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Environmental Statement

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**A2/A282 DARTFORD IMPROVEMENTS –
ENVIRONMENTAL STATEMENT VOL. 2.4:
CULTURAL HERITAGE 06/95**



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A2/A282 DARTFORD IMPROVEMENTS

ENVIRONMENTAL STATEMENT

VOLUME 2
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4. Cultural Heritage



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4.1 Cultural Heritage

**A2/A282 DARTFORD IMPROVEMENTS
ENVIRONMENTAL STATEMENT VOLUME 2**

PART 4 CULTURAL HERITAGE

This part contains two reports undertaken by Canterbury Archaeological Trust commissioned by the Kent Property Services Landscape branch with the assistance of the County Archaeologist on behalf of the Highways Agency.

The first report is a Preliminary Archaeological Desk Study undertaken between March and May 1992.

The second report is an Historic Environmental Assessment completed in November 1993.

A2/A282 DARTFORD IMPROVEMENTS

Historic Environment Assessment

by

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January 1996

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1 Executive Summary

1.1 Introduction

The Highways Agency is currently considering a number of proposed road improvement options south of Dartford. These comprise the widening of the A2, modifications to the A2/A282 Interchange, and improvements to the A282.

A preliminary desk-based assessment¹ of the archaeological element of the heritage resource was undertaken in March 1992 across a broad study area, the results of which have been incorporated in this report.

The present report endeavours to review the combined heritage resource against the draft road proposals in a format suitable for Environmental statement publication.

Within the broad study area the road improvement proposals have been assessed initially across two geographic areas (*eastern and central*), and under three elements of the heritage resource (*archaeology, historic buildings, and historic landscape*).

The first geographic area is common to all of the road improvement schemes; the second covers the Preferred Route and the Public Consultation Scheme.

To provide base level data, the broad study area has been extended to incorporate a study corridor within which a Darent Valley Link might have been considered. Such a link does not form part of the current proposals made by the Highways Agency. A third geographic area (*western*) thus incorporates the study corridor for the Darent Valley Link.

The above approach has largely determined the layout and contents of the present report, the details of which are summarised below².

1.2 General Introduction

A general introduction (*Section 2*) provides descriptions of the areas of assessment (*Plan VI*) that have been adopted for the purposes of carrying out a field survey, assessing the data collected, and preparing the present report. These areas of assessment comprise the following.

The broad study area

Three separate impact areas covering:

- i) widening of the A2 (*eastern section*)
- ii) improvements and modifications to the A2/A282 Interchange and the A282 north to Junction 1B (*central section*)
- iii) the study corridor for the Darent Valley Link (*western section*)

A field survey area adjacent to and including 1) - iii)

¹Cross, R P *Dartford A2 and A2/M25 Interchange - Road Improvement Proposals - Preliminary Archaeological Desk Study* Canterbury Archaeological Trust, March/May 1992.

²The field survey and documentary research for the present report was undertaken jointly by the author A Hicks, B.Tech., who also assisted with the preparation of the plans.

The *broad study area* extends from the south-eastern urban limits of Dartford, south to Hawley and Darenth, and west to Darenth Wood and Bean, and encompasses four civil parishes, namely Sutton-at-Hone, Dartford, Darenth, and Stone-next-Dartford (*Section 2.1.2*).

The *three impact areas* have been defined by the lines of deviation for the proposed road improvement schemes, namely the Preferred Route and the Public Consultation Scheme; and the limits of the *study corridor* for the Darent Valley Link (*Section 2.1.3*).

The *field survey area* corresponds to the relevant fields, parcels or areas, individually numbered, situated adjacent to the proposed road improvements and the Darenth Road (*Section 2.1.4*).

Brief details are given of the *methodology* employed which has comprised two elements, desk-based study and field study (*Section 2.2.1*).

A *confidence rating* is provided, which describes the lacunae evident in the methodology but concludes that an adequate field survey and desk-study for the purposes of the present report have been carried out, and that no significant indicators of heritage interest have been omitted (*Section 2.2.2*).

In addition, brief descriptions are given of the solid and drift *geology*, and of the historical aspects of the economic geology (*Sections 2.3.1 - 2.3.4 and Plan I*).

The *geomorphology* of the broad study area is also described, under the two headings, geological structure, landforms and landscape, and drainage pattern (*Sections 2.4.2 - 2.4.3 and Plan II*). Two major *landforms* are present.

On the east the *North Downs*, which rise to 85 metres, are composed of formations of Upper Chalk which in turn are capped by sand deposits of the Thanet Beds in the vicinity of Darenth Wood.

On the west is the *Darent Valley*, along the floor of which the river Darent flows in a northerly direction, and across, and on the valley sides of which, there are extensive fans of alluvium, river terrace and flood plain gravels of recent or Pleistocene date.

The chalk, flood plain gravels, and brickearth deposits have been extensively quarried during the medieval and post-medieval periods at various locations within the broad study area.

1.3 The Heritage Resource

The heritage resource is briefly noted chronologically under its three component heads (*Sections 3 and Appendices I-II*)

Archaeology

A focus of *prehistoric* settlement, with associated palaeo-environmental deposits and buried palaeo land surfaces dating from the *late Mesolithic to Iron Age* periods (*circa 4500-600/200 B.C.*) has been recorded abutting the north-west and south-east sides of the A2/A282 Interchange.

Other possible prehistoric and palaeo-environmental deposits may be present across an area from Blackdale Farm Cottages south to the A2/A282 Interchange, where British Geological Survey mapping indicates that there are extensive deposits of river terrace gravels (*Section 3.1.1. and Plans I-II*).

The probable site of an early thirteenth *medieval* century fulling mill has been noted, and possible elements of a probable medieval/post-medieval, if not earlier, farmstead may be present at Blackdale Farm Cottages. This is probably the original site of Blackdale Farm named in 1278/79.

A large irregularly shaped enclosure of 2km circumference, extant, with earthen banks thrown up in the period 1225-1275, and with later south-eastern and northern annexes, is situated both north and south of the present alignment of the A2, within, and forming part of, Darenth Wood (*Section 3.1.3 - 3.1.4 and Plans III and V*).

A number of early to late **post-medieval** industrial sites have been recorded, including a paper mill, established in 1585 and later re-modelled as a gunpowder mill, in production between 1732-19128; a charcoal and saltpetre works, extant in 1837 and incorporating the sites of former works buildings; a dusting house; and a powder magazine, all of which were located abutting the east and west sides of the Darenth Road (*Section 3.1.5, Figure 1 and Plan V*).

Historic Buildings

Only two historic buildings were noted, both minor industrial buildings of *late post-medieval* dated situated within the charcoal and saltpetre works (*Section 3.2.2, Figure 1 and Plan V*).

Historic Landscape

Two major areas of historic landscape interest and potential exist within the broad study area; the river Darent valley, and the North Downs.

Brief reviews of the local landscape history are given for the *Roman, early and later medieval* periods. The early and later medieval landscape is described, set against its Roman background, from a combination of archaeological and documentary evidence for the changing settlement pattern and land use, noting the location of primary settlement on the river Darent valley floor and sides, and its expansion on to the chalk downland (*Sections 3.3.2 - 3.3.3 and Plan III*).

The **post-medieval** landscape is also described. The early industrial use of the river Darent is noted, as well as the settlement pattern and historic geography of a largely arable agrarian landscape (*Section 3.3.4, Figure 1 and Plans IV-V*).

A *summary* provides a brief review of these phases of landscape history as elements within the present historic landscape (*Section 3.3.5*).

1.4 Impact Assessment

The nature of the proposed road improvement schemes indicates that direct, immediate and permanent loss of the heritage resource is likely to occur across those areas subject to earthmoving during the creation of embankments, during landscaping, tree planting, and during new road construction.

Previous road construction, which has bisected the broad study area, and also gravel quarrying and industrial works, have impacted extensively on the present historic landscape. In most instances is unlikely any loss of the heritage resource will occur within these areas of made ground.

Nevertheless, a number of impacts have been identified which may result in permanent loss of the heritage resource. The major impacts may occur on the archaeological resource (*Section 4.3*) across the central and western sections and on the associated historic landscape settings.

Eastern Section

There is a potential impact on Darenth and Ladies Woods, and on the associated medieval enclosure and its earthworks (*Section 4.5.1*).

Central Section

Across the central section impacts may occur in the vicinities of the A2/A282 Interchange and Blackdale Farm Cottages on elements of the prehistoric and palaeo-environmental archaeological resource.

In the case of Blackdale Farm Cottages a marginal impact on both the medieval, or earlier, and post-medieval archaeological resource may occur. (*Section 4.3.2*).

Western Section

Along the western section impacts on elements of the prehistoric and palaeo-environmental archaeological resource may occur north-west of the A2/A282 Interchange.

Impacts on two early to late post-medieval sites, abutting both sides of the Darenth Road, may occur at the former paper and gunpowder mills and the charcoal and saltpetre works (*Section 4.3.3*).

Two late post-medieval industrial works buildings at the charcoal and saltpetre works extant in 1837 have also been identified (*Section 4.4.3*).

The historic alignment and setting of the Darenth Road, and the setting of associated roadside elements of the archaeological and historic building resources, may be impacted upon, and this may result in both permanent loss and fragmentation of the historic landscape (*Section 4.5.3*).

1.5 Impact Mitigation Assessment

An impact mitigation assessment (*Section 5*) considers the available options, and provides specific recommendations, detailing their objectives and degree of effectiveness for each impact identified.

Mitigation is based on preservation of the heritage resource, either *in situ* or by record, depending upon an assessment of the relative importance of the affected element of the resource with consideration being given, where know, to the state of survival.

Eastern Section

Within the present historic landscape setting, Darenth and Ladies Woods and the associated medieval enclosure and earthworks, are of regional importance.

Preservation *in situ* of the medieval enclosure within its landscape setting is largely assured by its scheduled ancient monument status, and any potential impacts should be minimised by the proposed road works being confined within the existing land-take (*Section 5.5.1*).

Central Section

The possible elements of the palaeo-environmental and prehistoric archaeological resource that may be present south of the A2/A282 Interchange, and also east and south of Blackdale Farm Cottages, are of local/regional importance.

The site of the medieval, perhaps early-medieval, and post-medieval farmstead known to have been located at Blackdale Farm Cottages is of local importance.

The recommended mitigation in both instances is field evaluation by trial trenching followed by such further archaeological excavation as is found to be necessary (*Section 5.3.1*).

Western Section

The possible elements of the palaeo-environmental and prehistoric archaeological resource that may be present north-west of the A2/A282 Interchange are of local/regional importance.

The recommended mitigation is field evaluation by trial trenching followed by such further archaeological excavation as is found to be necessary.

The early to late post-medieval industrial sites adjacent to the Darenth Road at Brooklands are of local/regional importance.

Preservation *in situ* is recommended due to the group value of the resource, and its local historical and documentary affiliations.

Parts of this resource, the charcoal and saltpetre works, including the former sites of buildings within the works and on the opposite west side of the Darenth Road, and also the two standing industrial works buildings within the complex, are of local importance.

Preservation by record by field and photographic survey, building recording, documentary research, and evaluation by excavation is the recommended mitigatory action (*Section 5.3.2*).

The standing buildings within the works comprise the only examples of this element of the heritage resource identified during the assessment (*Section 5.4.1*).

The historic landscape setting of the early to late industrial sites, including the historic alignment of the Darenth Road, forms an integral part of the heritage resource and is of local importance.

Their character and setting should be preserved by record by undertaking a full field survey and evaluation excavation prior to the commencement of any construction groundwork (*Section 5.5.2*).

Should significant elements of the resource be proved to exist, preservation *in situ* or in their historic landscaping setting remains a viable option.

Should the resource be proved of lesser local importance by evaluation, preservation by record by the adoption of a combined strategy of archaeological works, building recording, and documentary study is the available alternative mitigation option.

1.6 Conclusions

In conclusion, the results of the data collection, field survey, desk-study, and the assessment of the impacts and recommended mitigation, may be summarised by comparing and contrasting the data and assessments in relation to the road improvement schemes across the three geographic areas.

Eastern Section

Along the eastern section only one possible impact has been identified, on the historic landscape setting of Darenth Wood and the associated medieval enclosure and earthworks. Here a potential for permanent loss may occur.

This may effectively be eliminated by road improvements remaining within the existing road land-take, and by sensitive landscaping schemes.

Central Section

Across the central section the impacts on the heritage resource are the same for both the Preferred and the Public Consultation Scheme. Hence no useful contrast can be drawn between the two schemes.

One locally important and two local/regionally important sites of archaeological potential may be subject to impacts, resulting in a potential for permanent loss of the archaeological and palaeo-environmental resource.

These comprise possible prehistoric sites in the vicinity of the A2/A282 Interchange and Blackdale Farm Cottages; and the possible site of a medieval, perhaps early-medieval, and post-medieval farmstead at Blackdale Farm Cottages.

Early evaluation on all these sites by various means is the recommended mitigatory action to assess the presence or absence of the resource, and its further significance.

Western Section

Along the western section major impacts may occur on two early to late post-medieval industrial sites, on associated standing buildings, and on their overall historic landscape setting, including the historic alignment of the Darenth Road.

Both permanent loss and a potential for loss of the heritage resource is envisaged on these locally important sites, buildings, and their historic landscape setting.

Preservation *in situ* is the preferred mitigation option in the case of the early to late post-medieval paper and gunpowder mills; and preservation by record by various means in the case of the late post-medieval charcoal and saltpetre works.

1.7 Summary

The major impacts may occur on the prehistoric, medieval and post-medieval archaeological resource across the central and western sections, and in the latter instance on the associated historic landscape setting.

Only one impact on historic buildings has been identified, along the western section, and again this is associated with the archaeological resource.

A potential for permanent loss of the combined heritage resource may occur in most instances.

Preservation by record of any surviving elements of the prehistoric and medieval archaeological resource in the vicinity of the A2/A282 Interchange and Blackdale Farm Cottages is recommended, but early evaluation and assessment by various means should be undertaken at an early stage.

Should significant elements of the archaeological resource be proven to exist, preservation *in situ* remains a viable mitigation option.

2 General Introduction

2.1 The Assessment Areas (Plan VI)

2.1.1 *Introduction*

Five areas of assessment have been adopted for the purposes of this report, a broad study area, three separate impact areas, and a field survey area adjacent to the various options.

2.1.2 *Broad Study Area*

The broad study area extends from the south-eastern urban limits of Dartford, south to Hawley and Darenth, west to Darenth Wood and Bean, and encompasses four civil parishes, Sutton-at-Hone, Dartford, Darenth and Stone-next-Dartford.

On its north-western margins it incorporates an area of past and present gravel extraction situated to the west of the Darenth Road along the valley bottom of the river Darent; and also part of an industrial area, now named Brooklands.

On the north the broad study area incorporates a small section of a much larger block of suburban residential housing and other industrial sites.

For the most part, however, to the south, it extends across a largely arable landscape as far west as Hawley.

On the east the study area incorporates a hospital site (Mabledon) and a modern farm complex (Darenth Park Hospital Farm), situated south and north of the A2.

Further east the broad study area is largely occupied by an expanse of coppice woodland named Darenth Wood but also includes Bean Lane and the site of another former quarry, Branton's Brickfield.

Two major trunk roads, the A2 and A282, traverse and bisect the broad study area east to west, and north to south respectively. In addition six minor roads follow north to south alignments across the study area. These are, from west to east, the Hawley Road (A225), Darenth Road, Green Street Green Road, Darenth Wood Road, Gore Road, Darenth Wood Road and Bean Lane (B255).

2.1.3 *Impact Areas*

Two of the impact areas have been defined by the lines of deviation for the proposed road improvement schemes represented by the Public Consultation Scheme and the Preferred Route.

