findings disseminated in a brief journal note.
- *Cornish Brickfields.* An investigation carried out in 1908 recorded Roman burial remains including a stone coffin containing a female skeleton. Due to the nature of the investigation, carried out during gravel extraction, there was little opportunity to recover other data that would provide a more meaningful assessment of this discovery. The brief journal note published for the project is therefore considered appropriate in light of the limited data retrieved.
- *Ham Fields.* The 1950s investigation recorded Saxon occupation. An article on the discoveries was published in a regional journal.
- *Howbury Park.* The 1994 investigation recorded palaeoenviromental remains, discussed in a brief journal note.
- *Lake Farm.* The 1990 investigation recorded isolated artefacts. The brief journal note published represents the proper dissemination level for the local significance of the data recorded.
- *Scott and Albyns Farm.* The investigation carried out in 1995–6 recorded a multi-period site with diverse historic assets. The results were published in a major article in a national journal.
- *Wansunt Pit.* The 1913 investigation recorded Palaeolithic remains. The discovery was published in a major article in a national journal.

4.2 Projects in the process of dissemination

4.2.1 The following projects are currently assessed as having low or incorrect levels of dissemination. However they are currently in the process of being appropriately disseminated as part of the East London Gravels and the West London Landscapes thematic projects. The former is nearing completion as a monograph. The latter has been through the analysis and synopsis phases and is waiting funding for a project design/publication. Both projects are characterised by multi-period sites showing diverse assets within a rich historic landscape.

East London Gravels

- *Hunts Hill Farm* - investigations between 1989 and 1997
- *Moor Hall Farm* - investigations between 1977 and 1980
- *Great Arnold's Field* - one investigation in 1963
- *Whitehall Wood* - one investigation in 1982–3
- *Great Sunning's Farm* - one investigation in 1983
- *Manor Farm* - one investigation in 1983–4

West London Landscapes

- *Wall Garden Farm* - investigations of 1979 and 1985 are included in the West London Landscapes Project; and those dated to 1995–6 and 2007 are proposed to be included in the Updated Synopsis (MOLA *in prep*).
- *Holloway Lane* - four investigations between 1987 and 1987; three of these investigations have been considered by this study to be inappropriately disseminated, two of them meriting publication and one meriting further assessment, although they should be assessed together as a related landscape complex.
- *Home Farm* - two investigations in 1988 and 1991 are included in the West London Landscapes Project. There is funding for the completion of the assessment of the data obtained from the later investigation as part of the Home Farm Harmondsworth Project.
- *Cranford Lane* - three investigations between 1989 and 1994.
- *Stockley Park* - one investigation in 1985.

Other projects

4.2.2 Wessex Archaeology is currently undertaking to publish the Imperial College Sports Ground and RMC Land investigations in a monograph. As this work is still at the assessment stage, the work is included in the database as incompletely disseminated, pending analysis.

- *Imperial College Sports Ground*. The main investigations at this quarry site were carried out in 1986, between 1996–2001, and in 2005. These revealed multi-period activity in the form of a late Neolithic 'ritual' enclosure with cemetery and double ring-ditch; a late Bronze Age to Romano-British landscape of fields, enclosures, a trackway and cemetery; and medieval agricultural features. Short journal articles have been published for the investigations of 1996–2001 and brief notes for the other works.
- *RMC Land*. The investigations carried out on this site between 2000 and 2005 recorded multi-period activity in the form of Neolithic and Bronze Age pits, post-holes and ditches; late prehistoric and Roman settlement; Saxon-medieval settlement associated to field systems and Anglo-Saxon graves.

4.3 Projects with incomplete dissemination

4.3.1 The majority of the investigations have a low level of dissemination. Those quarry sites/projects with incomplete dissemination are discussed in section 5, along with recommendations.

5 Recommendations

5.1 Introduction

5.1.1 The results of this ALSF study reveal that a currently low level of dissemination of data obtained from archaeological investigations carried out in relation to aggregates extraction. This section of the report puts forward recommendations to remedy that situation.

5.1.2 The Access database includes, in accordance with the methodology set out in Section 8.3, three levels of suggested dissemination for each separate project, where dissemination is considered to be incomplete. The three levels comprise Assessment, Analysis, and Publication, and are largely associated with the known or perceived significance of the data contained within each project. The section below discusses the reasoning behind the suggested levels of dissemination, and has been grouped by quarry site. The approach has considered current research priorities, which are outlined in the section below.

5.2 Research frameworks

5.2.1 Greater London is covered by a number of different research frameworks. These highlight the current key research themes and are an important consideration when formulating recommendations for the dissemination of the aggregates backlog projects, and how these can potentially contribute towards the overall research aims.

5.2.2 English Heritage has recently produced several research documents comprising *Research Agenda: an introduction to English Heritage's research themes and programmes* (English Heritage, 2005); *Discovering the past shaping the future: research strategy 2005–10* (English Heritage, 2005); and *Devising an Historic Environment Research Framework for Greater London* (English Heritage, March 2009). The six main research themes for Greater London's historic environment are included in Table 15 below.

Table 15 English Heritage research themes for Greater London

HE physical model	Possible GLHERF themes	Comment
Landscape and settlement pattern	1: A city in its hinterland and world context	An outward-looking theme, drawing upon all others: highly collaborative historically
Settlements urban and rural	2: Inhabiting the pre-city landscape	Focuses on the area of what later became London and links it with adjacent areas
	3: An evolving urban settlement	Primary focus on urban evolution; major links with 1, 4
	4: Identifying places and communities within the metropolis	More inward focus on the diversity of the urban totality; social property and demographic aspects; major links with 3, 5, 6
Buildings and structures	5: Buildings for living and working	Architecture and function; standing and demolished; major links with 4, 6
Artefacts and deposits	6: Making and using artefacts	Technology from flint-knapping onwards – artefacts buried and found, in buildings and places, on and used by people.

5.2.3 The other main framework is that of the Museum of London and English Heritage, *A research framework for London archaeology 2002* (MOL 2002: here abbreviated as RFLA). The aim of this document is to 'guide but not proscribe the direction of archaeological research in London', through a series of framework objectives.

Those objectives that are considered to be relevant are listed with the recommendations below. There are currently plans to revise this document but as this is still in the early stages any preliminary ideas are not considered as part of the present study.

5.2.4 The *Surrey Archaeological Research Framework* (Bird 2006, hereafter abbreviated as SARF), covers the historic county of Surrey and thus encompasses South West London. This framework identifies the main gaps in our current understanding about Surrey's past, set out topics for future research, strengthen coordination of effort on research into Surrey's historic environment, and provide the basis for decisions about the targeting of academic research and the effective management of the archaeological resource.

5.2.5 The *South East England Research Framework* (SERF) is ongoing. It covers the counties of Surrey and Kent along with East and West Sussex. The research agenda is currently being developed and objectives are not considered as part of the present study.

5.3 Publication

5.3.1 Publication is recommended as the appropriate level of public dissemination from the results of archaeological projects within the quarries listed below. None of these projects is covered by the East London Gravels and West London Landscapes publications, and none are, at the time of writing, in the process of dissemination. Fig 19 (Vol 2) shows the distribution.

- Beddington Sewage Farm (projects from 1989 onwards)
- Charlton Earthworks/Maryon Park
- Coulsdon Woods
- Fairlop Quarry
- Harwood Hall Lane
- Marks Warren Quarry/Warren Farm
- Moor Lane West
- Sevenoaks Way
- South Hall Farm

Beddington Sewage Farm (1989 onwards: Projects number 16 and 23; see Fig 20)

5.3.2 The archaeological investigations carried out in this quarry from 1981 to 1987 were published in a monograph by MoLAS in 2005 (Howell 2005). However, further investigations by DGLA (SW), WA and SAS were subsequently undertaken prior to the opening up of additional areas of gravel extraction between 1989 and 2006, encompassing a broad area of Beddington Park. These revealed further evidence of multi-period activity in the form of undated prehistoric worked flints, pottery, ditches, pits and post-holes; a palaeochannel with environmental samples from Neolithic to Bronze Age; late Neolithic-early Bronze Age pottery and ditches; a Bronze Age field system; Bronze Age/Iron Age round houses, outbuildings/barns and well; Roman and late medieval ditches; and post-medieval ditches and gullies. These investigations are contractually complete and the data recorded has not been completely disseminated.