These impact areas have been considered across two separate geographic areas which comprise the following:

An *eastern section*, common to all of the road improvement schemes, extending from Bean Lane on the east to just each of Littledale, and covering the impact area relating to the widening of the A2.

A *central section*, incorporating both the Preferred Route and the Public Consultation Scheme, extending from the A2/A282 Interchange northwards to Junction 1B, and covering the impacts relating to the modifications to the A2/A282 Interchange and the A282.

In addition a third impact area has been defined by the study corridor for the Darent Valley Link. This has been considered across a third geographic area, a *western section*, extending from the A2/A282 Interchange north-west to Princes Road.

2.1.4 *Field Survey Area*

The field survey was undertaken across, and corresponds to, the three impact areas described above, together with a contiguous area as defined by Kent County Council, Planning Department, Heritage Conservation.

The field survey area thus covers the relevant fields, parcels or areas situated adjacent to the proposed improvements routes and study corridor. Each such field, parcel or area has been individually numbered.

2.2 Desk Studies and Field Survey

2.2.1 *Methodology*

The report has been compiled from two lines of enquiry, desk-based studies and field survey.

The *desk study* has comprised two elements.

1. Study of the major primary documentary cartographic sources; published and unpublished inventories of archaeological monuments, sites and finds; published inventories of historic buildings; and a limited number of secondary printed sources.
2. Study, description, and interpretation of the landscape history of the broad study area. The sources consulted are given in *Appendix III*.

The *field survey* comprised two elements.

1. A walkover noting and plotting the occurrence and distribution of any surface archaeological artifacts, with observation and interpretation of the historic landscape, together with the outline recording of any landscape archaeological features such as ditches and banks.
2. Outline descriptions and photographic recording of historic standing buildings or structures, whether or not statutorily listed.

The field survey record is not presented in this report.

It contains no information of heritage resource interest that has not been included in the gazetteers (*Appendices I-II*) or elsewhere in this report.

Copies of the field survey record may be had on application to the Canterbury Archaeological Trust, 92A Broad Street, Canterbury, Kent, CT1 2LU.

2.2.2 *Confidence Rating*

Documentary research has been limited to a study of available cartographic sources of late post-medieval date, and no primary manuscript sources have been examined although considerable numbers of the latter for the medieval and post-medieval periods have been preserved.

From this and other relevant evidence examined, including printed maps and plans, place-names, geology, topography, archaeology, and standing buildings, together with an interpretation of the historic and present landscape, it has been possible, however, to make some preliminary statements concerning the landscape history of the broad study area.

These statements, however, lack specific local detail and explanation, and, if a lacuna in the sources consulted is to be identified, it would be the manuscript documentary sources.

Examination of these would not only enable a more thorough interpretation and understanding of the settlement pattern, land use, and general landscape history of the broad study area to be undertaken, but would probably add specific unknown detail to the archaeological record.

The *field survey* method was confined to a visual examination of the impact areas.

No detailed field survey of arable fields was undertaken, and no surface finds of archaeological artifacts recorded or recovered.

In the case of arable fields the survey was undertaken at a seasonally inappropriate time.

Fields 1 and 3-5, to the east of Darenth Wood, had already been ploughed, harrowed, and sowed and rapid crop growth made these fields inaccessible.

Fields 15 and 16, in the vicinity of the A2/A282 Interchange, in contrast, were under stubble but strewn with straw, obscuring the ground surface.

Major parts of the impact areas surveyed were also either coppice woodland where underwood made access often difficult, under pasture, or residential properties.

In addition, certain other areas were either waste, or subject to gravel extraction.

Despite these limitations, the confined urban nature, the made ground, and non-natural landscape suggests that *an adequate field survey for the purposes of the present report has been carried out, and that no significant ground surface indicators of heritage interest have been omitted.*

The field survey and documentary studies, however, must be regarded as only of an intermediary standard, and further work may be required.

This report is also presented with the further caveat that the field survey is based on a visual examination and interpretation of the historic landscape, and that the survey and study methods employed could not provide evidence of buried archaeological remains that may be present within the impact areas.

2.3 Geology (Plan I)

2.3.1 Introduction

The geology of the broad study area varies widely. The following summary describes the solid formations and drift deposits separately, and also considers historical aspects of the economic geology.

2.3.2 *Solid Geology*

Solid formations of the Cretaceous Upper Chalk are exposed at the surface across the central and eastern parts of the broad study area, notably in the vicinity of the A2/A282 Interchange and Darenth Wood. These also outcrop on the west at Hawley.

To the south and east the Upper Chalk is overlain by Palaeocene sand deposits of the Thanet Beds which in turn are overlain by the clays, sands, and loams of the Woolwich Beds.

Within the broad study area these deposits represent the north-eastern margins of an extensive spread of Palaeocene deposits which cap the Upper Chalk as far south as Grubb Street and east to Gravesend.

2.3.3 *Drift Geology*

Drift deposits of Pleistocene and recent date occur across the eastern part of the broad study area where plateau gravels interfinger south to north with the Thanet Beds and Upper Chalk across Darenth Wood.

On the far eastern edge there are also deposits of head brickearth. The more significant drift deposits, however, occur along the valley floor of the river Darent where there are extensive linear deposits of alluvium.

These overlie river terrace gravels on both sides of the valley, those on the west being flood plain gravels.

River terrace gravels have also been mapped extending west to east across the broad study area in the vicinity of Blackdale Farm Cottages, extending south towards Darenth.

2.3.4 *Economic Geology*

The river terrace gravels on the margins of the valley floor, and along the eastern valley side of the river Darent, have been extensively quarried particularly west of the Darenth Road where a series of large water-filled pits are extant including Brooklands Lake.

Within the field survey area a larger linear disused quarry (centred on TQ 55007289) was noted within woodland abutting the Darenth Road at its junction with Princes Road.

Further south gravel quarrying is currently proceeding west of the Darenth Road (between TQ 55257250 and TQ 55407210) where there are also a series of irregular water-filled pits.

A disused quarry was also noted immediately east of the Darenth Road abutting the north-east side of the A2/A282 Interchange (centred on TQ 55557215).

The Upper Chalk has also been quarried at various locations across the broad study area.

Numerous medieval deneholes or chalk mines have been recorded and are extant in, and close to, the medieval enclosure and earthworks in Darenth Wood, and also in Ladies Wood. Other unrecorded examples probably remain to be discovered.

Finds recovered from the archaeological excavation in 1962-63 of the plug or upper fill of one of these local mines, comprising a vertical shaft descending to six radial chambers, showed that some were being worked in the mid to late thirteenth century.

Dencholes are rarely completely filled, and can constitute a hazard to heavy machinery.

Other chalk mines, extant in the early nineteenth century, have been recorded south of Green Street Green Road (*Figure 1*).

2.4 Topography (Plan II)

2.4.1 Introduction

The geomorphology of the broad study area is represented by the development of the geological structure, the surface landforms and the drainage pattern.

The major landforms are present, the North Downs and the Darent Valley.

2.4.2 *Geological Structure, Landforms and Landscape*

Much of the eastern part of the broad study area extends across a section of the northern dip slope of the chalk downland of the North Downs.

The landscape is one of gently undulating countryside rising, in the vicinity of Ladies Wood, to a maximum height of 85 metres.

Much of the downland area on the west, in the vicinity of Wilmington and Hawley, has been built over but on the east is occupied by woodland.

The agricultural landscape is a mixed pattern of recent open arable land and pasture.

The more ancient wooded downland has been much altered by the construction alignment of the present A2 which cuts east to west across and bisects it.

The western and central parts of the broad study area are occupied by the Darent valley with shallow sloping valley sides, with the wide valley floor, across which are widespread deposits of alluvium, lying at and below 10 - 15 metres.

The landscape setting of the valley floor, and particularly the eastern valley side, has been much altered by the siting of post-medieval industrial buildings and modern road construction.

2.4.3 *Drainage Pattern*

The river Darent flows south to north across the broad study area cutting a meandering course across the valley floor, and eventually draining into the Thames Estuary.

Between Hawley Manor and the Darent Road the course of the river has been extensively altered and canalised particularly in the post-medieval period for industrial uses.

Penning of the waters for milling also occurred in this area, and to the south near Darenth, during the medieval and post-medieval periods where the former course of the river is now represented by the parish boundary.

The flood plain of the river lies to the east where there are extensive river terrace gravels.

Other earlier terrace gravels occur on the west and north-west where the valley sides rise to about 30 metres.

A number of springs rise from the chalk downland, one intermittent stream flowing north-west to south-east down the eastern valley side over Trulling or Fleet Downs.

3. The Heritage Resource

The following summaries provide brief notes of the heritage resource under three heads, archaeology, historic buildings and historic landscape.

Each resource is described chronologically by period.

Summaries are given firstly for the impact areas; and secondly, for the broad study area as a whole.

Detailed information is given in *Appendices I-II* and the sources consulted in *Appendix III*.

3.1 Archaeology

3.1.1 *Prehistoric (Plans I-III)*

Impact Areas

Two areas of prehistoric settlement have been recorded in the immediate vicinity of the A2/A282 Interchange.

A focus of prehistoric settlement, dating from the late Mesolithic to Iron Age periods (*circa* 4500 - 600/200 B.C.), has been recorded to the west of the Darenth Road during gravel extraction (Wilmington Pits), and north-east of the Interchange.

The evidence comprises individual finds of artifacts discovered during the 1950's (*Appendix I nos 1 and 3*), and settlement features with associated palaeo-environmental deposits and a buried palaeo land surface, recorded as a result of rescue archaeological excavations undertaken between 1975-78 (*Appendix I nos 2 and 4*).

Another area of prehistoric settlement, of Bronze Age and Iron Age date (*circa* 2000 - 600/200 B.C.), has also been recorded as a result of gravel extraction and subsequent rescue archaeological excavation in 1989, south-east of the Interchange (*Appendix I nr 5*).

Broad Study Area

Air photographic evidence suggests the presence of two ring-ditches south of the A2 and just west of Littledale.

These shadow marks, observed from the air, are caused by differential crop growth over buried features.

They probably represent the circular infilled ditches that formerly surrounded earthen burial mounds, possibly of Bronze Age date, which have been levelled (*Appendix I nos 6-7*).

The sites of other undated earthen burial mounds or "tumuli", formerly extant but now destroyed, have been previously recorded, in 1889, on the margins of the study area north of Fleet Downs (*Appendix I nr 8*).

3.1.2 *Roman (Plans I-II)*

Impact Areas

No monuments, sites, or re-deposited surface finds of Roman date (A.D. 50-450) have been previously recorded, or noted during the present field survey.

Broad Study Area

Two Roman period sites have been recorded on the boundaries of the broad study area.

One, a pottery kiln, was found as a result of salvage excavations during brickearth extraction at Branton's Brickfield, Stone Wood in 1918 (*Appendix I nr 9*).

The site was situated in the angle between the former Roman road, now named Watling Street (A296) and Bean Lane.

The second site, a building dated to the third and fourth centuries, was exposed in 1895 and partially excavated in 1979.

It is located on the east side of the river Darent valley at Tenter's Field, Dartford (*Appendix I nr 10*).

3.1.3 *Early Medieval (Plans II-III)*

Impact Areas

No monuments, sites, or re-deposited surface finds of early medieval date (A.D. 450-1050) have been previously recorded, or noted during the present field survey.

Recent archaeological excavations in Kent, together with documentary research, have shown that there is accumulating evidence for continuity of rural settlement location on farmsteads from the early medieval period onwards, and perhaps also from the Roman period³. Such evidence may be present at Blackdale Farm Cottages (see below Sections 3.1.4 and 3.1.3).

Broad Study Area

Some evidence for early medieval, sixth to seventh century, inhumations represented by grave deposits has been recorded during the construction of a powder magazine, in 1818, east of the Darent Road (*Appendix I nr 11*).

³Cross (in prep.) *A Roman, early medieval, medieval and post-medieval farmstead at Vale Farm, Sturry*; Cross (in prep.) [*Archaeology and the Channel Tunnel - Settlement History and Documentary Evidence*]

3.1.4 *Medieval (Plans II-III)*

Impact Areas

The site of an early thirteenth century fulling mill, a possession of the Knights Templars who held manorial rights within Dartford, is known to have been situated on and utilising the waters of the river Darent just east of Brooklands (*Appendix I nr 13*).

The field name, Tenter's Field, on the opposite eastern bank of the river indicates that this area was used for the laying out and drying of the cloth produced.

A large irregularly shaped enclosure of 2km circumference, with south-eastern and northern annexes, is situated both north and south of the present alignment of the A2, within, and forming part of, Darenth Wood (*Figure 3*).

The enclosure is bounded by substantial earthen banks with outer ditches.

The interior is presently occupied by coppice woodland with occasional mature oak and beech standards. Excavations undertaken between 1962-63 have indicated that the earthworks were thrown up in the period 1225-1275, and enclosed a park and valuable piece of detached woodland lying on the extreme edge of Darenth parish.

A chronological development of the site is indicated by an undated enclosure to the south. The area was named *Cleyndon* in 1257 and formed part of the manor of Darenth during this period, which was a possession of the Prior and Convent of St Andrew, Rochester (*Appendix I nr 12*).

Broad Study Area

Documentary research has indicated a number of sites of the medieval period. The evidence dates largely from the mid to later thirteenth century.

A major manorial centre was situated at Hawley (*Hagelei* in 1086), and a later farm is known to have preceded the adjacent Holland's Farm (*Holane* in 1492).

Both sites are situated abutting the south side of the Hawley Road (*Appendix I nos 15-16*).

A farmstead, possibly of early medieval origin, was located at Blackdale Farm Cottages (named *la Blakedale* in 1278/79) (*Appendix I nr 17*).

A small hamlet was situated at Gore Cottages (*Gore* in 1257), east of and abutting Green Street Green Road (named *Grenestrete* in 1240) at the junction with Gore Road (*Appendix I nos 18-19*).

3.1.5 *Post-Medieval (Plans II, IV-V and Figure 1)*

Impact Areas

A number of early post-medieval industrial and other sites are known to have been situated along the Darenth Road.

The site of a paper mill, established in 1585 producing writing paper, later remodelled as a gunpowder mill, in production between 1732-1918, and partially exposed in 1983, is located just east of Brooklands, Dartford (*Appendix I nos 21 and 22*).

Other associated works, identified from documentary and cartographic sources, comprise a charcoal and saltpetre works, including the sites of former works buildings; a dusting house; and a powder magazine, all of which were located to the east of the Darent Road and north-west of Blackdale Farm Cottages.

These sites all date from the early to mid nineteenth century (*Appendix I nos 23-25*).

Broad Study Area

A zinc works, part of the above industrial belt, was also in operation during the same period, north of the gunpowder mill (*Appendix I nr 26*).

In addition, the site of a former brick and tile works, partially extant, and in production between the late seventeenth and late eighteenth centuries, is located at Badger's Mount, on the southern edge of Darent Wood (*Appendix I nr 31*) (*Figure 3*).

A modern brickearth quarry, in operation during the period 1910-30, is also located on the extreme north-eastern corner of the broad study area, and named Branton's Brickfield in 1918. (*Appendix I nr 32*).

Field names in use in 1837-41, namely Chalk Hole Field and Brick Kiln Field, abutting and south of Green Street Green Road, suggest the possible presence of other late post-medieval quarry and industrial sites.

The former field name suggests the presence of chalk mines, the latter the presence of a brick kiln (*Appendix I nr 29*).

The evidence is inconclusive and the latter name may equally indicate that the area either belonged to a manufactory or that local drift head deposits of brickearth were being worked in the area.

The possible presence of a former clamp kiln should not be excluded as an explanation (*Appendix I nr 30*).

Two farmsteads, a roadside tenement, and a manorial centre are known to have continued in occupation on the same sites from the medieval period.

These comprise Blackdale Farm (*Appendix I nr 17*) (*Figure 2*); Holland's Farm (*Appendix I nr 16*); Gore (*Appendix I nr 18*); and Hawley Manor (*Appendix I nr 15*).

A mill, belonging to Hawley, was also situated on the east bank of the river Darent in the eighteenth and nineteenth centuries (*Appendix I nr 27*).

Documentary evidence has also located the site of one former building, Littledale, extant in 1837, situated just to the south-west of Green Street Green Road (*Appendix I nr 28*).

The place-name is now applied to a row of cottages south of the A2.

The location of the original Littledale suggests that it may be connected to the field names discussed above.

Blackdale Farm, in 1837, was located and is represented by one of the buildings that now collectively are named Blackdale Farm Cottages (*Figure 2*).

The present Blackdale Farm comprises a group of modern agricultural buildings, without farmhouse, on a new site to the east of the A282.

3.2 Historic Buildings

3.2.1 *Medieval*

Impact Areas

No statutorily listed or other standing buildings or structures of the medieval period (circa 1550 or earlier) have been previously recorded, or noted during the present field survey.

3.2.2 *Post-Medieval (Plans II, IV-V and Figure 1)*

Impact Areas

Nine individual or groups of standing buildings were identified during the field survey.

Of these only two can be described as historic, that is, constructed between the mid fifteenth and the mid nineteenth centuries.

These buildings formed part of an industrial complex, a charcoal and saltpetre works extant in 1837, situated to the east of the Darent Road and north-west of Blackdale Farm Cottages (*Appendix II nos 33 - 34*).

Neither building is statutorily listed.

Broad Study Area

A brick built pigeon house or dovecote with an *in situ* dated inscription of 1545 is located within the grounds of Hawley Manor (*Appendix II nr 35*).

3.3 Historic Landscape

3.3.1 *Introduction*

Two major areas of historic landscape interest and potential exist within the broad study area, the river Darent valley, and the North Downs.

The geomorphology of this landscape has to a large extent determined its land use, exploitation, and the attendant settlement pattern.

Outline descriptions of the changing historic land use and the economic and historical geography are summarised below.

3.3.2 *Roman (Plans I-III)*

A major Roman road, probably laid out by the late first century, and later named Watling Street, follows a straight south-east to north-west alignment over the chalk downland.

Only a small length of the road falls within the study area on the north-east.

Its alignment, however, appears to have determined the siting of early Roman first and second century settlement adjacent to it, including industrial sites, a pottery kiln having been recorded on its south side (*Appendix I nr 9*).

Third and fourth century settlement is known from the eastern valley side of the river Darent, avoiding the western flood plain.

On the northern margins of the study area a villa-type (farm) building has been recorded at Tenter's Field, Dartford (*Appendix I nr 10*).

A much larger building is known to have been situated further south at Darenth, and others are likewise located along the length of the valley.

No local evidence has been recorded, however, concerning the agrarian economy of which these villas formed part, nor of the extent of arable cultivation, of pasture and meadow, of "field" shape or size or tenure, or of the extent and uses of woodland.

Use of the waters of the river Darent is implied, as is exploitation of local brickearth deposits for pottery production.

The presence of settlement on the chalk downland also suggests some clearance of woodland by the second century in areas contiguous to the alignment of the Roman road.

3.3.3 *Early Medieval (Plan III)*

During the early medieval period, within the broad study area under review, major settlement appears to have been restricted to the river Darent valley, manorial sites existing at Hawley and Darenth.

The latter site has its customary attached church and is named (*Daerintan*) in a charter of 940. An earlier charter, of 822, records the river name itself (*Darente*).

Another charter, of 995, records a roadway (*Portstraete*), possibly the Darenth Road, but the location is uncertain and the reference more likely refers to Watling Street.

This charter also records the area later named Trulling Downs (*Tryflinges mearce*).

The site of some inhumation burials, of sixth to seventh century dated, are known within the broad study area, on the eastern valley side, north-west of Blackdale Farm Cottages. These may form part of a cemetery.

The site of a much larger cemetery, with fifth to sixth century inhumations, is situated at the entrance to Darenth Park Hospital, on top of the chalk downland.

No local evidence, however, has been recorded for settlement on the chalk downland and for the local agrarian economy during the early medieval period.

It can be surmised, however, that primary settlement and re-colonisation of the landscape after the Roman period was restricted to the river Darent valley, that the waters of the river Darent were utilised for milling from the eighth century, and that a well managed landscape existed along the valley floor and eastern valley sides where more fertile soils for arable cultivation, and where valuable tracts of fresh water meadow and pasture were located.

The evidence from the Darenth Roman villa, and the location of an early manorial centre there, suggests that there may have been some degree of continuity in settlement location.

3.3.4 *Later Medieval (Plan III)*

Evidence for the later medieval period dates largely from the thirteenth century.

The major manorial centres, Hawley (*Hagelei*) and Darenth (*Darenth*) are, however, recorded early, in 1086, as is Dartford itself (*Darenteford*).

Parts of another manor, named *Bignores/Bikenores* or *Portbrugge*, were situated on the north.

By the early to mid thirteenth century much of the present historic landscape had been established.

Both the former Roman Road (*Walling Street*) and Green Street Green Road (*Grenestrete*) are named in this period.

The latter, a north to south valley side ridgeway, connects on the north to another named road and locality (*Brenthe*) in the 1380's. A lower ridgeway, now Darenth Road, was also presumably in existence by this date.

A number of lesser later medieval settlements were also situated within the study area, including Blackdale Farm (*la Blakedale*) in 1278/79, possibly first settled during the early medieval period; and a roadside settlement at Gore (*Gore*) in 1257.

Penning of the waters of the river Darent also occurred, a fulling mill, a possession of the Knights Templars who held manorial rights within Dartford, being situated west of the Darenth Road.

Exploitation of the chalk downland occurred from the mid thirteenth century. This was a period which witnessed an expansion of arable cultivation onto downland following piecemeal assarts of woodland and waste. In an attempt to improve the quality of the light downland soils marling or dressing of fields with chalk was a common agrarian practice.

Many deneholes or chalk mines were sunk to obtain the raw material, and were strategically sited at the edges of enclosures or large open fields. Examples of some of these remain in the vicinity of Darenth Wood (*Figure 3*).

A considerable body of evidence has been preserved by which to chart the agrarian history of the broad study area during the later medieval period, but insufficient time has prevented its translation, transcription and analysis for use in the present brief review of the landscape during this period.

It can be presumed, however, that an established and well managed agrarian landscape existed containing the necessary economic components of arable, pasture, meadow, woodland and waste on the valley floor and sides. Gradually arable cultivation was extended and cleared the downland of ancient and semi-natural woodland. This process would have been modified by the extent of tenurial control.

Within the broad study area such an example exists, namely the enclosure and earthworks within Darenth Wood (*Figures 3*). The area appears to have been named (Cleyndon) in the mid thirteenth century, when it formed part of the manor of Darenth which was in turn a possession of the Priory and Convent of St Andrew, Rochester.

Archaeological excavations here in 1962-63 have indicated that the enclosure was established, and its earthworks thrown up, in the period 1225-1275; and that it functioned as a park, the presence of outer ditches to the enclosing banks indicating a need to exclude livestock. Stocked perhaps with deer it constituted also a valuable piece of detached manorial coppice woodland.

3.3.5 *Post-Medieval (Plans IV-V and Figure 1)*

The settlement pattern and land use of the broad study area during the post-medieval period mirrors that established during the medieval period. All of the existing farmsteads and manorial centres continued in occupation although their tenurial significance altered.

The North Downs continued to be occupied by the expanse of coppice woodland named Darenth Wood.

The Tithe Apportionment Plans of the relevant ecclesiastical parishes dated between 1837-41 show that the major part of the river valley was under arable cultivation in the early nineteenth century, and consisted of a network of small to medium sized closes abutting the established pattern of later medieval roads and trackways.

How early this process of enclosure occurred is not known, but the close size, shape, pattern and location indicates that it began in the later medieval period.

Piecemeal assarts of downland woodland and waste occurred throughout the sixteenth to eighteenth centuries. In 1769 cartographic sources indicate that Darenth Wood extended as far east as Bean Lane. This area had been largely grubbed up by 1837 and the close shape and size on the north and west of Darenth Wood suggests other assarts in these areas.

The working out of the detail of the agrarian history has, in the time permitting, not been possible, although considerable documentary evidence for the reconstruction of the landscape during these centuries has been preserved.

More information is readily available concerning the utilisation of the waters of the river Darenth. A paper mill was established in 1585 on the west bank of the river south of Dartford, later being remodelled as a gunpowder manufactory. The area was known as the Powder Mill Estate in the early nineteenth century and was a direct successor of the medieval manor of Bignores.

By the early nineteenth century other industrial sites had been established in the locality, including a charcoal and saltpetre works, a dusting house, a powder magazine and, further north, a zinc works.

The Tithe Apportionment Plans of 1837-41 also clearly show that by this date this industrial use of the Darent valley had resulted in the altering of the course of the river and its canalisation elsewhere.

Field names such as Potters Croft and Forge Field, either side of the Hawley Road, suggest other industrial areas.

On the North Downs, chalk appears to have been quarried in the vicinity of Blackdale Farm, a field nearby being named Chalk Hole Field. Another nearby field name, Brick Kiln Field, suggests the former presence of a clamp kiln.

3.3.6 *Conclusion (Plans III-V and Figure 1)*

The present historic landscape is an amalgam of various elements built up as a horizontal stratigraphy over the previous nineteen hundred years.

For most of this period of time man's impact on the natural landscape has been influenced to a large extent by the local geomorphology, that is of the North Downs and the river Darent valley.

Today the natural landscape is represented only in outline by these two landforms, and a considerable area is now made ground covered by suburban housing, by a network of major and minor roads, and by industrial works.

These developments within and across the landscape have occurred relatively recently, that is, largely since *circa* 1850. Underlying this is a historic landscape which is essentially post-medieval in date and layout but at once also represents the evolution of a settlement pattern and land use which demonstrates a remarkable degree of continuity and stability.

The broad story of the evolution of this historic landscape has been described above, the earliest element of which is the alignment of the former Roman *via strata* now represented by the modern Watling Street. Since then a network of roads and trackways linking settlements has gradually evolved. Few new roads, however, appear to have been established within the broad study area between *circa* 1840 and the early 1960s.

The greatest changes to the historic landscape have occurred since 1962 with the construction of the A2 and the A282, schemes which have effectively bisected the historic landscape, and of which the present modifications under consideration will form part.

Although the broad study area has thus witnessed considerable change through history, modern development, particularly the construction of the a2 and the A282, has severely affected the coherence of the landscape, reducing its overall value as historic landscape.

Smaller areas, such as the river Darent valley and Darent Wood, do, however, retain historic landscape value at a more localised level.

4. Impact Assessment

4.1 Introduction and Arrangement

The following assessment details the likely impacts of the proposed road improvement schemes on the heritage resource and historic environment, and along the study corridor for the Darent Valley Link within specific areas as described below.

The impacts have been considered across three geographic areas (*eastern, central and western*); subsequently under the three separate elements of the heritage resource (*archaeology, historic buildings and historic landscape*); and are assessed under two categories indicating either where permanent loss, or a potential for loss of the respective resource may occur.

An introductory section defines the impact areas; the types of impact; and provides an assessment of the general impacts, and where known, the likely state of preservation of the heritage resource.

4.2 Definitions and Considerations

4.2.1 Impact Areas

Eastern Section

The impact area for the eastern section, common to all of the road improvement schemes, is intended to remain within the existing land-take of the A2.

This applies also to associated landscaping works which will be affected by the use of steep gradients.

Central Section

The impact area for the central section, covering both the Preferred Route and the Public Consultation Scheme, includes modifications to the A2/A282 Interchange and the construction of a number of new approach and slip roads north and east of the A2/A282 Interchange and along the A282.

Associated landscaping will result in wide impacts in the same locations, and, to a lesser extent, south-east of the Interchange.

The impact area north of Green Street Green Road to Junction 1B will remain within the existing land-take of the A282, and new landscaping works are to be limited to tree planting.

Western Section

The study corridor for the western section, covering the Darent Valley Link, encompasses a broad area from immediately north-west of the junction of the Darent Road with Princes Road, south-east to the A2/A282 Interchange.

For most of its length the study corridor remains broadly parallel to the existing Darent Road but from a trackway south-west of Blackdale Farm Cottages south to the Interchange, it extends across pasture and a disused quarry pit.

4.2.2 *Heritage Resource Impacts*

Archaeological Impacts

These affect the buried element of the heritage resource, both on specifically known sites and also on unknown sites.

For the prehistoric periods they include impacts on palaeo-environmental deposits, buried palaeo land surfaces, and other related features whether or not they are preserved in association with archaeological deposits or features, the whole comprising the relict resource evidence for the prehistoric landscape.

Historic Building Impacts

These affect standing buildings or structures dated before 1850, whether or not statutorily protected.

Sites of known former buildings no longer extant are assessed under the archaeological resource impacts.

Historic Landscape Impacts

These affect the setting of archaeological monuments; of standing buildings and other structures of the medieval and post-medieval period; and of relict landscape archaeological features within the present historic landscape.

4.2.3 *General Impacts*

The nature of the proposed road improvement schemes indicates that direct immediate and permanent loss of the heritage resource is likely to occur across those areas which may be subject to earthmoving during the creation of embankments, during landscaping, tree planting and during new road construction.

4.2.4 *State of Preservation*

Previous modern road construction, which has bisected the study area, gravel quarrying and industrial works have impacted extensively on the historic landscape.

In most instances it unlikely any loss of the heritage resource will occur within these areas of made ground.

In contrast, agricultural activities, notably ploughing north-east of the A2/A282 Interchange, have contributed to the process of colluviation which has resulted in thick deposits of chalk hillwash capping and protecting the archaeological resource.

Similar effects, due to the process of deposition of water borne silts by river action, have resulted in the laying down of widespread fans of alluvium along the Darent valley floor, capping the prehistoric archaeological resource and preserving palaeo-environmental deposits and palaeo land surfaces *in situ*.

4.3 Archaeological Impacts

4.3.1 *Eastern Section*

No impacts are likely to occur.

4.3.2 *Central Station*

The potential impacts identified for both the Preferred Route and the Public Consultation Scheme are the same.

Impacts may occur in two areas.

1. *South of the A2/A282 Interchange*

An area of Bronze Age and Iron Age settlement (*Appendix I nr 5*) is situated immediately south of, and abutting, the A2/A282 Interchange (*Survey Field 16*).

Topsoil stripping, consequent rescue archaeological excavations in 1989, and gravel extractions has occurred within this area.

Whilst the precise extent of these works is known, the possible presence or degree of preservation or any further elements of the resource is not known.

The presence of two possible burial mounds of Bronze Age or later date (*Appendix I nos 6-7*) on and below the 30 metre contour just west of Littledale on the margins of the impact areas, suggests that other similar unknown sites may also occur within the impact areas.

In both instances there is a potential for permanent loss of the resource.

2. *East of Blackdale Farm Cottages*

This area is situated west of the A282 and immediately east of Blackdale Farm Cottages.

This is probably the original location of Blackdale Farm which is known from documentary sources to date from 1278/79, and is possibly of even earlier origin (*Appendix I nr 17*).

Parts of the medieval settlement/farmstead may be located to the east of the present cottages (*Survey Parcel 21, Fields 22 and 24, and Area 23*).

The impacts in this area may result in a potential for permanent loss of the resource.