5.3.3 The amount and the significance of data retrieved, in particular prehistoric remains recorded in 1992–3 and in 2003, suggests that analysis and publication of the new discoveries is appropriate. This could take the form of a short journal article, which would complement the earlier monograph.

5.3.4 The additional dissemination proposed would help set the original results in a

broader landscape context and thus fulfil a number of framework objectives set out in RFLA:

- P3: 'Understanding what [early prehistoric] London looked like' - by the mapping of the palaeochannels investigated in 2002;
- P4: 'Reconstructing the environment and ecology on a regional basis' - through the analysis of environmental samples
- P5: 'Preparing settlement plans' - with the analysis of additional settlement information.

5.3.5 The proposed additional assessment and publication would also fulfil a number of objectives set out in the SARF. This includes improving understanding of the Neolithic and Bronze Age periods in the (historic) county. For the Neolithic, there is a need for 'some new work on existing material evidence and the location of new sites and recovery of much more environmental evidence. It is a key requirement to establish if there are different communities on the gravels and further south or if these areas are linked within 'territories' spreading out over other geologies' (Bird 2006, 31). In relation to the Bronze Age 'There is a clear need for much more environmental evidence, and re-examination of the material evidence we already have would pay dividends in various ways. Understanding of the Late Bronze Age landscape may have increased to the point where predictive modelling could be employed to locate new sites' (*ibid*, 34). The proposed publication would fulfil two GLHERF themes: (1) A city in its hinterland and world context, and (2) Inhabiting the pre-city landscape.

Charlton Earthworks/Maryon Park (Project number 58; see Fig 21)

5.3.6 The archaeological investigations carried out in this quarry during 1914–5 were published by the excavator a decade later. Subsequent investigations in 1950 by F.C. Elliston Erwood revealed remains of a Roman enclosure with at least two round buildings and two areas of compacted ground with numerous artefacts, possibly indicating industrial activity, the results of which have not been published. This project is complete and the data recorded has not been completely disseminated. The data is considered to be of regional significance under the criteria of the current study as it can potentially enhance our knowledge of the area and has a wider comparative potential.

5.3.7 It is therefore suggested that the data is analysed and discussed in relation to the earlier findings, and published as a short journal article. This would contribute to framework objective R5 'Refining our understanding of the range of domestic building types and their functions' set out in the RFLA (Nixon *et al* 2002, 35).

5.3.8 The proposed publication would fulfil two GLHERF themes: (1) A city in its hinterland and world context, and (2) Inhabiting the pre-city landscape.

Coulsdon Woods (Project number 51; see Fig 22)

5.3.9 The site was investigated by an unaffiliated group in 1969. A possible Iron Age/Romano-British ditched enclosure was recorded and a Roman burial ground with an unspecified number of 4th-century coffined inhumation burials. The results of the investigation, which are considered by this assessment to be of regional significance, were not published or disseminated in any form being the field investigation complete. The site exists only as a GLHER entry.

5.3.10 Unfortunately, it was not possible to determine the location of the archive or fieldwork report (if one was ever produced) as part of this study. It is recommended that the archive is searched for and if located the results analysed and published in the form of a short journal article. This would contribute to RFLA framework objective P6 'Elucidating various elements in the settlement pattern…'. It would also fulfil the objective R8 'Investigating the development of [Roman] cemeteries around

London over time, and the relationship between their location and major and minor roads'.

5.3.11 If the archive can be located, the publication would also fulfil several SARF objectives associated with developing an understanding of Iron Age and Romano-British Surrey: '…it is important to find well dated site evidence and this might be done by revisiting known [Iron Age] sites, and carrying out carefully targeted work' (Bird 2006, 40), and '…in particular the origins and dating of [Roman] pottery and tile could provide useful information even when it is unstratified. Information about non-villa rural settlement (farms, 'villages'?) is crucial, and should be linked to study of later Iron Age rural settlement. Much more evidence is needed to make possible understanding of the ways in which the settlements - towns, villas and 'lower status' sites - interacted. The location of burial sites should be a priority' (*ibid*, 48).

5.3.12 The proposed publication would fulfil two GLHERF themes: (1) A city in its hinterland and world context, and (2) Inhabiting the pre-city landscape.

Fairlop Quarry (Projects number 8–9 and 11; see Fig 23)

5.3.13 The investigations carried out by NMS in 1993–4 and 1996, and by ASL in 2007, recorded multi-period assets which included Bronze Age ritual activity and settlement, Iron Age pits, enclosures and burials, Roman occupation and field systems, and a number of undated cremations. This project is stalled as further gravel extraction is expected in other areas of the quarry yet to be investigated. A draft publication was produced by Archaeological Solutions for part of the site, although it was considered inappropriate at its time as it required further areas to be incorporated, including future extraction areas (consultation with David Divers, Archaeology Advisor for north-east London).

5.3.14 The information from the investigations is considered by this study to include data of national significance that has not been disseminated at appropriate level. It is therefore suggested that the archive is analysed and the results subsequently published in the form of a major journal article or monograph. The site has already been assessed by MOLA but it was not included in the subsequent ALSF funded analysis and publication as part of the East London Gravels project.

5.3.15 This publication would ideally complement the dissemination of the Marks Warren Quarry/Warren Farm investigations *c* 2km to the east (possibly in the same publication?) and would add to current knowledge on the archaeology of the north-east of Greater London and on the prehistory of southern Britain in general.

5.3.16 The proposed publication would fulfil several RFLA framework objectives:

- P5 'Re-evaluating the burial evidence…' and 'Preparing [prehistoric] settlement plans';
- P6 'Elucidating various elements in the [prehistoric] settlement pattern…'
- R3 'Elucidating the relationship of the central core to nucleated [Roman] settlements and villas…'
- R8 'Investigating the development of [Roman] cemeteries around London over time…'
- R12 'Analysing field and archive data to improve the understanding of [Roman] agriculture practice in the region'.

5.3.17 The proposed work would fulfil one GLHERF theme: (1) A city in its hinterland and world context.

Harwood Hall Lane (Project number 52; see Fig 24)

5.3.18 An archaeological investigation by PEM in 1962 recorded multi-period activity in the form of a large rectilinear enclosure with early Iron Age occupation, 1st–2nd century Roman buildings and a 3rd-century Roman structure and metalled surface. This

project is complete and the data recorded has not been completely disseminated. The data recovered is considered of regional significance. Unfortunately, it was not possible to determine the location of the archive or fieldwork report (if one was ever produced) as part of this study. If the archive could be located it may (depending on its adequacy) merit being analysed and published in the form of a short journal article.

5.3.19 The proposed dissemination would match the criteria of the RFLA framework objective R3 'Elucidating the relationship of the central core to [Roman] nucleated settlements and villas…'.

5.3.20 The proposed publication would fulfil two GLHERF themes: (1) A city in its hinterland and world context, and (5) Buildings for living and working

Marks Warren Quarry/Warren Farm (Projects number 12 and 43; see Fig 23)

5.3.21 The investigations carried out on this site by PEM in 1988 and by AOC Archaeology between 1997 and 2002 recorded multi-period activity. This included a Mesolithic pit; a late Bronze Age-early Iron Age enclosure, pits, ditches and field system; an early Iron Age fortified settlement; a late Iron Age-early Roman field system; a Roman road and enclosure; remains of a medieval windmill and house; an 18th-19th century windmill; and a former WWII gun battery. This project is contractually complete as no further gravel extraction is expected. A publication proposal was produced by Archaeological Solutions for the main area of the site, although it was considered inappropriate at its time as it required the entire site to be incorporated (consultation with David Divers, Archaeology Advisor for north-east London).