British Geological Survey mapping shows an area of drift deposits of undivided and flood plain gravels across the same area and extending south towards Darent.

Palaeo-environmental deposits and features, perhaps in association with archaeological deposits may be present within these deposits at depth.

Within the relevant impact areas (*Survey Fields 15, 16, 22, 24 and 25; Survey Parcel 21; Survey Areas 17-19 and 23*) a potential for permanent loss of further elements of the palaeo-environmental and archaeological resource is envisaged.

Potential impacts may occur in two areas within the study corridor defined for the Darent Valley Link.

1. *North-West of the A2/A282 Interchange*

This area covers the study corridor between The Mount and the A2/A282 Interchange.

A focus of prehistoric settlement is known to have been sited abutting the west side of the Darent Road (*Appendix I nos 1-4*), and parts of the same or related settlement may exist on its east side (*Survey Fields 26-28*).

Previous impacts along this corridor include gravel quarrying represented by a large disused pit abutting the A2/A282 Interchange.

The full extent of gravel extraction, however, has not been ascertained.

Further impacts along this corridor may result in a potential for permanent loss of further elements of the palaeo-environmental and archaeological resource.

2. *Darent Road and Environs*

This area covers the study corridor north-west from The Mount.

The sites of an early to mid thirteenth century fulling mill, a sixteenth century paper mill, and eighteenth century and later gunpowder mill are situated west of the Darent Road and south of Princes Road (*Appendix I nos 13 and 21-22*) (*Figure 1*).

Sections of these early industrial sites fall within the study area (*Survey Parcel 40*).

Permanent loss of the archaeological resource may occur.

Further south, an early to mid nineteenth century charcoal and saltpetre works, including the sites of former associated industrial works buildings (*Appendix I nr 23*), falls largely within the impact area (*Survey Area 32A*).

Permanent loss of the archaeological resource may occur.

The site of a building, extant in 1837, has been identified on the west side of the Darent Road, opposite the above works, and with which it may be associated (*Appendix I nr 23*) (*Survey Parcel 33*) (*Figure 1*).

Permanent loss of the resource is likely to occur.

4.4 Historic Buildings Impacts

4.4.1 *Eastern Section*

No impacts are likely to occur.

4.4.2 *Central Section*

The dovecote dated 1545 recorded within the grounds of Hawley Manor (*Appendix II nr 35*) is located on the margins of the impact area.

No impact on this structure is likely to occur.

4.4.3 *Western Section*

1. *Darenth Road and Environs*

Two industrial works buildings, both extant in 1837, have been identified within the confines of the charcoal and saltpetre works previously mentioned (*Appendix II nos 33-34*) (*Survey Area 32A*) (*Figure 1*).

Neither has statutory listed building status.

Permanent loss of the resource is likely to occur.

4.5 Historic Landscape Impacts

4.5.1 *Eastern Section*

1. *Darenth and Ladies Woods*

A possible impact may occur on Darenth and Ladies Woods (*Survey Parcel 6*).

These expanses of coppice downland woodland, extant within the landscape since the medieval period if not earlier, have previously been bisected by the construction of the A2 in 1963 creating an irreversible impact on the historic landscape setting of the associated medieval enclosure and its earthworks (*Appendix I nr 12*) (*Figures 1 and 3*).

A minimal potential for further permanent loss of the historic landscape setting exists.

4.5.2 *Central Station*

No impacts are likely to occur.

4.5.3 *Western Section*

Significant potential impacts may occur along the length of the study corridor defined for the Darent Valley Link.

1. Darent Road and Environs

The alignment of the road is a representative feature of the medieval and post-medieval local road network (*Appendix 1 nr 20*) (*Figure 1*).

As a ridgeway its course largely follows the natural terrain of the eastern Darent valley side and, in following the grain of the countryside, blends into the present historic landscape.

As an early established routeway, evidenced by its width and roadside features, its historic landscape setting would be irreversibly altered by improvement and especially realignment.

What would remain of its southern alignment, already truncated by the A2, would be left isolated, and realignment would further fragment the contiguous landscape.

In addition, the historic landscape setting of other early post-medieval industrial sites along the present Darent Road, originally sited for access to it, would be altered.

A permanent loss of the present historic landscape along the study corridor is likely.

5. Impact Mitigation Assessment

5.1 Arrangement and Considerations

The arrangement is the same as for the impact assessment (*Section 4.1*).

The following assessment considers the available options for the impacts detailed therein, and provides specific mitigatory recommendations, detailing their objectives and degree of effectiveness for each impact identified.

An introductory section provides general notes on the policy followed in determining the mitigation.

5.2 Mitigation Options

5.2.1 *Preservation*

The emphasis throughout has been placed on the adoption of a mitigation policy based on the preservation of the heritage resource.

Implementation of this objective may be achieved in two ways, either by physical *in situ* preservation of the resource in its landscape setting, or by the adoption of an acceptable environmental strategy and programme of related works.

Preservation is achieved in the latter instance by the making of a full field record of the affected resource.

The final decisions regarding the implementation of one or both of these options lies in an assessment of the relative local, regional, national or international importance of the affected resource.

Consideration is also given to the state of preservation of the affected heritage resource.

5.2.2 *Landscape Setting*

A key element of a policy based on the mitigation options of preservation *in situ* or by record is a recognition of the importance of the landscape setting of the affected heritage resource, both within its buried archaeological context, and within the present historic landscape.

5.3 Archaeological Mitigation Options

5.3.1 *Central Section*

1. *South of the A2/A282 Interchange*

The Bronze Age and Iron Age settlement sites (*Appendix 1 nr 5*) may be classified as of local/regional importance which is enhanced by the relationship to other prehistoric sites and finds in the vicinity (*Appendix 1 nos 1-4*), and by the possible presence of palaeo-environmental deposits and features.

Given that much has previously been lost the overall mitigation should be directed towards the preservation by record of any surviving elements of the resource.

The possible presence of prehistoric and palaeo-environmental deposits and/or features within the area of drift deposits of Pleistocene gravels (*Survey Fields 15, 16, 22, 24 and 25; Survey Parcel 21; Survey Areas 17-19 and 23*) indicates these may be of local/regional importance.

The initial mitigatory action recommended to be undertaken prior to any construction groundwork should be as follows:-

1. Evaluation by machine-cut prospection trenching laid out across the probable location of the drift deposits within the impact areas to determine the presence or absence of any relevant deposits or features. The deposits may occur at considerable depth and a pilot programme of boreholes is suggested.
2. Assessment by report detailing the results of the evaluation and desk-study. Should the presence of archaeological remains be proven the report should include information on the location, extent, depth, character, and date of the resource. It should also provide a further assessment of the effects of any identifiable impacts, the importance of the resource, and recommend a mitigation strategy. The latter should include a programme for further archaeological works if necessary and make adequate provision for post-excavation studies and publication.

Should the presence of relevant deposits or features be proven, preservation *in situ* remains a viable mitigation option depending upon their depth, extent, state of preservation, date, type and importance.

This may be achieved by non-archaeological mitigation as described above for similar deposits in the vicinity of the A2/A282 Interchange.

5.3.2 *Western Section*

1. *North-West of the A2/A282 Interchange*

The possible area of prehistoric settlement and other palaeo-environmental deposits and features to the east of the Darent Road (*Survey Fields 26-28*) may be ranked as of local/regional importance which may be enhanced by being related to, or forming part of, the same focus of settlement on the west side of the road (*Appendix 1 nos 1-4*).

Much of the resource in the area has previously been lost and preservation by record of any remaining elements is the appropriate mitigatory action.

In the first instance the following archaeological mitigatory action should be undertaken prior to any construction groundwork as follows:-

1. Evaluation by machine-cut prospection trenching laid out in a linear pattern down the centre line of the impact corridor and on its west side where it abuts the Darent Road. This should be undertaken to determine the presence or absence of any relevant deposits or features and to determine their extent, state of preservation, date, type and importance. This would provide an efficient means of early evaluation in an area where the depth and range of types of deposits and features is known.

The state of preservation of the resource, however, is not known.

To determine the following mitigatory action should be implemented prior to any construction groundwork.

1. Definition by desk studies and field survey of the extent of previous gravel extraction in the area. This should be undertaken for the purpose of determining the likely survival of any buried archaeological or palaeo-environmental deposits and features, and should include the examination of any sections in nearby disused or existing gravel quarry pits.
2. Evaluation by a programme of borehole studies, and possibly by trial trenching, to confirm the presence or absence of the same resource within areas defined as a result of the desk-study. Previously excavated deposits occurred at depth, and hence would not be readily identifiable at the present ground surface. On the eastern valley side recent deposits of colluvium or chalk hill wash may also be expected to occur, capping and protecting the resource. Boreholes would provide an effective and rapid method of assessing the presence, depth, date, and type of any surviving archaeological or palaeo-environmental deposits and features.
3. Assessment by report detailing the results of the evaluation and desk-study. Should the presence of archaeological remains be proven the report should include information on the location, extent, depth, character, and date of the resource. It should also provide a further assessment of the effects of any identifiable impacts, the importance of the resource, and recommend a mitigation strategy. The latter should include a programme for further archaeological works if necessary and make adequate provision for post-excavation studies and publication.

Should the presence of important palaeo-environmental and archaeological deposits be proven, preservation *in situ* remains a viable option, depending upon their depth, extent, state of preservation, date, type, and importance.

This may perhaps be achieved by careful site monitoring of earthmoving operations, and the avoidance of cutting into or removing any surviving archaeological deposits, and by the importation of any materials required for landscaping.

2. *East of Blackdale Farm Cottages*

The medieval, and possibly early medieval, and post-medieval farm complex (Figures 1 and 2) (Appendix 1 nr 17) is of local importance.

Preservation of the resource by record depending on its presence, state of preservation, type, and date is recommended. Initial mitigation should therefore be directed towards the following works to be undertaken prior to any construction groundwork.

1. Evaluation by machine cut prospecting (trenching) to determine the presence or absence of any archaeological deposits or features.
2. Assessment by report, including documentary research, detailing the results of the evaluation and desk-study. Should the presence of archaeological remains be proven the report should include information on the location, extent, depth, character and date of the resource. It should also provide a further assessment of the effects of any identifiable impacts, the importance of the resource, and recommend a mitigation strategy. The latter should include a programme for further archaeological works if necessary and make adequate provision for post-excavation studies and publication.

The possible presence of prehistoric and palaeo-environmental deposits and/or features within the area of drift deposits of Pleistocene gravels (*Survey Fields 15, 16, 22, 24 and 25: Survey Parcel 21: Survey Areas 17-19 and 23*) indicates these may be of local/regional importance.

The initial mitigatory action recommended to be undertaken prior to any construction groundwork should be as follows:-

1. Evaluation by machine-cut prospection trenching laid out across the probable location of the drift deposits within the impact areas to determine the presence or absence of any relevant deposits or features. The deposits may occur at considerable depth and a pilot programme of boreholes is suggested.
2. Assessment by report detailing the results of the evaluation and desk-study. Should the presence of archaeological remains be proven the report should include information on the location, extent, depth, character, and date of the resource. It should also provide a further assessment of the effects of any identifiable impacts, the importance of the resource, and recommend a mitigation strategy. The latter should include a programme for further archaeological works if necessary and make adequate provision for post-excavation studies and publication.

Should the presence of relevant deposits or features be proven, preservation *in situ* remains a viable mitigation option depending upon their depth, extent, state of preservation, date, type and importance.

This may be achieved by non-archaeological mitigation as described above for similar deposits in the vicinity of the A2/A282 Interchange.

5.3.2 *Western Section*

1. *North-West of the A2/A282 Interchange*

The possible area of prehistoric settlement and other palaeo-environmental deposits and features to the east of the Darent Road (*Survey Fields 26-28*) may be ranked as of local/regional importance which may be enhanced by being related to, or forming part of, the same focus of settlement on the west side of the road (*Appendix 1 nos 1-4*).

Much of the resource in the area has previously been lost and preservation by record of any remaining elements is the appropriate mitigatory action.

In the first instance the following archaeological mitigatory action should be undertaken prior to any construction groundwork as follows:-

1. Evaluation by machine-cut prospection trenching laid out in a linear pattern down the centre line of the impact corridor and on its west side where it abuts the Darent Road. This should be undertaken to determine the presence or absence of any relevant deposits or features and to determine their extent, state of preservation, date, type and importance. This would provide an efficient means of early evaluation in an area where the depth and range of types of deposits and features is known.

2. Assessment by report detailing the results of the evaluation and desk-study. Should the presence of archaeological remains be proven the report should include information on the location, extent, depth, character, and date of the resource. It should also provide a further assessment of the effects of any identifiable impacts, the importance of the resource and recommend a mitigation strategy. The latter should include a programme for further archaeological works if necessary and make adequate provision for post-excavation studies and publication.

Should the presence of relevant deposits of features be proven, preservation *in situ* remains a viable mitigation option depending upon their depth, extent, state of preservation, date, type and importance.

This may be achieved by non-archaeological mitigation as described above for similar deposits south-east of the A2/A282 Interchange.

The deposits may also be protected by the raising of any new road construction and the use of embankments.

2. *Darenth Road and Environs*

Of the medieval and two early post-medieval industrial sites identified that situated east of Brooklands and just south of Princes Road (*Appendix I nos. 13 and 21-22*) (*Survey Parcel 40*) is of local/regional importance (*Figure 1*).

The site has been successively occupied by a thirteenth century fulling mill, a sixteenth century paper mill, reputed to be the earliest manufactory in England, and a gunpowder mill.

The charcoal and saltpetre works (*Appendix I no. 23*) (*Survey Area 32A*) are of local importance but taken together with the other industrial sites in the locality should be ranked as having a group value of local/regional importance (*Figure 1*).

The significance of the remains is enhanced by being representative of once locally important industries, and that they can be directly related to documentary sources.

Preservation *in situ* is then the preferred mitigation option for the gunpowder mills and preservation by record of the charcoal and saltpetre works.

In the case of the latter site the appropriate initial mitigatory action should be as follows:-

1. Evaluation by measured field survey, photographic record and documentary studies of the former extent and present survival of the workings. This should include any necessary building recording and be undertaken for the purpose of identifying the range and type of remains surviving, their degree of importance and their heritage group value. Such an inter-disciplinary approach would provide an effective first stage of assessment.
2. Evaluation by machine-cut prospection trenches, and, if necessary, by hand clearance and excavation, to determine the presence or absence of any buried deposit, features or structures, their depth, date and state of preservation.

3. Assessment by report, including documentary research, detailing the results of the evaluation and desk-study. Should the presence of archaeological remains be proven the report should include information on the location, extent, depth, character and date of the resource. It should also provide a further assessment of the effects of any identifiable impacts, the importance of the resource, and recommend a mitigation strategy. The latter should include a programme for further archaeological works if necessary and make adequate provision for post-excavation studies and publication.

The site of the building (*Appendix I no. 23*) (*Survey Parcel 33*) (*Figure 1*), extant in 1837, on the opposite side of the works is of local importance and should be included in the above mitigatory evaluation strategy.

5.4 Historic Buildings Mitigation Options

5.4.1 *Western Section*

1. *Darenth Road and Environs*

The two industrial works buildings (*Appendix II nos. 33-34*) (*Figure 1*), extant in 1837 and situated within the charcoal and saltpetre works previously described (*Survey Area 32A*) are of local importance.

Their importance is enhanced by the same factors given above for the works themselves and again preservation by record is the recommended mitigation option.

This should form part of the same action undertaken on the same site for the archaeological resource and prior to any construction groundwork.

5.5 Historic Landscape Mitigation Options

5.5.1 *Eastern Section*

1. *Darenth and Ladies Woods*

Within their present landscape setting (*Survey Parcel 6*) these tracts of coppice woodland are regionally important relict medieval landscape features representative of the local management and use of the North Downs during the period.

Their importance is enhanced by Darenth Wood containing within it an enclosure and extant associated earthworks of mid to later thirteenth century date (*Appendix I no. 12*) which can also be directly related to surviving documentary sources (*Figures 1 and 3*).

Darenth Wood and Ladies Wood are also classified as ancient semi-natural woodland, that is, woodland that has been in existence since the medieval period (*circa 1600*), and now bearing stands of native trees which have not been obviously planted.

It is likely also that Darenth Wood is much earlier and was extant in the Roman and early medieval periods.

Preservation *in situ* of the medieval enclosures is largely assured by its scheduled ancient monument status (*Kent no. 320*).

In addition any potential impact is likely to be minimised provided the present road improvements are confined within the existing land take.

5.5.2 Western Section

1. *Darenth Road and Environs*

The preservation by record of the historic landscape setting of the medieval road ((*Appendix 1 no. 20*), now represented by the Darenth Road, of local importance, is the preferred mitigation option (*Figure 1*).

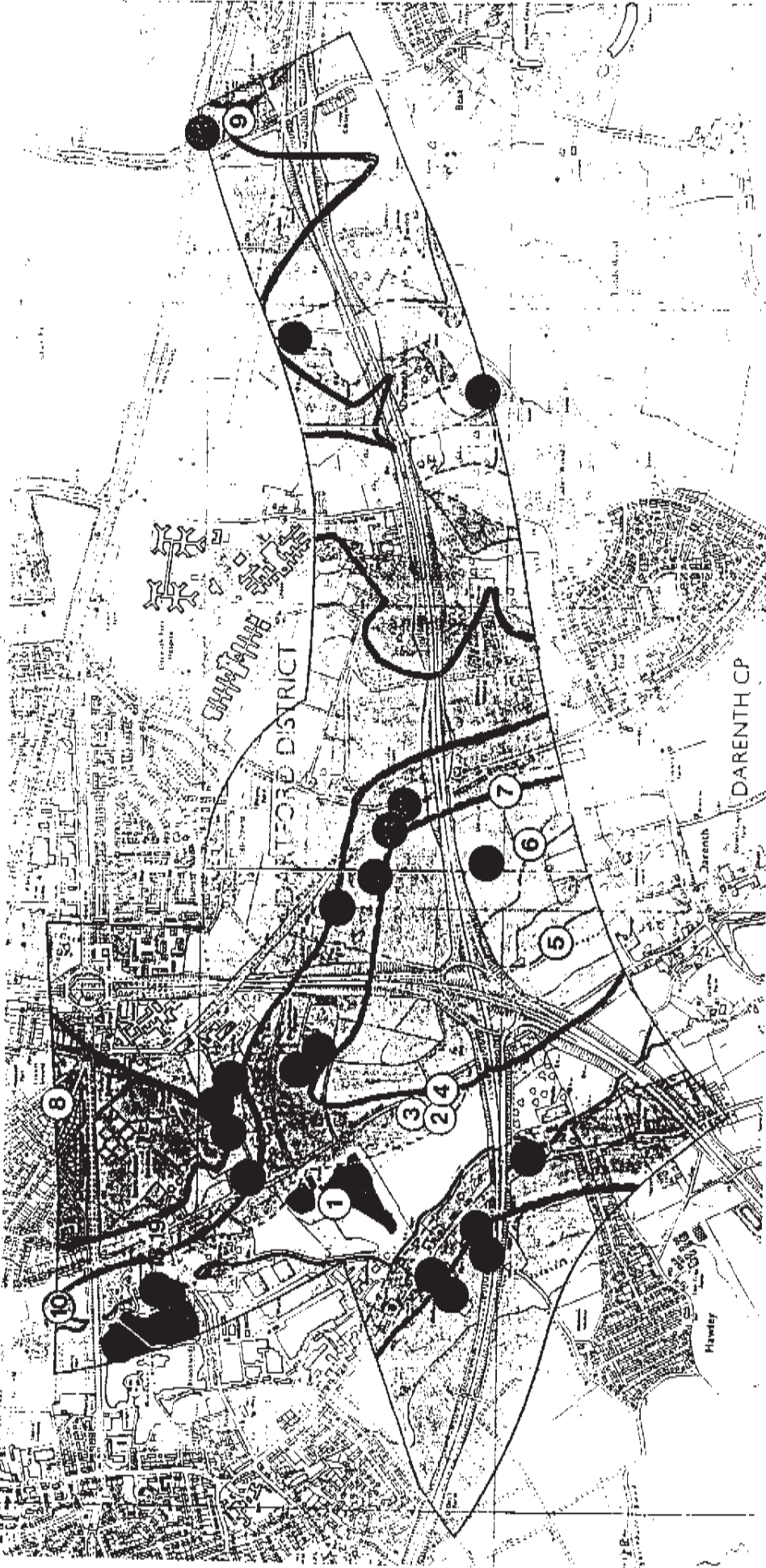
Initial mitigatory action should include a field photographic survey of its route preserving by record the visual aspect of the road prior to any improvements.

















An historical ecology survey may also be appropriate.

In addition archaeological evaluation, by field survey and excavation, of roadside ditches and banks may be undertaken at selected locations to obtain a record of the routes construction date and development.

Plan 1 Archaeological Sites and Finds in Relation to Solid and Drift Geology

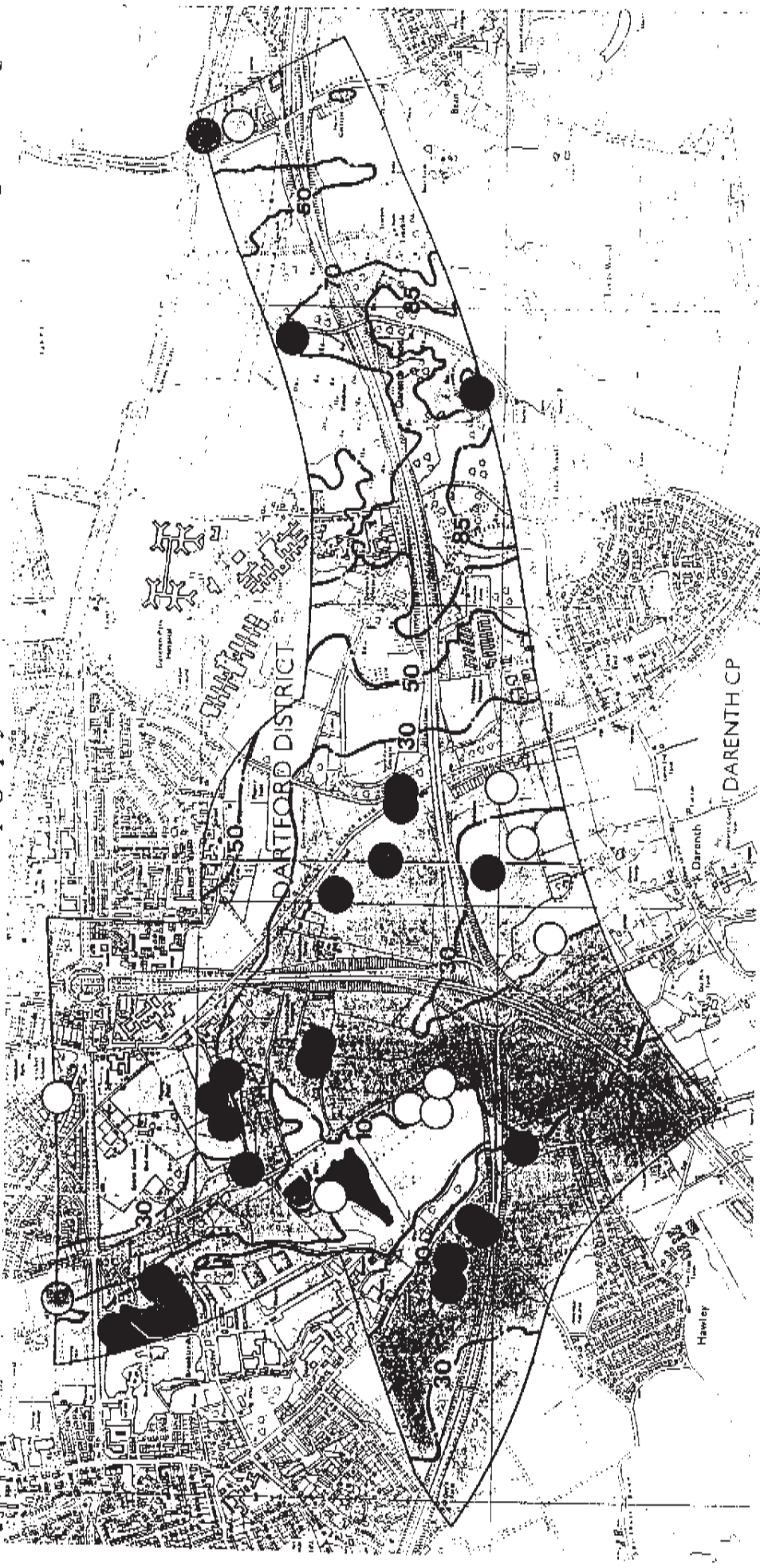
Part Sheets TQ 57SE and TQ 57SW



		<p>ARCHAEOLOGY</p> <ul style="list-style-type: none">  PREHISTORIC SITES AND FINDS  ROMAN SITES AND FINDS  EARLY MEDIEVAL FINDS  MEDIEVAL FINDS  POST-MEDIEVAL SITES 		<p>DRIFT GEOLOGY</p> <ul style="list-style-type: none">  PLATEAU GRAVEL  HEAD  RIVER TERRACES  BOYTH-HILL GRAVEL  UNDEMBED AND FLOOD PLAIN GRAVEL  ALLUVIUM 		<p>SOLID GEOLOGY</p> <ul style="list-style-type: none">  UPPER CHALK (white chalk with bands of lines)  THAMET BEDS (sands)  WOOLWICH BEDS (clays, sands and loams) 		<p>HIGHWAYS AGENCY</p>  <p>Kent County Council HIGHWAYS & TRANSPORTATION</p> <p>KENT PROPERTY SERVICES L.A.S.S. & P.E.</p> <p>Business Unit 10 Parsloes, Sturveson</p>		<p>PROJECT TITLE A2 / A282 DARTFORD IMPROVEMENTS</p> <p>DRAWING TITLE HERITAGE AND ARCHAEOLOGY</p> <table border="1"> <tr> <td>DATE</td> <td>1/11/01</td> <td>DATE</td> <td>NOV 93</td> </tr> <tr> <td>CHKD BY</td> <td>JIT</td> <td>DATE</td> <td>NOV 93</td> </tr> <tr> <td>PRIN:</td> <td>NOV 93</td> <td>DATE</td> <td>NOV 93</td> </tr> </table> <p>SCALE: 1:10,000</p> <p>FIGURE 4.1</p>		DATE	1/11/01	DATE	NOV 93	CHKD BY	JIT	DATE	NOV 93	PRIN:	NOV 93	DATE	NOV 93
DATE	1/11/01	DATE	NOV 93																				
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PRIN:	NOV 93	DATE	NOV 93																				

Plan II Archaeological Sites and Finds in Relation to Topography

Part Sheets IQ 5 SE and IQ 5 SW



- PRE-HISTORIC SITES AND FINDS
- ROMAN SITES AND FINDS
- EARLY MEDIEVAL FINDS
- MEDIEVAL SITES
- POST MEDIEVAL SITES

CONTOUR HEIGHTS IN METRES



HIGHWAYS AGENCY

Kent County Council
HIGHWAYS & TRANSPORTATION

HERITAGE AND ARCHAEOLOGY

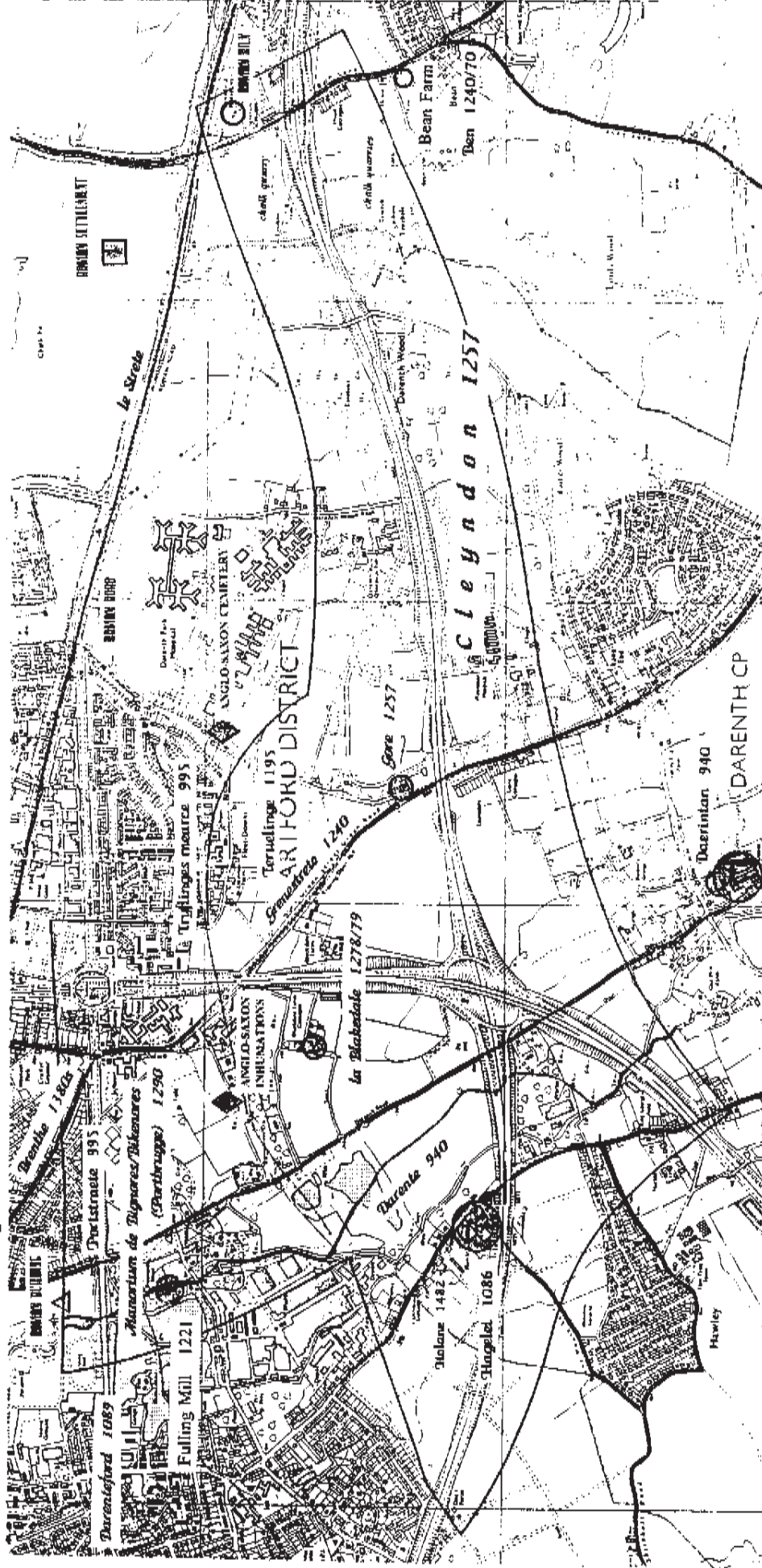
LAST PROPERTY REGISTERED FOR THE PARISH OF DARTFORD

3, Brunton Lane, 11th Floor, Dartford, Kent, DA11 7JF

PROJECT TITLE		A2 / A282 DARTFORD IMPROVEMENTS	
DRAWING TITLE		HERITAGE AND ARCHAEOLOGY	
DESIGNED BY	DATE	ISSUED BY	DATE
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DATE	NOV 91	DATE	NOV 91
NOV 91	NOV 91	NOV 91	NOV 91
DRAWING NO		FIGURE 4.2	
K.C.C.		K.C.C.	