5.3.22 This information has not been properly disseminated in relation to its assessed significance. It is therefore suggested that the archive is analysed and the results subsequently published in the form of a major journal article or monograph.

5.3.23 This publication would ideally complement the dissemination of the Fairlop Quarry investigations *c* 2km to the west (possibly in the same thematic publication?) and would add to current knowledge on the archaeology of the north-east of Greater London and on the prehistory of southern Britain in general. It would fulfil RFLA framework objective P5 'Identifying the roles that ringforts played in the developing settlement hierarchy of the Late Bronze age, and their relationship, if any, with the few succeeding early Iron Age sites of hillfort type…'

5.3.24 The proposed work would fulfil one GLHERF theme: (1) A city in its hinterland and world context.

Moor Lane West (Project number 30; see Fig 25)

5.3.25 The investigation carried out on this site by DGLA (W) in 1982 recorded possible ritual features of Neolithic date in the form of two large parallel ditches containing struck flint of Neolithic date interpreted as a ritual avenue. These features form part of a broader ritual landscape centred on the Stanwell Cursus, a Neolithic ceremonial avenue, located to the south. The findings of the Moor Lane West investigation were published in limited form within a major journal article on the Stanwell Cursus, but are considered by this study to be of national significance and thus worthy of wider dissemination and a publication in its own right (depending on the adequacy of the archive). This project is complete and the data has been disseminated, although the significance of the data is considered to require further dissemination.

5.3.26 The proposed analysis and publication would contribute towards RFLA framework objective P4 'Examining the influence of landscape [in respect of prehistoric activity]…'

5.3.27 The proposed work would fulfil one GLHERF theme: (1) A city in its hinterland and world context.

Sevenoaks Way (Project number 55; see Fig 26)

5.3.28 The site of a Roman settlement, possibly a villa, was investigated by A.H.A. Hogg between 1927 and 1933 and the results summarised in brief journal notes at local level. The data from this site is considered by the present study to be of regional significance and thus worthy of a higher level of dissemination. This project is complete and the data has been disseminated, although the significance of the data is considered to require further dissemination.

5.3.29 Unfortunately, it was not possible to determine the location of the archive or fieldwork report (if one was ever produced) as part of this study. If the archive could be located (depending on its adequacy) it is recommended that the results are analysed and published in the form of a short journal article. This would fulfil RFLA framework objective R3 'Elucidating the relationship of the central core to nucleated [Roman] settlements and villas…'

5.3.30 The proposed publication would fulfil two GLHERF themes: (1) A city in its hinterland and world context, and (2) Inhabiting the pre-city landscape.

South Hall Farm (Project number 13; see Fig 25)

5.3.31 The investigations carried out by Passmore Edwards Museum, Essex County Council Field Archaeology Group, JSAC John Samuels Archaeological Consultants and AOC Archaeology between 1995 and 2005 recorded multi-period activity in the form of various worked flints of late Mesolithic, Neolithic and Bronze Age date; a late Bronze Age ring ditch and pits; and residual Roman, medieval and post-medieval artefacts. A significant number of the features were not interpreted and are 'unassigned'. The results of the project were summarised in brief journal notes only. This project is complete and the data has been disseminated. The data from this site is considered by the present study to be of regional significance however, and thus worthy of a higher level of dissemination, at least as a short journal article. The assessment of the late Mesolithic-early Neolithic remains would match the criteria of RFLA framework objective P4 of 'Elucidating the nature of the Mesolithic to Neolithic transition'.

5.4 Analysis

5.4.1 No project has been considered solely for analysis since this adds little value unless the results are published. Thus projects worthy of analysis have also been recommended for publication as the appropriate level of dissemination.

5.5 Assessment

5.5.1 The current report has identified three projects that would merit further assessment as a suggested level of dissemination, which includes the deposition of a grey literature report and updated GLHER entry. Publication of these projects is not considered necessary, either because of the limited significance of data or because the projects have been summarised sufficiently already in some form of publication. The projects are located within the following three quarries:

- Churchfields;
- Crayford Recreation Ground; and
- Manser Road/Mardyke Farm.

Churchfields

5.5.2 The investigations carried out by unaffiliated group in 1929–38 and 1951 recorded Roman occupation in the form of a timber hut, ditches, gullies and pits, an inhumation burial, and various finds including a hoard of silver coins. The results were published within a synthetic regional study of London (Clark *et al* 2008).

However, finds from this site are kept at different institutions, and no report is known to be archived. Therefore, it is suggested that the archive is compiled to current standards and guidelines and subsequently deposited in the London Archive and Archaeological Research Centre or other publicly accessible archive.

Crayford Recreation ground

5.5.3 The investigations carried out by unaffiliated group in 1960 recorded the remains of a probable Roman villa, which has been mentioned in a number of brief journal notes. It is suggested that the material be reassessed in light of current knowledge of Roman archaeology in southern Britain positioning this site in geographical and chronological context and relation. It is also suggested a grey literature report produced and submitted to the GLHER. If the archive could be located and depending on its adequacy, it may merit further dissemination, such as publication in a short journal article.

Manser Road/Mardyke Farm

5.5.4 The investigation carried out by unaffiliated group in 1928 recorded a Roman burial in the form of a coffin with two skeletons. No related dissemination, other than the GLHER entry, is known. The data recorded from this site has been considered of local significance due to the absence of known context for the recorded remains.

5.5.5 Unfortunately, it was not possible to determine the location of the archive or fieldwork report (if one was ever produced) as part of this assessment. It is suggested that the archive is located and compiled to current standards and guidelines (whenever possible), and subsequently deposited in the London Archive and Archaeological Research Centre or other publicly accessible archive. If the archive could be located and depending on its adequacy, it may merit further dissemination.

5.6 Projects requiring the minimal level of dissemination

5.6.1 Table 16 below lists the projects requiring the submission of a copy of a grey literature report from the organisation which carried out the work to the GLHER.

5.6.2 The submission of these reports would be considered sufficient to fulfil the level of dissemination required for the projects with data of local significance, whilst it would be the first step of dissemination for projects of higher significance, i.e. Beddington Sewage Farm.

Table 16 Projects requiring the minimal level of dissemination

Site Code	GLHER no	Address/Project Name	Archaeological Organisation
BSF81, BSF82, BSF87	020575 (BA), 020576-7 (Roman), 020578-9 (Med), 030412	Beddington Sewage Farm	West London Archaeological Field Group
WEB89	021204-6 (Undated prehis)	Beddington Sewage Farm	DGLA
BWG03	MLO77559	Beddington Sewage Farm	Sutton Archaeological Services
BDN92	MLO75629, MLO75630	Beddington Sewage Farm	Wessex Archaeology
Unknown	020279 (IA/Roman)	Coulsdon Woods	Unknown
Unknown	070435 (Roman)	Roman Settlement between Bexley and Crayford/Crayford Recreation Ground	Unknown
Unknown	021046/00	Ham	

Site Code	GLHER no	Address/Project Name	Archaeological Organisation
COR-62	060096/01, 060096/01/001-3, 060096/02	Harwood Hall Lane	Passmore Edwards Museum
HOM98	054695-7, 054742	Home Farm	DGLA
ICSG86	051126 (LBA)	Imperial College Sports Ground	DGLA (ICSG86);
SFB05	MLO99541	Sipson Lane (Imperial college Sports Ground?)	Wessex Archaeology
	051126 (Undated Prehist)	Sipson Lane (Wall Garden Farm or Imperial college Sports Ground?)	unknown
Unknown	052619 (Undate Preh)	Lake Farm, Hayes	Tempus Reparatum
Unknown	060002 (Roman)	West Side of Manser Street, South Hornchurch	Unknown
MWQ98	MLO99132	Marks Warren Quarry, Barking & Dagenham	AOC
Unknown	MLO99540	Charlton earthworks, Maryon Park, Greenwich	Unknown
MLW82	050961(Neo)	Moor Lane West, Hillingdon	DGLA
Unknown	080641 (Roman)	Raglan School, Cornish Brickfields, Enfield	Unknown
HO-CP95, HO-CP96	062587-90 (BA), 062591 (Roman), 062592-4 (Med)	Land South of Scott and Albyns Farm, Rainham	Hertfordshire Archaeological Trust
Unknown	070688 (Roman)	Sevenoaks Way (gravel pit between this and), Bromley	Unknown
RA-SH95, SFA98, SFM02	MLO76237, 062230 (Neo), 062231 (IA), 062232-3 (Roman), 062234 (Med), 062235-6 (Post-med), 062863 (Mes/Neo/BA)	South Hall Farm, Rainham	Passmore Edwards Museum; ECCFAG; JSA, AOC

6 Conclusion

6.1.1 Planning Policy Statement 5 (PPS5), published in March 2010, after this project was completed, puts a strong emphasis on the public access of the data held by public archives and obtained from diverse investigations. The conclusions of this study confirms some of the issues raised in relation to the previous policy guidance (PPG16) regarding the lack of a coherent approach between the implementation of standards for recording archaeological data and the lack of standards in relation to its dissemination to become a public benefit (Thomas 2009 and Wise 2009).

6.1.2 PPS5 notes the necessity of implementing the public benefit of the archaeological work, through the dissemination of the results via museum exhibitions and popular, as well as traditional/academic, forms of publication. The recommended dissemination might fulfil a similar objective of directing the results of past archaeological investigations in quarry sites, towards the widest possible audience.

6.1.3 Two main findings emerged from the study. The first is the low level of appropriate dissemination at the time of this project compared to the assessed significance of the archaeological results of aggregates extraction. Only one fifth of projects were considered to be complete in terms of fulfilling the criteria for having an appropriate level of dissemination, even though 90% are 'complete' in that the fieldwork has finished and a final report been produced. Large and very large projects, and projects with remains of national or regional significance, have low levels of dissemination. Notably, one third of investigations carried out as a PPG16 planning condition have incomplete dissemination. This group comprises *c* 39% of all archaeological work carried out in quarries from 1908 to present day. It must be noted that 50.3% of the 80.3% of incompletely disseminated projects are now currently progressing towards publication.

6.1.4 Pre-PPG16 'rescue' excavations, comprising one quarter of all archaeological work carried out, are currently largely incompletely disseminated, although two English Heritage funded projects, the East London Landscapes and the West London Landscapes are currently being undertaken to redress this thematically for a number of sites. The former will take the form of a monograph which is almost complete (a popular booklet has already been produced). The latter has undergone the analysis phase and is awaiting submissions of a Project Design for publication. The archaeological investigations at Beddington Sewage Farm and Home Farm are also due to be published.

6.1.5 The second main finding, is the lack of certain important information within the records examined, primarily limited interpretation of the likely nature and significance of the archaeological features recorded. As a result, whilst most of the discoveries have been dated, the asset type is unassigned, and consequently the potential contribution of these findings to enhancing our understanding of human activity in the region is uncertain without further assessment. In order to rectify this, it is suggested that authors of archaeological reports and summary journal/newsletter notes be encouraged to include an opinion as to what the features uncovered might represent, even if provisional.

6.1.6 It also emerged that summary notes in journals and newsletters and the GLHER entries normally do not include important information such as the funding body, the reason for carrying out the work, and the location of the archive.

6.1.7 This study makes a number of recommendations for addressing incomplete dissemination in line with English Heritage methodology and with reference to current research frameworks.

6.1.8 The dissemination level of 'Publication' (including analysis and in some cases locating the archive) has been suggested for projects within nine quarry sites across Greater London:

- Beddington Sewage Farm (work after 1989)
- Charlton Earthworks/Maryon Park
- Coulsdon Woods
- Fairlop Quarry
- Harwood Hall Lane
- Marks Warren Quarry/Warren Farm
- Moor Lane West
- Sevenoaks Way
- South Hall Farm

6.1.9 It may be appropriate in certain cases (such as pre-PPG16 investigations) to carry out a rapid preliminary appraisal of the adequacy of the existing corpus of site records, in order to determine the possibility to carry out the recommended dissemination. It was not possible to determine the location of the archive of three of the projects and an appraisal to this sub-set of archives, with possible potential, but about which present information is insufficient, could lead to more appropriate, focused and cost-effective proposals for future work.

6.1.10 Assuming that any such proposals pass the archive adequacy test, further consideration could also be given to different types and levels of dissemination addressing key stakeholders. There are a variety of media available to address the aim of broadening public appreciation of the historic environment, including popular interpretation booklets, interactive exhibitions, educational material for schools, and making key aspects of deposited archives (such as finds information) available on-line.

6.1.11 Equally a number of small projects of modest individual potential may have a collective value in interpreting the wider historic landscape via comparative, thematic monographs or journal articles. For important individual sites, meriting traditional academic publication these media are likely to be optional extras, offering the potential of disseminating synthesis of individual aspects to a much wider audiences. Opportunities to do this derive initially from locating, collating, and appraising and, where necessary, upgrading the archaeological archives from aggregates schemes.

6.1.12 The dissemination level of ‘Assessment’ (archive location, collation and deposition along with the deposition of a grey literature report with the GLHER) has been suggested for projects within three quarries: Churchfields, Crayford Recreation Ground, and Manser Road/Mardyke Farm. In addition, approximately 25 archaeological investigations have been carried out within areas of aggregate extraction, the reports for which are not held by the GLHER: as a minimum level of dissemination it is recommended that these are collated and submitted to the GLHER.

7 Bibliography and sources consulted

7.1 Published sources

Arcus, March 2007 *Identification and Quantification of Archaeological Investigations arising from Aggregates Extraction: Pilot Study. ALSF project no. 4767.*

Bird D, 2006. *Surrey Archaeological Research Framework 2006. Providing the foundations for future archaeological work in Surrey*. Surrey County Council & Surrey Archaeological Society.

Clark J, Cotton J, Clark J, Sherris R and Swain H (eds.), 2008. *Londinium and Beyond: Essays on Roman London and its hinterland for Harvey Sheldon.* CBA Research Report 156, London

Dept. for Culture, Media and Sports, 2007. *Heritage Protection For The 21st Century*. The Stationery Office.

Dept. for Culture, Media and Sports, 2008. *Draft Heritage Protection Bill*. The Stationery Office.

DCLG [Department of Communities and Local Government], March 2010 *Planning Policy Statement 5: Planning for the Historic Environment.*

DCLG [Department of Communities and Local Government], EH [English Heritage] & DCMS [Department for Culture, Media and Sport], March 2010 *PPS5 Planning for the Historic Environment: Historic Environment Planning Practice Guide.*

English Heritage, 2005a. English Heritage Research Agenda: an introduction to English Heritage's research themes and programmes

English Heritage, 2005b. Discovering the past shaping the future: research strategy 2005–10

English Heritage, 2008 Conservation principles, policies and guidance (Swindon: English Heritage)

English Heritage, 2009. Devising an Historic Environment Research Framework for Greater London.

Greenwood, P., Perring, D., and Rowsome, P., 2006. From Ice Age to Essex: A history of the people and landscape of East London. MoLAS, London

Howell, I (ed), 2005. Prehistoric landscape to Roman villa: excavations at Beddington 1981–7, MoLAS Monograph Ser 26, London

MOLA March 2009 *Identification and Quantification of Archaeological Investigations arising from Aggregates Extraction in Greater London: Project Design*

Nixon, T, McAdam, E, Tomber, R & Swain, H (eds), 2002. *A research framework for London Archaeology 2002.* Museum of London and English Heritage, London.