Plan III Medieval Landscape

Part Sheets **TQ 57SE** and **TQ 57SW**



HIGHWAYS AGENCY

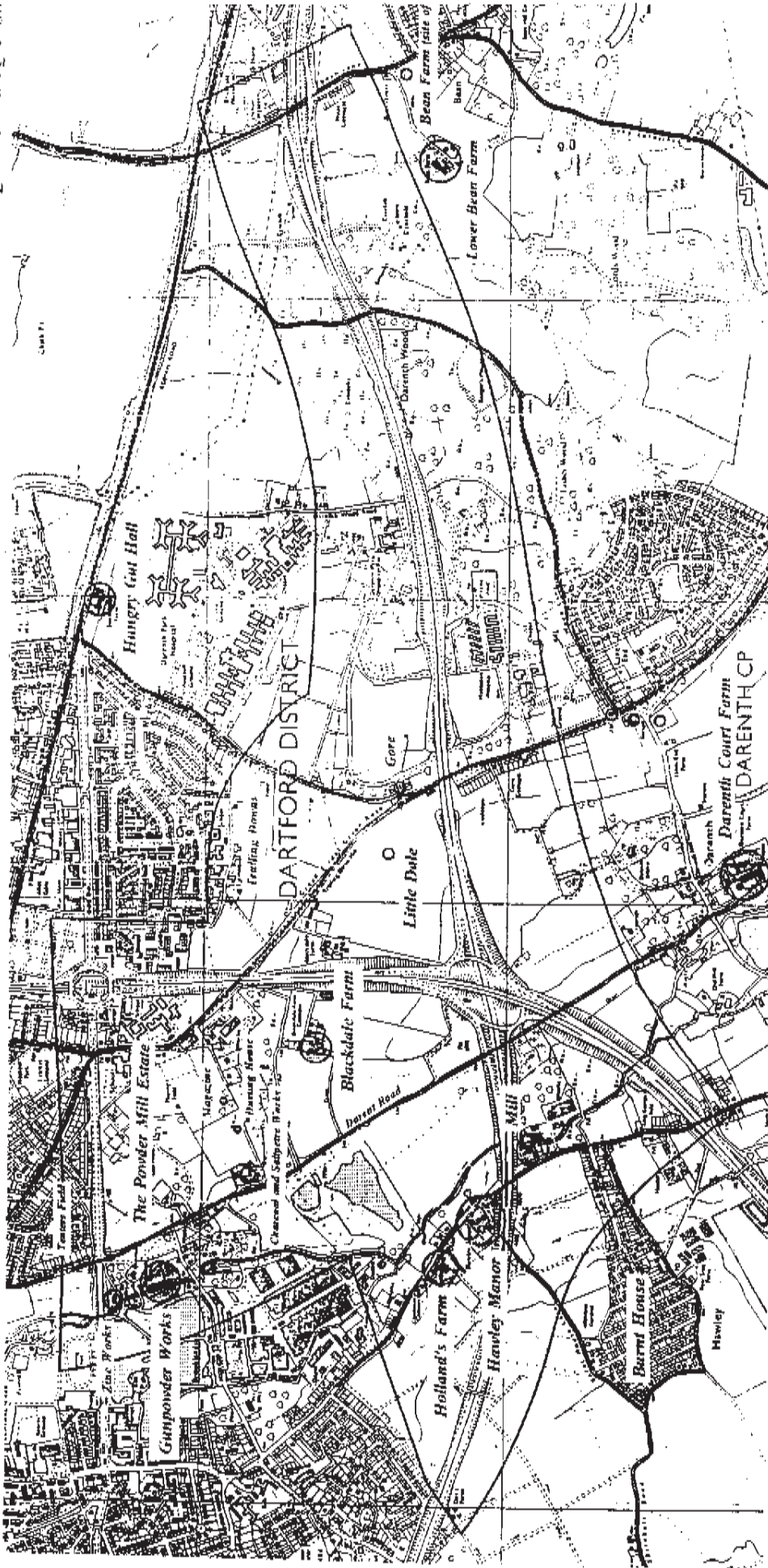
Kent County Council
HIGHWAYS & TRANSPORTATION

KENT PROPERTY SERVICES
LANDSCAPE

PROJECT TITLE		A2 / A282 DARTFORD IMPROVEMENTS	
DRAWING TITLE		HERITAGE AND ARCHAEOLOGY	
DESIGNED BY	DATE	CHECKED BY	DATE
DRN	10/01/01	DRN	10/01/01
DRAWING NO.		DRAWING 38	
SCALE		FIGURE 4.3	
REV		REV	

Plan V Post Medieval Landscape

Part Sheets TQ 57SE and TQ 57SH





Kent County Council
HERITAGE & TRANSPORTATION

HIGHWAYS AGENCY

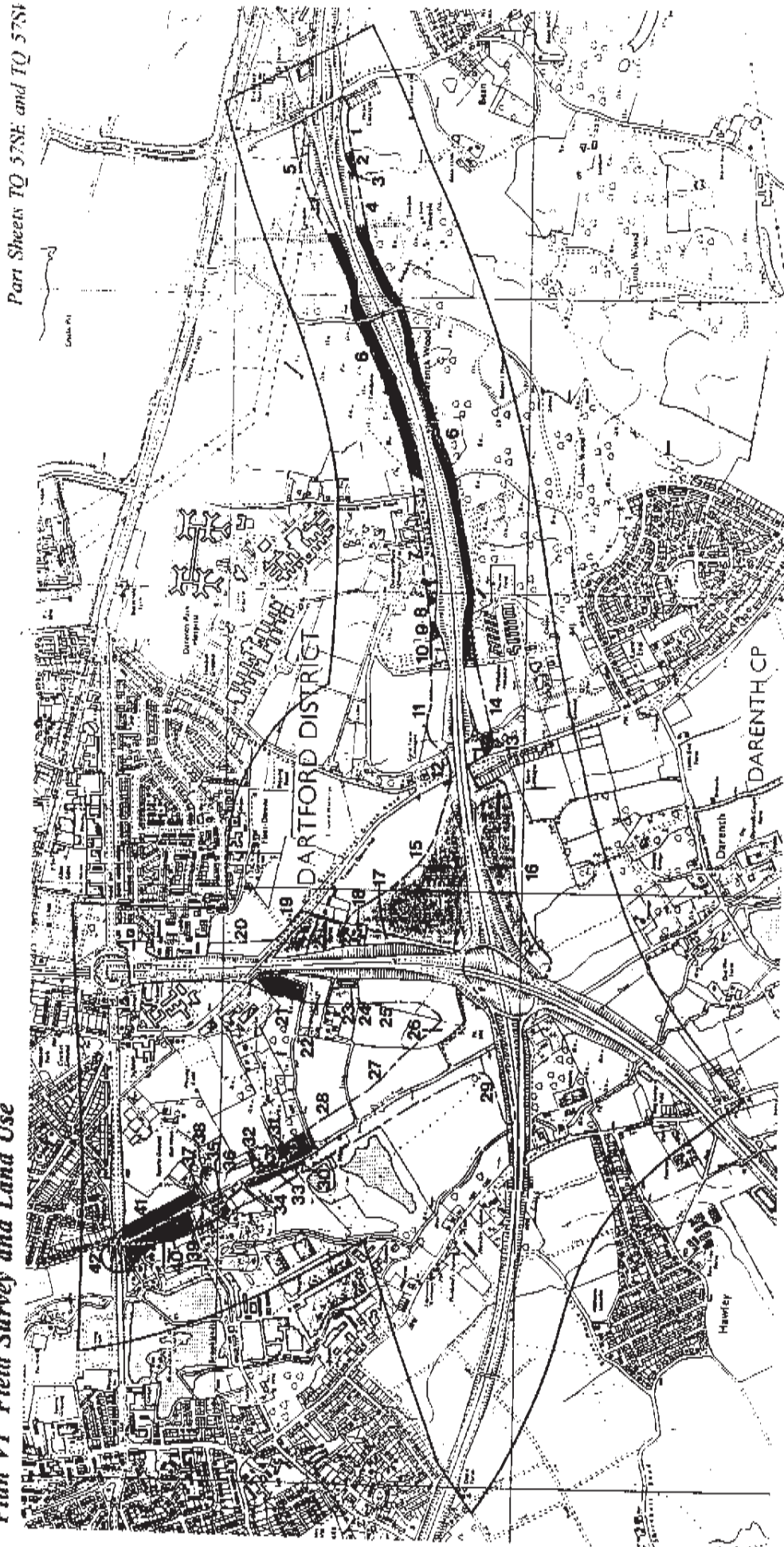
PROJECT TITLE: **A2 / A282 DARTFORD IMPROVEMENTS**

DRAWING TITLE: **HERITAGE AND ARCHAEOLOGY**

DATE	BY	DATE	BY
2008	NEWBY	2008	NEWBY





DRAWING NO: **FIGURE 4.5**

Plan VI Field Survey and Land Use



Part Sheets TQ 57SE and TQ 57SW

- LAND USE**
-  ARABLE
 -  PASTURE
 -  WOODLAND
 -  WASTE
 -  MADE GROUND (obscuring the natural landscape, including quarries and former gravel quarries, and modern industrial sites)

- SURVEY**
-  STUDY AREA
 -  SURVEY AREA
 -  5 SURVEY NUMBER
 -  ALIGNMENT OF MINOR ROADS SHOWN IN RED

HIGHWAYS AGENCY



HIGHWAYS AGENCY

AGENT PROPERTY SERVICES LANDSCAPE

5. Boxes Plan or Proposed Services

PROJECT TITLE
A2 / A282 DARTFORD IMPROVEMENTS

DRAWING TITLE
HERITAGE AND ARCHAEOLOGY

DATE	BY	DATE	BY
NOV 93	100	NOV 93	

FIGURE 4.6

Appendix I

Gazetteer of Recorded Archaeological Monuments, Sites and
Finds with Notices of Historic Landscape Interest

Assessment Nr 1
Study Corridor
Darent Valley Link
Western Section

Darenth CP
Mesolithic Axe-Head
Wilmington Gravel Pits
at TQ 55027255

Period/Date: Prehistoric, Mesolithic, *circa* 8500-4250 B.C.

Description: A chipped flint implement, an axe-head generically termed a Thames Pick, was recovered during dredging of a ballast pit (gravel quarrying) belonging to Messrs G Clubb Limited of Darenth in 1956. The implement was stained orange-red. Two portions of a mammoth tusk found at the same time are in Dartford Museum. The axe-head has been retained by the finder.

References: Manuscript in Dartford Museum entitled *Dartford 571 Prehistoric Archaeology* [being notes by J N Carrick]; Dartford Museum Donations File; RCHME/NMR NAR/TQ57SE67 [and authorities cited therein].

Assessment Nr 2
Study Corridor
Darent Valley Link
Western Section

Darenth CP
Late Mesolithic to Iron Age Settlement
Wilmington Gravel Pits
centred TQ 55407220

Period/Date: Prehistoric, late Mesolithic to Iron Age, *circa* 4500-600/200 B.C.

1. *Description:* Late Mesolithic to early Neolithic settlement and artifacts. Archaeological material was first noted at this location in January 1975, and excavations were undertaken by the Kent Archaeological Rescue Unit from April 1975, with the last quarter of the site being destroyed by gravel extraction by November 1975.

Following topsoil stripping (*Assessment Nr 3*) the site comprised a broad natural lake infilled with organic material, mostly peat, laid down in the late Mesolithic to early Neolithic periods, and thereafter remaining waterlogged. Palaeo-environmental finds recovered from these deposits included seeds, pollen, nuts, wood, plants and insects. Charcoal samples were taken for C¹⁴ age estimations, the results of which have not been published. It is not known whether deposits were bulk sampled for environmental assessment.

Archaeological finds recovered comprised some 16000 plus artifacts, including a flint industry, some with Mesolithic affinities including three axe-heads and one pick; early Neolithic pottery; and a saddle quern. All of these finds are indicative of an extensive settlement.

References: Mynot 1976, 60-61 [notice of discovery and excavations with bw photograph of excavations in progress]; RCHME/NMR NAR/TQ57SE98 [and authorities cited therein].

2. *Description:* Iron Age settlement and artifacts. A second year of rescue archaeological excavations were undertaken by the Kent Archaeological Rescue Unit during 1977.

These revealed an area of Iron Age occupation to the south of the peat-filled lake first recorded during 1975. Features recorded included pits, post-holes, posted structures, and small quarries, all containing finds of Iron Age date.

References: Philp 1978, 448 [summary report on excavations]; RCHME/NMR NAR/TQ57SE98 [and authorities cited therein].

3. *Description:* Neolithic and Iron Age settlement and artifacts. A third year of rescue archaeological excavations were undertaken by the Kent Archaeological Rescue Unit in 1978.

At the extreme southern limit of the gravel quarry, a small group of pits and post-holes containing pottery and bone of Iron Age date were recorded. On the north-eastern end of the gravel quarry a series of silt deposits produced a large number of flint flakes.

There were not traces of Neolithic or Iron Age material in a new large gravel pit situated on the west bank of the river Darent.

References: Philp 1979, 333 [summary report on excavations]; RCHME/NMR NAR/TQ57SE98 [and authorities cited therein].

Assessment Nr 3
Study Corridor
Darent Valley Link
Western Section

Darent CP
Late Neolithic to Early Bronze Age Axe-Head
Wilmington Gravel Pits
centred TO 55307230

Period/Date: Prehistoric, late Mesolithic to Iron Age, circa 4500-600/200 B.C.

Description: A polished flint axe-head was recovered during topsoil stripping, prior to gravel extraction, of an area adjacent to the prehistoric peat-filled lake excavated during 1975 (*Assessment Nr 2*). The axe-head was recovered with peat adhering to it, and possibly came from the upper peat deposits of late Neolithic date. The petrology indicates that there is a strong probability that the axe-head originally came from south-west England.

References: Philp 1981, 102-103 [report with line drawing]; Council for British Archaeology Implement Petrology Catalogue Kent Nr 52; KARU Nr WGP-214; RCHME/NMR NAR/TQ 57SE96 [and authorities cited therein].

Assessment Nr 4
Study Corridor
Darent Valley Link
Western Section

Darent CP
Prehistoric Settlement
Wilmington Gravel Pits
centred TQ 55307220

Period/Date: Prehistoric.

Description: Flint implements and other finds and features indicative of a prehistoric settlement have been recorded as a result of archaeological investigations by the Kent Archaeological Rescue Unit but no summary report or other details have been published.

Reference: RCHME/NMR NAR/TQ57SE119 [and authorities cited therein].

Assessment Nr 5
Impact Areas
Public Consultation Scheme
Preferred Route
Central Section

Darenth CP
Bronze Age to Iron Age Settlement
south-east of A2/A282 Interchange
at TQ 71805590

Period/Date: Prehistoric, Bronze Age to Iron Age, circa 2000-600/200 B.C.

Description: Bronze Age to Iron settlement and artifacts. Rescue archaeological excavations were undertaken by the Kent Archaeological Rescue Unit between July and August 1989 following topsoil stripping prior to quarrying.

Archaeological features were cut into bedrock chalk, extended over a wide area of at least 95m by 70m and included fourteen pits of which six produced pottery representing at least three vessels of Bronze Age or Iron Age date and struck flint artifacts; and seven post-holes, of which one contained two struck flint flake artifacts and fire-cracked flint.