Thomas, R M, 2009. Rethinking PPG16. *The Archaeologist,* Autumn 2009 number **73**, 6–7.

Williams, T, 2003. *Implementation Plan for Exploring our Past 1998. External version*. English Heritage, London

Williams, J, & Brown, N, 1999. *An Archaeological Research Framework for the Greater Thames Estuary*. Essex County Council Planning Division, Kent County Council Strategic Planning Directorate, English Heritage Greater London Archaeological Advisory Service and Thames Estuary Partnership.

Wise, P J, 2009. PPG16 and Archaeology in Museums. *The Archaeologist,* Autumn 2009 number **73**, 8.

7.2 Web-based sources

http://www.english-heritage.org.uk/server/show/nav.1320
http://hec.english-heritage.org.uk/admisremote/ALSFOnline/HOME.ASP
http://hec.english-heritage.org.uk/admisremote/HEEPOnline/reports.asp
http://www.kent.gov.uk/environment/our-environment/kents-heritage/south-east-research-framework/
http://www.museumoflondon.org.uk/laarc/catalogue/
http://www.ucl.ac.uk/sustainableheritage/aggregates.htm

7.3 Other sources

British Geological Survey Sheets 256, 257, 270 and 217

7.4 ALSF Funded projects in London

Project Name: Mapping the sub-surface drift geology of Greater London gravel extraction areas (Lea Valley)
Project Number: 3282
To map the topography and environment during the Holocene period for a study area of the Lower Thames and all of the Lower Lea Valley
MOLA – Analytical 2006

Project Name: Understanding the East London Gravels
Project Number: 3276
Assessment of 10 gravel extraction sites
MOLA – Analytical 2006

Project Name: London before London gallery
Project Number: 3257
Partnership funding for a new gallery to disseminate information about London in prehistory, largely derived from material found during aggregate extraction processes.
MOL – Main Project 2002

Project Name: The Thames through time
Project Number: 3263
A large strategic study of this nationally significant archaeological landscape, in order to inform future work in the region, to synthesise and contextualise the many individual excavated sites, and to involve and inform the many different communities to whom the Thames and its gravels are of interest.
Oxford Archaeology – Project Design 2002

Project Name: Thames through Time Vol I: up to 1500BC
Project Number: 3913
The formation and changing environment of the Thames Valley, and early human occupation
Oxford Archaeology – Editorial 2007

Project Name: RAF Hornchurch, Hornchurch Country Park and Ingrebourne Valley Nature Reserve
Project Number: 5324
To produce a record of the historic assets and produce a Management Plan.
London Borough of Havering – Main Project 2007

Project Name: Home Farm, Harmondsworth, Greater London Borough of Hillingdon
Project Number: 5793 ASS
To produce the assessment of the archaeological investigation carried out on this site in 1998
MOLA – Assessment 2009

7.5 Backlogs Projects

Project Name: West London gravels
Project Number: 1340
MOLA – Assessment 1992

8 Appendix: Methodology

8.1 Project set up (Stage 1a)

Access database

8.1.1 A copy of the ARCUS (now Wessex Sheffield) Access database was transferred to MOLA together with the ALSF Project ID database numbers. The database was developed for a pilot project in Derbyshire, Nottinghamshire and Oxfordshire in 2007 (ARCUS 2007). For the present study, MOLA requested that ARCUS make a number of modifications to the database, with the approval of English Heritage:

- The original database had a single 'multi-period' option for projects with multi-period activity. The database was refined to allow multi-period projects to be noted but also to allow activity to be separated out into each period.
- The original database had a single 'multi-type' option for projects with multiple asset types. The database was refined to allow projects with multiple asset types to be noted but also to allow the asset types (and associated periods) to be separated out.

8.1.2 Both modifications allow a greater degree of transparency for database interrogation, enabling the creation of more accurate and comprehensive distribution maps for each period and asset type, without sites of a particular period and particular type being subsumed under a general 'multi-period' or 'multi-type' designation.

8.1.3 Note that in order to meet objective 1.2.5 of the Project Design (MOLA March 2009), the Greater London database needed to make use of a range of new numbers which cannot be assigned to any other ALSF Project. This will enable the Greater London database to be easily re-integrated into the ARCUS database for the whole country at the end of the study and facilitate future comparison with similar projects across the country. The database structure and fields is discussed in more detail in section 8.2.

Identification of areas of geology containing aggregates resources

8.1.4 A Geographical Information System (ArcGIS) project was created for the study, from which the accompanying figures (see Vol 2) were produced. This included a digital version of the British Geological Survey's 1:50,000 scale drift geology maps, which was used to identify areas within Greater London containing aggregates resources. This included all gravel geologies of the various gravel terraces, and also areas of alluvium and brickearth, which overlie aggregates resources. The aggregate geologies were buffered by 100m to allow for minor discrepancies in the geological mapping and ensure no relevant past investigations were missed.

8.1.5 The gravel terraces are more extensive to the north of the river, occupying large areas of the Greater London Boroughs of Hillingdon, Hounslow, Richmond-upon-Thames, Ealing, Hammersmith & Fulham, Kensington & Chelsea, Westminster, Islington, Hackney, Tower Hamlets, Enfield, Waltham Forest, Newham, Redbridge, Barking & Dagenham and Havering. Aggregate geologies are located to a lesser extent in Brent, Barnet and Haringey.

8.1.6 To the south of the river, aggregate geologies are less extensive and mostly lie along the main tributaries of the Thames, within the following boroughs: Kingston-upon-Thames, Wandsworth, Merton, Sutton, Croydon, Lambeth, Southwark, Greenwich, Lewisham, Bexley, and Bromley.

8.1.7 Approximately *c* 40% of Greater London is situated on London Clay and was thus excluded from the study. The City of London was excluded for reasons outlined

above.

8.2 Populating the database (Stage 1b)

Database structure

8.2.1 The ALSF Project database is in Microsoft Access 2003 format (an .mdb file). Each known archaeological intervention (or multiple phases of work at the same location/site) is presented as a single record (when Site Code and/or Grid Coordinates match). Where multiple interventions (no matching on Site Code and Grid Coordinates) have taken place over time within a single quarry, these are presented as multiple records.

8.2.2 The data input layout has been subdivided into sections based on the type of data contained. This is designed for ease of use and does not affect the database structure. The layout on the form is followed in the description of field below. Each record contains 37 fields, summarised in Table 17.

Table 17 Access database fields and explanation

Field No.	Field name	Description
1	National ID	*Unique record auto number*: Used when different databases are combined to a national database for English Heritage.
2	[ALSF] Project ID	*Unique record auto number*: Used when inputting data. The record is auto generated and consists of a 4 digit name as a prefix for the research project with a continuous number sequence following (i.e. ARC1XXXX for the pilot project GL09XXXX for the London Backlogs project)
3	Name of project	*Free text*: individual project name for the project under consideration, where this is known. Not necessarily the same as the quarry name (e.g. Fleak Close, recorded within Swarkestone Quarry). It will be usually the name of the project or its address.
4	Region	*Glossary*: English Heritage region. The only option selectable in the current ALSF Project is London.
5	County	*Glossary*: geographical counties, not unitary authority names. The only option selectable in the current ALSF Project is Greater London.
6	Valley system	*Glossary*: constrained for the ALSF Project to the Thames as the main depository of sediments in the Greater London area (projects spread over the different gravel terraces created by deposits of this river).
7	Name(s) of quarry(ies)	*Free text*. It has not been possible within the scope of the ALSF Project to conduct a full historical review of changing quarry names and ownerships. For each quarry a single quarry name has been adopted within this field, to ensure consistency, e.g. 'Stanton Harcourt' is used in place of 'Vicarage Field', 'Vicarage Pit', 'Beard Mill' etc. Sometimes the name of the project and the quarry might be the same.
8	Aggregate deposit type	*Glossary*: • Soft (drift geology: brickearth, sand and gravels) • Hard (solid geology: stone, chalk) • Unknown
9	Grid reference easting	*Number:* world co-ordinates. Constrained to a six-figure integer.
10	Grid reference northing	*Number:* world co-ordinates. Constrained to a six-figure integer.
11	HER location	*Glossary*: location of HER record relating to the project. • Greater London (H Record) • None
12	HER number	*Free text:* site, event or report number, blank if HER record was not located.
13	Scheduled Monument number	*Free text:* if applicable.
14	Listed building	*Free text:* if applicable.

Field No.	Field name	Description
	number	
15	Funding body	*Glossary*: • Department of Environment (DoE) • Ministry of Works (MoW) • Local authority • Manpower Services • Aggregates Industry • Individual • Other • Unknown
16	Archaeological organisation undertaking work	*Glossary*: list of archaeological organisations that have undertaken the work. For projects not associated with and organisation there is a category called UN unaffiliated
17	Year or year range of intervention	*Free text:* four digit number for year or year range (two years separated by hyphen) when the archaeological work was carried out
18	Period 1-4	*Glossary*: period allocation for the project • Period 0 (pre-1900) • Period 1 (1900-1945) • Period 2 (1946-1971) • Period 3 (1972-1990) • Period 4 (1991-present)
19	Size of project	*Glossary*: this was used as a broad assessment of the relative scope of the project, as judged from the available documentation • Small: Minor and/or non-intrusive works, e.g. test-pitting, a small-scale watching brief or geophysical survey • Medium: Intervention involving a significant excavation element, such as evaluation trenching, or more extensive landscape survey work • Large: A large-scale set-piece excavation, or multi-stranded investigations over a larger area • Very large: Long term and spatially extensive investigations including possibly numerous large-scale excavations and/or extensive landscape survey/environmental sampling
20	Nature of fieldwork (primary)	*Glossary*: an assessment of the primary type of fieldwork undertaken which has given the most significant information (ie an evaluation would be producing more information than an evaluation). • Survey/geophysics • Fieldwalking • Evaluation • Excavation (used for pre-PPG16 rescue excavation in addition to post-PPG 16 mitigations) • Building recording • Environmental • Finds • Watching brief • Unknown
21	Site code Fieldwork (primary)	*Free text*: if applicable/available.
22	Nature of fieldwork (secondary)	*Glossary*: as above to allow for secondary fieldwork producing less significant information (ie a watching brief for areas surrounding a main excavation).
23	Site Code Fieldwork (secondary)	*Free text*: if applicable/available.
24	Fieldwork required by regulatory	*Glossary*: • Scheduled monument consent • Planning condition

Field No.	Field name	Description
	conditions	• Not required • Unknown
25	Archaeological Period	*Tick boxes*: English Heritage periods have been used. For multi-period projects each period is selected along with the multi-period box. • Palaeolithic (500,000–100,000 BC) • Mesolithic (10,000–4,000 BC) • Neolithic (4,000–2,200 BC) • Bronze Age (2,600–700 BC) • Iron Age (800 BC– AD 43) • Roman (AD 43–410) • Early medieval (AD 410–1066) • Medieval (AD 1066–1540) • Post-medieval (AD 1540–1901) • Modern (AD 1901–2000) • Undated Prehistoric (500,000 BC– AD 43) • Early prehistoric (500,000–4,000 BC) • Later prehistoric (4,000 BC– AD 43) • Prehistoric or Roman (500,000 BC– AD 410) • Multi-period • Uncertain The dates inputted are those specified by the excavator/ author of the original article. No additional level of interpretation was added as part of the present ALSF Project.
26	Site [Asset] type class	Glossary: NMR Monument Class descriptions have been used. • Agriculture and subsistence • Civil • Commemorative • Commercial • Defence • Domestic • Gardens and parks • Industrial • Maritime • Object • Recreation • Religious, ritual or funerary • Transport • Unassigned • Water and drainage • Multiple These adhere to the types specified by the author of the original article. No additional level of interpretation was added as part of the present ALSF Project.
27	Nature of discoveries	*Free text*: a brief summary of the project results where known, explaining what remains have been recorded (and period ascribed when remains from different periods have been recorded and interpreted). These adhere to the data specified by the author of the original article. No additional level of interpretation was added as part of the present ALSF Project.
28	Current project status	*Glossary*: • Active: Multi-stage projects where more fieldwork is expected, or projects where post-excavation work is ongoing • Stalled: Multi-stage projects where more fieldwork is expected, but a significant time-lapse has occurred • Complete: Completion of all anticipated fieldwork, with post-excavation complete and a client report submitted • Not known

Field No.	Field name	Description
		Older projects were considered 'complete' by definition. The status of more recent projects has been determined later where possible in consultation with the organisations responsible.
29	Most recent project stage	*Glossary*: this originally only contained stages identified in MAP2. This was found to be problematic during the pilot study when dealing with projects not following MAP2 and additional terms have been added to cope with such projects. • ongoing fieldwork • fieldwork complete • post-excavation in progress • developer report submitted • publication work in progress • publication complete • Evaluation (MAP2) • Excavation (MAP2) • Site archive completion (MAP2) • Assessment (MAP2) • Analysis (MAP2) • Dissemination (MAP2) • Archive deposition (MAP2) Projects with brief summaries in journals, LAARC or GLHER have been considered 'fieldwork complete' if nothing else is specified (which is usually the case) or more information was not available.
30	Archive location known/unknown	*Glossary*: • Known • Unknown
31	Archive details	*Free* text: location and accession numbers, where available. Includes developer reports when submitted to HER.
32	Published references	*Free text*: abbreviations of journal titles (Tables 1 and 2) were used along with the year of publication in brackets, volume and pages of publication, when various articles were separated by a semi-colon, i.e. LA (2000), 9(2), p 49; LA (1998), 8(3), p 87)
33	Significance of data retrieved from project	*Glossary*: • Local: Negative or limited archaeological evidence, meriting a grey literature report or a brief note in a local journal • Regional: Significant archaeological evidence, meriting a longer report in a local journal • National: A major archaeological discovery, meriting full publication in a national journal or in monograph form • International: A major archaeological discovery of international importance meriting full publication in national or international journals and monographs In cases where a number of interventions have been carried out over time within a single quarry, the assessment of importance will be made on the evidence in total, rather than on a single season's work.
34	Dissemination complete	*Glossary*: Is dissemination of the project complete and of an appropriate level? • Yes • No • Not known This assessment was based on the significance of data retrieved from project described above (see Table 4)
35	Suggested level of dissemination	*Glossary*: only to be completed if dissemination is regarded as incomplete or inappropriate (see Table 5) • Assessment • Analysis • Publication
36	Proposed type of work and dissemination	*Tick boxes*: when dissemination is not complete (more than one box could be ticked)

Field No.	Field name	Description
		• Completion of archive • Full assessment and appropriate analysis • Analysis of assessed material • Deposition of archive • Brief journal note • Short journal article • Inclusion in synthetic regional/national study • Monograph or major journal article • Wider dissemination of grey literature report • Popular publication/dissemination
37	Associated projects	*Free text*: related interventions in the quarry (different Site Code and/or Grid Coordinates), etc

Research methodology

8.2.3 The ALSF Project comprised a rapid desk-based assessment of existing information. In order to meet objective 1.2.2 of the Project Design (MOLA March 2009), past archaeological investigations in quarries were primarily located (and the database populated) from a review of published articles and notes in local, regional and national journals (see below).

8.2.4 In order to ensure that no past investigations were missed by the study, once the review of the journals (the primary source of data) had been completed, a search was conducted of the MOLA in-house ArcGIS database of past archaeological investigations within London. This is a unique and comprehensive database of past work carried out by MOLA and its predecessors, along with other archaeological organisations, the latter largely derived from the London Archaeological Archive and Resource Centre (LAARC) dataset. Similarly, a trawl of the Greater London Historic Environment Record (GLHER), managed by English Heritage, was carried out using key words associated with aggregates extraction (see below). The GLHER is the primary repository of archaeological information within Greater London. The GLHER is managed by the Greater London Archaeological Advisory Service (GLAAS)/English Heritage and includes information from past investigations, local knowledge, find spots, and documentary and cartographic sources.