The marked slope across the site and the shallow overlying topsoil, suggests that the features had been truncated by previous agricultural activities, notably ploughing, by as much as 10 to 30cms and that only their shallow bases had survived this erosion of archaeological horizons. No regular pattern of pits or post-holes was detected and no related ditches or gullies recorded.

The features, however, are indicative of a settlement of which further elements may be preserved to the east.

The site lay in the south-east corner of a large contiguous area, devoid of any archaeological remains, abutting the south-east corner of the A2/A282 Interchange which has since been quarried for chalk for roadwork construction, backfilled and the ground reinstated.

Reference: Philp and Garrod 1992, 225-229 [interim report on excavations with site location plan, table of features recorded, section through shaft and pottery drawings].

Assessment Nr 6
Study Area

Darenth CP
Air Photograph - Ring Ditch
west of Littledale
at TQ 56207192

Period/Date: Undated but possibly of prehistoric/Bronze Age date.

Description: Circular shadow or crop-mark visible on an air photograph, interpreted as an archaeological feature, perhaps representing the ring-ditch, now infilled, of a former burial mound, now levelled.

References: Air Photograph SJAP12; KARU Record Card D42; RCHME/NMR NAR/TQ57SE111.

Assessment Nr 7
Study Area

Darenth CP
Air Photograph - Ring Ditch
west of Littledale
at TQ 56407200

Period/Date: Undated but possibly of prehistoric/Bronze Age date.

Description: Circular shadow or crop-mark visible on an air photograph, interpreted as an archaeological feature, perhaps representing the ring-ditch, now infilled, of a former burial mound, now levelled.

References: Air Photograph SJAP12; KARU Record Card D42; RCHME/NMR NAR/TQ57SE112.

Assessment Nr 8
Study Area

Dartford CP
Earthen Mounds
Hesketh Park, Dartford
at TQ 55337347

Period/Date: Undated but possibly of prehistoric/Bronze Age date.

Description: Earthen mounds, now levelled, were extant on the North Downs at Dartford Brent, now represented in part by Hesketh Park, from the late 18th century. The national grid reference given is that cited in NAR/TQ57SE23.

In the late 1790's the same, or another group, of earthen burial mounds (at about TQ 5207330) were described as follows "*At a small distance southward from the Roman-road on the Brent, close to the road to Greensted-green, are three small barrows [burial mounds], which seem to have been plundered of their contents.*" (Hasted 1797 II, 292).

In 1889 the mounds were noted as "*Several tumuli once existed on Dartford Brent*" and mapped as "*Tumuli [burial mounds] 'Teutonic?'*" (Spurrell 1889, 306-308).

These earthen mounds were located just north of the site of some early medieval inhumation burials (*Assessment Nr 11*) discovered in 1818, and with which they may be connected.

References: Hasted 1797 II, 292 [description]; Spurrell 1889, 306-307 [map and key site 31], 308 [note]; RCHME/NMR NAR/TQ57SE23 [and authorities cited therein].

Assessment Nr 9
Study Area

Stone-next-Dartford CP
Roman Settlement/Industrial Site
Brickfield Nurseries, Stone Wood
centred at TQ 58607290

Period/Date: Late Iron Age/early Roman, *circa* 50-200, mid 1st to late 2nd century.

Description: Roman settlement and/or industrial site. Salvage excavations by W B Peake in 1918 recorded two pits containing pottery, one possibly a kiln.

The features recorded comprised one pit approximately 50 ins in diameter and 30 ins deep lined with flint modulus which showed the effects of fire. The backfill included Roman pottery. A second pit was located 42 ft to the south-south-east and comprised an outer circle of stones about 8 ft in diameter with an inner circle 3 ft in diameter at a depth of 30 ins. There was no trace of fire but similar Roman pottery was found in the backfill.

A possible industrial site abutting the former alignment of the Roman *via strata*, now represented by Watling Street.

In 1918 the area was known as *Branton's Brickfield* and subject to quarrying. The area is now waste ground with adjacent cottages and a nursery.

Reference: Peake 1919; Jessup 1932, 131 item (8) and footnote 30; Jessup and Taylor 1932, 168; RCHME/NMR NAR/TQ57SE32.

Assessment Nr 10
Study Area

Stone-next-Dartford CP
Roman Building
Tenters Field, Dartford
centred at TO 54647345

Period/Date: Early to mid Roman, *circa* 250-350, mid 3rd to mid 4th century.

Description: Excavations in about 1895 roughly exposed the foundations of a building in Tenter's Field, Dartford on the east bank of the river Darent valley. There is no contemporary account of the excavations.

The foundations were noted as situated as being "*Between Darent and Dartford, on either side of the public footpath opposite the Powder Works of Messrs. Pigou & Co. foundations of Roman buildings have recently been exposed to view and they may be traced during dry seasons in the corn over a wide area*" (Payne 1897, 50).

The building was partially re-excavated by the Dartford District Archaeological Group in June 1979 when the remains comprised the eastern wing and parts of the central section of a villa (farm) type building comprising store rooms, kitchen and a room with an *opus signinum* floor.

Associated stratified finds of pottery, glass, tile, metalwork were recovered. The building appears to have been demolished some time between *circa* 250-300.

The west wing of the building presumably originally extended westwards down the slope to the river Darent an area which has been subject to erosion.

The site was previously given over to allotments, since 1979 has been put down to grass and is presently in use as a sports field.

References: Payne 1897, 50 [notice of discovery in 1895]; Redshaw 1911, 19; Keyes 1933, 625 [notice of discovery with bw photograph of foundations exposed in 1895]; *Dartford District Archaeological Group Newsletter* 4 (1974); Anonymous 1980, 214 [notice of excavations citing *Kentish Times* 9 August 1979]; Baker 1984, 289 [notice of excavations]; Anonymous 1986, 7-9 [interim report with site plan, re-construction elevations and bw photographs showing foundations exposed *circa* 1895 and excavations in progress during 1979]; Manuscript in Dartford Public Library entitled *Archaeology Roman* [with bw photograph of foundations exposed in 1895]; RCHME/NMR NAR/TQ57SW11 [and authorities cited therein].

Assessment Nr 11
Study Area

Dartford CP
Early Medieval Inhumations
north-west of Blackdale Farm Cottages
National Grid Reference Variable

Period/Date: Early medieval, ? *circa* 550-650, mid 6th to mid 7th century.

Description: Inhumation burials represented by grave goods, including spearheads and a shield boss, were discovered in October 1818 during the construction of a powder magazine.

The earliest account of the circumstances of the discovery states that "*In October, 1818, upon digging for the foundation of a powder magazine, near Dartford, the workmen discovered three ancient spearheads, the umbo of a shield, a brass ring of about three inches in diameter, and a few beads, formed of a yellow composition - the spearheads were greatly corroded, the length of one was sixteen inches, another fifteen, and the third, only five and a half. There was also a smaller weapon, about three inches long, having apparently a hook attached.*" (Dunkin 1844, 307-308 footnote).

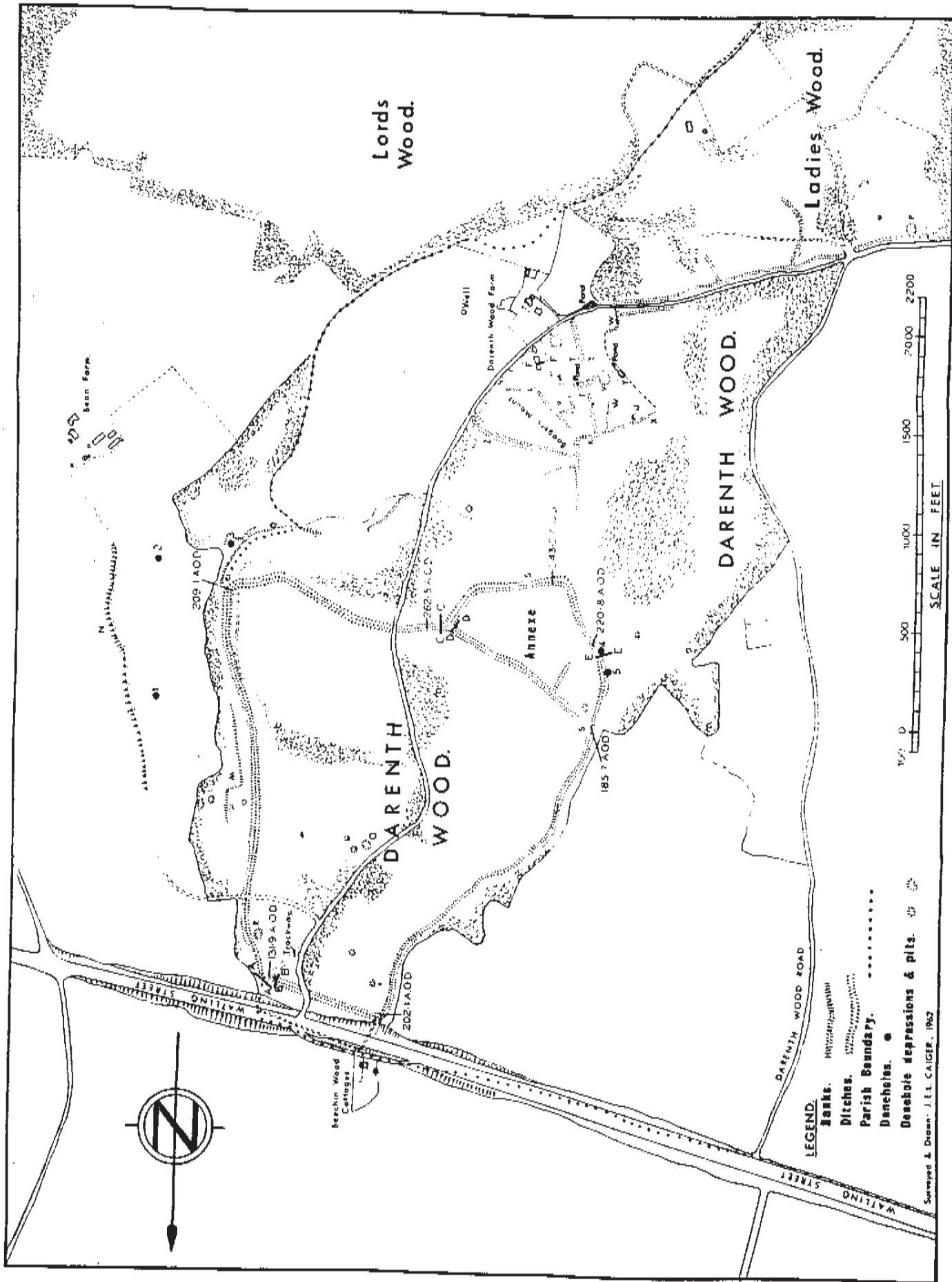
The site location given in NAR/TQ57SW37 is at TQ 54817297, on the former site of the Gunpowder Mills on the west bank of the river Darent, the entry incorrectly citing Spurrell 1889, 306-307 map and key site 34X which identifies *Burials. Teutonic* at this location, but this authority later states uncertainly that "*The earliest recorded [Saxon] remains are swords and relics apparently from graves in the powder works at Dartford.*" (Spurrell 1889, 314). Site 34 appears thus to refer to the Gunpowder Mills and is depicted by a solid circle on the map (Spurrell 1889, 306).

An alternative site location given in NAR/TQ57SE4 is at TQ 55077310 situated "*seven chains south-west of Bigiores, property of Major Pigou*", citing the Ordnance Survey Object Book of 1866. This agrees better with *Site 34X* given in NAR/TW57SW37. On the map produced by F J C Spurrell a small x is depicted centred on TQ 55057270, south-east of the Gunpowder Mills, on the west side of the Darent Road and just south-west of the Charcoal and Saltpetre Works.

A source more contemporary with the discovery, the 1841 Tithe Apportionment Plan for Darent Ecclesiastical Parish, depicts a powder magazine at TQ 55407292, a more probable location given that such a store would be situated at a safe distance from the main works.

This is also the approximate location (about TQ 55207307), though located some 200m to the north-west, labelled on the Ordnance Survey 1st edition 6 in. map of 1869 as "*Supposed Site of Saxon Cemetery*".

The full extent of burial has not ascertained but the finds may indicate the presence of a cemetery. Earthen burial mounds, considered to be prehistoric, have been noted just to the north and south of Hesketh Park (*Assessment Nr 8*) but they may equally have been early medieval in date.



Bean Farm.

N

208 1400

1319 400

202 1400

262 500

262 500

185 700

220 800

Lords Wood.

Ladies Wood.

DARENTH WOOD.

DARENTH WOOD.

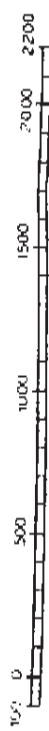
Annexe

Darent Wood Farm

Beechin Wood Cottages

DARENTH WOOD ROAD

WAITING STREET



LEGEND.

- Banks. [Symbol]
- Ditches. [Symbol]
- Parish Boundary. [Symbol]
- Deneholes. [Symbol]
- Denehole depressions & pits. [Symbol]

Surveyed & Drawn: J. E. L. CALGER, 1962

References: Dunkin 1844, 307-308 footnote; Spurrell 1889, 306-307 [map and key site 34] and 314 [notice]; Ordnance Survey 1/10560 (6") Map Kent Sheet IX 1st edition, published 1869; PRO/IR30/17/104 Ecclesiastical Parish of Darenth Tithe Apportionment Plan 1841; RCHME/NMR NAR/TQ57SE4 and NAR/TQ57SW37.

Assessment Nr 12
Impact Area
All Route Options
Eastern Section

Darenth CP
Medieval Enclosure and Earthworks
Darenth Wood
centred at TQ 57907270

Period/Date: Medieval, *circa* 1200-1250, early to mid 13th century.

Archaeological Description: A large irregularly shaped enclosure of 2000m circumference bounded by earthen banks 5m wide and 1m high with outer ditches 30m wide and 30cms deep is situated within Darenth Wood.

At the south-western end an annexe is similarly enclosed by banks and ditches.

A former extension at the northern end towards the line of Watling Street has previously been destroyed by road widening in 1921.

The enclosure and associated earthworks were first surveyed and recorded in detail on the Ordnance Survey 2nd edition 6 in. map of 1907. The earthworks, however, had been noted much earlier in the late 1790's by the Kentish historian Edward Hasted, who stated that "*there is a fortification thrown up in the wood*" and described them as "*The remains of a camp and fortifications thrown up in ancient times, but now so overgrown with wood and rubbish as to be impenetrable*" (Hasted 1797 II, 369 and 384).

Later accounts are equally vague, in the late 1880's "*camps and enclosures*" were noted as being present in Darenth Wood in three distinct places (Spurrell 1889, 306) with the earthworks being described as "*some sort of defensive work*" which was *obscure*" (Chalkley Gould 1908, 394).

Archaeological field survey and excavations were undertaken by J E L Caiger for the Ministry of Public Buildings and Works in 1962 and 1963 prior to the construction of the present A2.

A new 1/2500 ground survey of Darenth Wood and parts of Ladies Wood was carried out, plotting the remains of the earthworks defining the main medieval enclosure within Darenth Wood, the subsidiary south-western annexe, the surviving portions of the previously destroyed north-eastern annexe, the positions of numerous medieval and late denchols or chalk mines, and a number of lesser medieval enclosures and associated field banks (Caiger 1964, 78-79 figure 1).

Excavations were also undertaken at the same time at selected locations. Pottery recovered from below the eastern earthen bank indicating that the earthworks were thrown up in the period between *circa* 1200-1250.