Review of journals

8.2.5 The journals and newsletters were examined at the MOLA and Museum of London libraries, The London Society Library, the University College London (UCL) Library and the British National Copyright Library. Table 18 lists all the journals consulted. Table 19 lists all the newsletters consulted.

Table 18 Journals consulted

Abbreviation	Name
AJ	Antiquaries' Journal
AN	Antiquary, The
A	Antiquity
AR	Archaeologia
AC	Archaeologia Cantiana
ARJ	Archaeological Journal, The
B	Britannia
BIAB	British and Irish Archaeological Bibliography
BIABS	British and Irish Archaeological Bibliography (Supplements) or Gazetteer of Archaeological Investigations undertaken in England (London) Archaeological Investigations Project (AIP)
BA	British Archaeology

Abbreviation	Name
CA	Current Archaeology
JBA	Journal of the British Archaeology Association
GHS	Journal of the Greenwich Historical Society
JRA	Journal of Roman Archaeology
JRS	Journal of Roman Studies
KAR	Kent Archaeological Review
LHS	Lewisham Local History Society
LA	London Archaeologist, The
MA	Medieval Archaeology
PPS	Proceedings of the Prehistoric Society
SAC	Surrey Archaeological Collections
TEAS1	(Transactions of the Essex Archaeological Society) Essex Archaeological Transactions
TEAS2	Transactions of the Essex Archaeological Society New Series
TEAS3	(Transactions of the Essex Archaeological Society, Third Series) Essex Archaeology and History
TGLAS	Transactions of the Greenwich and Lewisham Antiquarian Society
LAMAS	Transactions of the London and Middlesex Archaeological Society

Table 19 Newsletters consulted

Abbreviation	Name
EAN	Essex Archaeological News
ESHAM	Essex Society for History and Archaeology Newsletter
HDASN	Hendon and District Archaeological Society Newsletter
IHASN	Islington Historical and Archaeological Society Newsletter
KASN	Kent Archaeological Society Newsletter
SLASN	Southwark and Lambeth Archaeological Society Newsletter
SASN	Surrey Archaeological Society Bulletin
LAMASN	Transactions of the London and Middlesex Archaeological Society (LAMAS) Newsletter
WHSN	Wandsworth Historical Society Newsletter

8.2.6 A number of volumes of these journals/newsletters were not reviewed as they were not held by any of the aforementioned libraries, and the review of those editions that were available indicated that they were unlikely to contain any relevant information. Some of the geographical coverage of these society publications did not cover aggregate geology areas. Those journals/newsletters that were not examined are listed in Table 20. In summary they comprised:

- *Essex Archaeological News* published before the 1950s.
- *Hendon and District Archaeological Society Newsletter* between 1970 and 1993.
- *Transactions of the London and Middlesex Archaeological Society* between 1954 and 1956.
- *Transactions of the London and Middlesex Archaeological Society (LAMAS) Newsletter*: Various newsletters were unavailable. The newsletter is entirely focused in conferences, meetings and books reviews, with no mention to archaeological investigations.
- *Lewisham Local History Society*: various newsletters were unavailable. Lewisham borough does not have any known quarry.
- *Surrey Archaeological Collections*: several volumes published before the 1950s were unavailable.
- *Wandsworth Historical Society Newsletter*: several newsletters were unavailable. Wandsworth borough does not have any known quarry.

8.2.7 Where archaeological investigations resulting from aggregates extraction were identified from the journals/newsletters, these were incorporated into the Access

database. Information on publication and archiving of the investigation was obtained, where available, from the LAARC online database, and through consultation with archaeological units and voluntary groups a later stage (see below).

Table 20 Journals and newsletters not consulted

Newsletters/Journals	Year of publication	Vol./No.
Essex Archaeological News		1 to 40
Essex Society for History and Archaeology Newsletter	?-1971	1 to 40
Hendon and District Archaeological Society Newsletter	1969-86	2 to 179
	1986-7	183 to 191
	1987	194
	1988	203
	1988	209
	1988-9	212 to 220
	1990	231 to 232
	1991	238 to 239
	1991-2	246 to 253
	1992-3	256 to 262
	1993	265 to 267
Transactions of the London and Middlesex Archaeological Society	1955-6	12 to 17
		1 to 32
	1980	38 to 39
	1981	41
	1981	43 to 44
	1982-4	46 to 51
	1986-7	59
	1987	61
	1990	69 to 70
	1991-6	72 to 86
	1996	88
	2001	102
	2006	117
	2007	122 to 123
Lewisham Local History Society	1964	
	1986	
	1989	
Surrey Archaeological Collections		2 to 5
		7 to 18
		41
		43 to 45
		47
		49 to 51
	1953-8	53 to 55
	1960-1	57 to 58
Wandsworth Historical Society Newsletter	1961	1
	1964	4
	1967	2
	1968	3
	1969	1
	1970	91
	1972	100
	1973	108
	1974	111
	1974	114
	1975	118 to 119
	1976	125
	1978	136
	1979-80	138
	1981	140
	1985-2005	156-? and 1-79

Review of past investigations

8.2.8 As mentioned above, in order to ensure no past projects arising from quarrying were missed by the study, once the information from the journals and newsletters had been incorporated into the Access database, a search was conducted of the MOLA in-house ArcGIS database of past archaeological investigations within areas of aggregate geologies. Two additional entries were identified in this way and added to the database.

Review of GLHER

8.2.9 Similarly, once the information from the journals/newsletters had been incorporated into the Access database, an additional search was conducted of the Greater London GLHER data. Stuart Cakebread, the GLHER Manager, undertook a search of the GLHER descriptions data using the following keywords:

- Quarry
- Extraction
- Mine
- Mining

8.2.10 This was carried out in order to locate relevant records of past archaeological investigations or monuments associated with aggregate extraction. Three additional entries were created in this way and added to the Access database.

Correction of GLHER data

8.2.11 Following a meeting with the GLHER Manager and with subsequent English Heritage approval as part of the Project Design, it was agreed that the ALSF Project would include the correction of incorrect spatial references and data, as well as the addition of new records of events and monuments/remains not previously recorded by the GLHER. This process forms part of an ongoing correction and validation exercise of the GLHER as part of its transformation into a Historic Environment Record (HER).

8.2.12 Inaccuracies within the GLHER dataset were identified and logged. This comprised past investigations resulting from aggregates extraction that were not included within the 'Event' records of the GLHER, and those past investigations noted within the GLHER but with inaccurate spatial references. Other inconsistencies in the GLHER were noted, such as lack of periods related to an event, lack of monuments/remains related to an event, discrepancies between allocated periods and allocated GLHER numbers, etc.

8.2.13 In July 2009, following completion of the database, the errors in the GLHER were rectified by the MOLA Project Officer under guidance of the GLHER Manager. Two new monuments and one new event were identified for inclusion into the GLHER. Approximately five existing GLHER sites were assigned more accurate National Grid co-ordinates. It was recommended that 10 polygons be created in order to unify a number of different investigations carried out within the same quarry.

Consultations

8.2.14 Relevant MOLA staff were consulted regarding recent work carried out as part of aggregates-related projects within Greater London. They included Nick Elsden (West London Landscapes Project), Isca Howell (East London Gravels Project) and Jane Corcoran (Lea Valley Mapping Project).

8.2.15 Once the database had been populated, consultations were undertaken with:

- Curators (Marilyn Jessop of Bexley Local Studies & Archive Centre; Arthur Holden and Loraine Budge of Bromley Local Studies Library; Jan Metcalfe of Enfield Museum Service; Simon Donoghue of Havering Library Service;

Carolyn Cotton of Hillingdon Central Library; Vanda Foster of Gunnersbury Park Museum; Dawn Ann Galer of Redbridge Museum; and John Philips of Sutton Museum)

- Archaeological units working in the area (Alistair Barclay of Wessex Archaeology)
- Local Community and voluntary archaeological groups working in the area (Michael Meekums of the Orpington and District Archaeological Society and Dr Martin J Dearne of the Enfield Archaeological Society)

8.2.16 The consultations were carried out by telephone and e-mail, and were undertaken to:

- determine the current status of outstanding projects;
- determine the potential of projects for further work and/or dissemination;
- identify previously unrecorded projects; and
- verify the data and address omissions identified.

8.3 Assessment and recommendations

Assessing current level of project completeness

8.3.1 The main objective of the study (objective 1.2.3. of the Project Design) has been to assess levels of project completeness and significance in order to recommend what level of dissemination is appropriate in accordance with English Heritage established methodology.

8.3.2 The tag of **incomplete** or **inappropriate** archive completion, assessment, analysis and/ or dissemination, is intended to:

- flag up the need to consider the project within any future strategy devised by English Heritage to improve the completion of the work and dissemination of Historic Environment information to an appropriate level and to the widest possible audience;
- help ensure that all stakeholders involved in the planning process have easy access to all information derived from fieldwork within the Historic Environment, with a view to enabling informed decisions to be made regarding the future conservation, management and regulation of the historic landscape and assets.

8.3.3 **Incomplete** archive completion, assessment, analysis and/or dissemination was assigned where a project is still active or has stalled or been terminated before its results have been made available to the various stakeholders within the Historic Environment and development control sectors.

8.3.4 Projects that produced only negative results were regarded as complete providing they had a suitable GLHER entry. Projects which are disseminated only as interim note(s) or where there is no GLHER entry were regarded as incomplete.

8.3.5 **Inappropriate** archive completion, assessment, analysis and/or dissemination, was assigned where it was believed that further work on the project archive and/or further dissemination of the existing results of a project would be desirable. This included projects that would benefit from wider circulation of grey literature reports and/or further formal publication or where there is potential for popular presentation of the outcomes.

8.3.6 A final report was deemed inappropriate where it was believed that it:

- does not cover (without good reason) all stages and components of the archive (i.e. the report does not cover the entire time span of the project, or all spatial and thematic areas of the fieldwork);
- is too summary in form;

- where the data covered would benefit from further analysis.

8.3.7 Where it is unclear to what level work and/or dissemination has taken place on a project it was regarded as inappropriately disseminated. This is designed to flag up the need for further work at a later date, outside the scope of this brief, to determine the actual status of the project in question.

8.3.8 For projects completed after 1991 this judgement was guided by a Management of Archaeological Projects 2 (MAP2) assessment where it exists. The assessment report must state the academic potential of the data in the site archive. For projects undertaken prior to this date, or those without MAP2 assessments, professional judgement was used about the appropriateness of work and dissemination undertaken.

8.3.9 An **appropriately completed and disseminated project** was defined as fulfilling all of the following criteria as a minimum:

- the results have been disseminated and are publicly accessible to a level commensurate with the significance of the results; and
- the data archive has been deposited as appropriate and is publicly accessible.
- a completed GLHER entry;
- a publicly accessible report written to the appropriate level in digital and/or hard copy format, summarising and interpreting the data. Note that a limited print run grey literature available only through the GLHER or originating archaeological unit was regarded as inappropriate dissemination. This is because there are examples where work carried out in the last 10 years and reported on is effectively unavailable because the limited copies of the reports have been lost or are no longer available from the originating unit.

8.3.10 This judgement is by definition subjective, and based on an understanding of the level of knowledge at the time the report was written; eg a report published in 1973 was judged against the standards of the time and not against current practice or knowledge.

Assessing whether projects have been appropriately disseminated based on project significance

8.3.11 Table 21 below lists the criteria used to assess the current status of a project in terms of whether it has been appropriately disseminated or not based on the known or perceived archaeological significance of a project.

8.3.12 Professional judgement was used to assess the archaeological significance of data retrieved from a project against criteria that included: statutory protection or other formal designation; date; rarity; state of preservation; diversity/complexity; collective, group value and comparative potential; and educational, social or economic value.

Table 21 Determining whether a project has been appropriately disseminated based on known or perceived archaeological significance

Archaeological significance	The considered appropriate level of dissemination
National and International significance	Full publication in a national journal, or full monograph publication
Regional	Full treatment in a local/county journal (full article, not just a summary or brief note)
Local	For all projects, including those with negative or negligible archaeological results, there should be: • a grey literature report available in the GLHER and • an adequate GLHER entry In some cases a brief local journal note is also appropriate.

Recommended dissemination level

8.3.13 In the cases when the minimum standards for dissemination were not achieved in relation to the project significance, dissemination was considered 'incomplete' and a level of dissemination was recommended (Table 22). Table 23 sets out the criteria applied to determining the recommendations. More than one type of dissemination was recommended in some cases in order to provide the minimum and the optimum levels of dissemination for the recorded project.

Table 22 Dissemination level types

Dissemination Level	Description
Assessment	• Completion of archive • Full assessment and appropriate analysis
Analysis	• Analysis of assessed material • Deposition of archive
Publication	• Brief journal note • Short journal article • Inclusion in synthetic regional/national study • Monograph or major journal article • Wider dissemination of grey literature report • Popular publication/dissemination

Table 23 Recommended dissemination

Remains recorded	Significance of records		
	Local	*Regional*	*National/International*
Isolated features without context / chance finds	Completion of archive	Completion of archive or Completion of archive, full assessment and appropriate analysis	Analysis of assessed material, brief journal article and wider dissemination of grey literature report
Features within an established context but poorly preserved	Completion of archive or Completion of archive, full assessment and appropriate analysis	Analysis of assessed material and wider dissemination of grey literature report	Brief journal note
Features within an established context in a good state of preservation	Analysis of assessed material and brief journal note	Short journal article	Inclusion in regional / national study
Well-preserved example of a type of asset	Short journal article	Inclusion in synthetic regional / national study	Monograph or major journal article
Well-preserved example of different types of asset	Inclusion in regional / national study	Monograph or major journal article	Monograph or major journal article and popular publication / dissemination
Well-preserved and rare asset	Monograph or major journal article	Monograph or major journal article and popular publication / dissemination	Inclusion in regional / national study, monograph or major journal article and popular publication / dissemination
Well-preserved, rare and complex asset	Monograph or major journal article and popular publication / dissemination	Inclusion in regional / national study, monograph or major journal article and popular publication / dissemination	Inclusion in regional / national study, monograph or major journal article and popular publication / dissemination
Exceptionally preserved and rare and complex asset	Inclusion in regional / national study, monograph or major journal article and popular publication / dissemination	Inclusion in regional / national study, monograph or major journal article and popular publication / dissemination	Inclusion in regional / national study, monograph or major journal article and popular publication / dissemination

8.4 Limitations of study

8.4.1 The methodology of the study was outlined in the project design (MOLA March 2009) and followed considerations of the pilot project undertaken by ARCUS (now Wessex Sheffield) (ARCUS March 2007). However, a number of limitations were noted.

8.4.2 One of the main difficulties encountered was that journals and newsletters often did not specify the reasons for the undertaking of archaeological fieldwork. It was therefore difficult to relate some work specifically to aggregates extraction. The developer name and business sector stated in some journals (eg The London Archaeologist) was used as a clue in determining quarry-related archaeological investigations.

8.4.3 It was also difficult to identify aggregates extraction sites specifically within the GLHER database. The database had to be searched using a set of keywords (see above). GLHER events data which did not include one of the keywords may have been missed.

8.4.4 Analysis of the data revealed various gaps, discussed in Section 2.