Tenorial History: Darenth Wood presumably formed part of the manorial demesne of Darenth from at least the 11th century. In 1086 Archbishop Lanfranc of Canterbury held the manor of Darenth (*Domesday Book* ed. Morgan 1983, 2/3), and it continued to form part of the archbishopric estates until 1195 when Archbishop Hubert Walter of Canterbury exchanged it with the Prior of St Andrew, Rochester for the manor of Lambeth (Pearman 1918, 136).

A royal grant of free warren in the demesne of Darenth was made by Edward I to the Prior and Convent of St Andrew, Rochester in 1294 and presumably Darenth Wood also formed part of this grant. Darenth manor continued in the possession of the Prior and Convent of St Andrew, Rochester until the Dissolution.

Following the Dissolution, the manor of Darenth and its lands were confirmed to the newly-constituted Dean and Chapter of Rochester, and from 1538 the property was leased out to a succession of tenants. A series of leases have been preserved for the period from 1537/38 until the 19th century, the earliest deed, referring to *Darentwood* stating that "*Prior of Rochester to Henry (Gent.) to the sum of 20 marks (down payment) all their woodland and underwood in Darent Wood for 22 years yielding and paying for the premises 40 shillings per annum*" (CKS/Archives of the Dean and Chapter of Rochester Cathedral/T60/23).

These deeds also show that the manor of Darenth was leased in 1640 to the daughter of William, lord Harvey, and remained with this family until the mid 18th century when George, earl of Bristol, sold his interest in it to William Fawcett. In 1649 a survey of the manor, including Darenth Wood, was made by order of Parliament when it was valued at £169.13s.6d per annum (Hasted 1797 II, 372).

In 1788 a Mr Christopher Chapman became the lessee and the property remained with this family until the late 19th century.

From 1865 the land and property of the Dean and Chapter of Rochester, including the manor of Darenth and Darenth Wood, was vested in the Ecclesiastical Commissioners.

The ownership of the sub-estate called *Cleyndon* between temp. Edward III and 1691 is given in Hasted (1797 II, 375-376).

*Historic
Landscape
Description:*

The enclosure occupies the top and sides of a gravel-capped chalk ridge and is situated on the extreme edge of Darenth parish on marginal land, the parish boundary following, or is followed by, the eastern bank and ditch.

The area was probably named *Cleidon* in 1199 and *Cleyndon* in 1251 and 1257 (OE *Clægig(an) dune* - "clayey down") (Wallenberg 1934, 38).

The enclosure was presumably a park enclosing a valuable piece of detached coppice woodland, the outer ditch suggesting a need to exclude livestock (Caiger 1964, 84-85).

The medieval and post-medieval tenurial history has been outlined above. By the mid 19th century certain parts of Darenth Wood had been sold off to private individuals. This included the parcel known as Badger's Mount (*Assessment Nr 31*).

The 1840-41 Tithe Apportionment Award and Plan for Darenth Ecclesiastical Parish indicates that five such areas had been sold off by the mid 19th century.

References:

Hasted 1797 II, 369, 372, 375-376 and 384; Spurrell 1889, 306-307 [map and key site 39]; Chalkley Gould 1908, 394; Pearman 1918, 136; Wallenberg 1934, 38; Caiger 1964, 77-91, figure 1 (plan of earthworks), p.82 figure 3 (pottery line drawings), figure 2 (sections across earthworks), figure 4 (section and plan of denehole) and plates I-III (bw photographs general view and sections and views of excavations through earthworks); Morgan 1983, 2/3; CKS/Archives of the Dean and Chapter of Rochester Cathedral/T60/23; CKS/CTR/109A-B Ecclesiastical Parish of Darenth Tithe Apportionment Award and Plan 1840-41; PRO/IR30/17/104(2) Ecclesiastical Parish of Darenth Altered Apportionment of Tithe Rentcharge, [Plan of] Darenth Wood, 21 February 1934; English Heritage Scheduled Ancient Monument Kent Nr 320; RCHME/NMR NAR/TQ57SE38 [and authorities cited therein].

Assessment Nr 13
Study Corridor
Darent Valley Link

Dartford CP
Medieval Fulling Mill
east of Brooklands, Dartford
about TQ 54807290

Period/Date: Medieval, circa 1325-1350, early to mid 13th century.

Historic Landscape Description: A fulling mill was located on the west bank of the river Darent at *Little Dartford* on a site later occupied by the Paper and Gunpowder Mills (*Assessment Nos 21-22*) at Powder Mill Lane.

A field name, *Tenter's Field*, located on the opposite east bank, probably indicates the location of the area used for the laying out and drying of the cloth produced.

Tenurial History: In the 1221 the mill belonged to the Knights Templars. A sizeable area, a *carucate* extending to between 60 and 180 acres, of the manor of Dartford, mainly to the east of Dartford, was granted to the Templars by Henry II in 1185.

When the Order was attained in 1301, the lands reverted to the crown and were later granted to the Prior of the Hospital of St John's at Jerusalem in 1323.

Reference: Patterson and Smith 1977b, 1 map and 2-12.

Assessment Nr 14
Impact Areas/Study Corridor
All Options

Dartford/Darent CP
Early Medieval to Medieval River System
Dartford/Darent
between TQ 55337170 and about TQ 54607330

Period/Date: Early medieval to post-medieval, circa 822-1300, early 9th to 13th century.

Historical Geographical Description: The river name *Diorente* is first recorded in a charter of 822 (from the British *Deruentio* - "oak river").

The parish name, derived from this major topographical feature, is recorded again in a charter of 940 as *Darente* and *Daerintan*, in other mid 10th century charters, and as *Tarent* in 1086 (*Domesday Book* ed. Morgan 1983, 2/3).

The river is referred to as "*in aquam de Derenwente*" in the 1292 Assize Rolls.

References: Birch. W. de Gray 1885-99, charter nos 370 and 747; Wallenberg 1931, 141-145 and 246; Ekwall 1928, 113; Sawyer 1968, charter nos 186 and 1210; Morgan 1983, 2/3.

Period/Date: Medieval to post-medieval, *circa* 1050-1550, mid 11th to mid 16th century and later.

Archaeological Description: In its post-medieval layout the manorial complex comprising a number of buildings and structures, some of statutory listed status, is located at Hawley Manor on the south side of Hawley Road. The site is extant but the main manorial building was gutted by fire in 1919.

Tenurial History: A major manorial centre was located at Hawley during the medieval period. It is first recorded in 1086, as *Hagelei*, (*Domesday Book* ed. Morgan 1983, 5/1). The same source records that *Hagelei* had been taken from the manor of Dartford (*Ibid.* ed. Morgan 1983, 1/1).

The ownership and descent of the manor of Hawley between 1086 and 1789, and of a subordinate manor, *Haw Sawters alias Sapters* from temp. Edward III is given in Hasted, who states that John Poulter was in possession of the house in 1485 and that later, from 1509 until 1603, it was owned by the Mayo family (1797 II, 353-357).

Sir Francis Leigh obtained possession of the house in 1695, and the family occupied the property until the mid 19th century (Caiger 1974, 33). The 1840 Tithe Apportionment Award and Plan for Sutton-at-Hone Ecclesiastical Parish records that the property was at that time in the ownership and occupation of Jane Leigh.

Architectural Description
(*Hawley Manor*):

The original house was rebuilt after a fire in 1650, and was again gutted by fire and mainly rebuilt in 1919. The main part of the building at the front is of *circa* 1919.

This is of two storeys, pebble-dashed and with red brick plinth. Half-hipped tiled roof with one four-light dormer. Projecting wing with tile hung gable having oval window at this end. Mullioned or mullioned and transomed windows. Quadrant turret in the angle of the main house and the projecting wing with flat roof and hipped tiled porch with oak posts and leaded lights.

Attached to the south-east is a two storey portion of *circa* 1855 of yellow brick having a stone pediment with brick infill, three sash windows and a rendered plinth.

Attached to this is a further wing known as the studio, again of *circa* 1855, of stock brick with a tile hung gable and wooden mullioned and transomed casement window.

The wing of *circa* 1855 and the studio were built for the Victorian painter Sir William Quiller Orchardson R.A. (1832-1910) who lived at Hawley Manor for many years.

The part of the house rebuilt in 1919 has on the first floor a fireplace of *circa* 1770 rescued from the older house, with engaged columns and medallions with a reclining female figure and two cherubs, one holding a globe, the other a telescope and books. The ground floor has a mid 19th century marble fireplace with a reclining woman and cherub and fruit in the corners.

Architectural Description (former Stables): Located to the south-west of Hawley Manor. Comprising one storey in red brick laid in an irregular bond. Old tiled roof. Cambered headed casements.

Architectural Description (The Old House): Location in the grounds of Hawley Manor to the north-west of the main manor building and formerly described as The Cottage. A curved brick gable to the north-east, in English bond, is of 18th century build. The rest of the house appears to be of late 19th century date though it may incorporate an earlier core. Two storeys. Ground floor rendered, first floor timber-framed with herring-bone brick nogging. Tiled roof with half-hipped gable having moulded bressumer. Diamond paned casements.

Architectural Description (Wall): Located to the north-west of The Old House and fronting the Hawley Road. Red brick wall of 18th century date, about 10 ft in height and laid in a Flemish bond.

[For an architectural description of the dovecote and adjoining wall, gate and gate piers situated within the grounds of Hawley Manor see: *Appendix II Assessment Nr 35*].

References: Hasted 1797 II, 353-357; Caiger 1974; *Transactions of the Dartford District Antiquarian Society* 3 (1933), 5; Morgan 1983, 5/1 and 1/1; DOE Listed Building Index District of Dartford (Sutton-at-Hone) 1975, 27-29; TQ57SW 3/73 (house), TQ57SW 3/74 (former stables), TQ57SW 3/77 (cottage) and TQ57SW 3/78 (wall); CKS Secondary Sources Card Index Pictorial Sources Darenth: Hawley Manor, circa 1910 (bw photograph); CKS/U2724-B3/361(1)-(3) [architectural drawings showing plans, sections and elevations of manor house, cottage and old kitchen quarters partly coloured denoting proposed alterations and additions. Dated 1920, 1921 and 1930]; CKS/CTR/358A-B Ecclesiastical Parish of Sutton-at-Hone Tithe Apportionment Award and Plan 31 October 1840.

Assessment Nr 16
Study Area

Sutton-at-Hone CP
Late Medieval to Post Medieval Settlement, Manor and Farm
Holland's Farm
centred TO 74807220

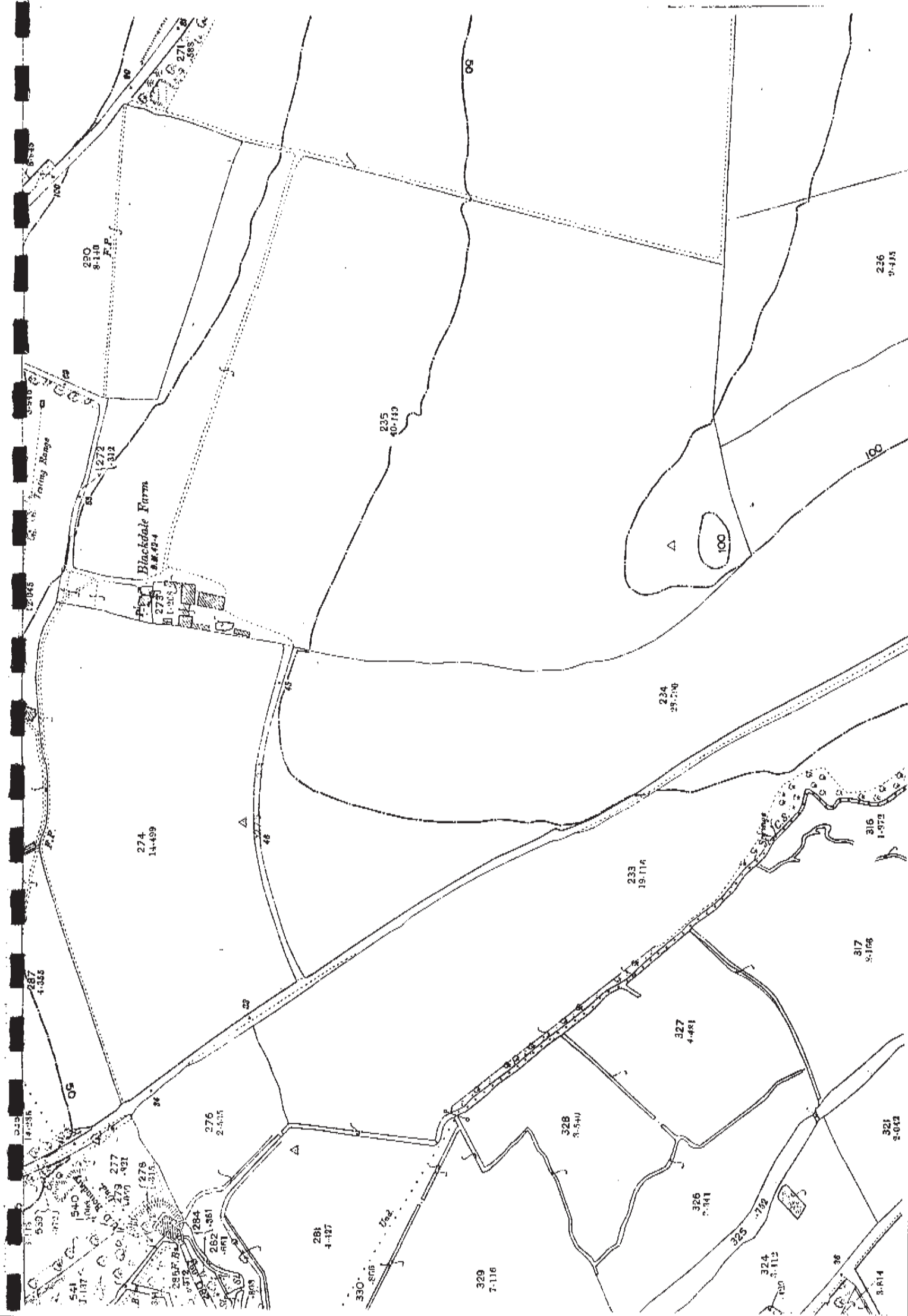
Period/Date: Late medieval to post-medieval, circa 1450-1550, mid 15th to mid 16th century.

Historic Landscape Description: A lesser late medieval settlement/farmstead was located at Holland's Farm on the south side of Hawley Lane.

The place-name is first recorded in 1492 when it was named *Holane*.

Tenorial History: The 1840-41 Tithe Apportionment Award and Plan for Sutton-at-Hone Ecclesiastical Parish gives Junc Leigh as owner, and John and William Tasker as occupiers.

References: Wallenberg 1934, 40; CKS/CTR/358A-B Ecclesiastical Parish of Sutton-at-Hone, Tithe Apportionment Award and Plan 31 October 1840.



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Blackdale Farm
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Assessment Nr 17
Study Area

Darenth CP
Medieval/Late Medieval to Post Medieval Settlement and Farm
Blackdale Farm (Cottages)
at TQ 55507264

Period/Date: Medieval to post-medieval, circa 1250-1850, mid 13th-mid 19th century.

Historic
Landscape
Description: A lesser medieval to late medieval settlement/farmstead was located at Blackdale Farm (now collectively named Blackdale Farm Cottages) on the edge of the North Downs on the eastern valley side of the river Darent between Green Street Green Road and the Darenth Road.

The place-name is recorded in 1278/79 when it was named *la Blakedele*. The site may possibly be of earlier date, perhaps first established in the early medieval period.

The late medieval and post-medieval layout of the farm is depicted on the 1841 Tithe Apportionment Plan of Darenth Ecclesiastical Parish, the accompanying award giving Charles and William Fleet as both owners and occupiers, the whole of the farm extending to 268 acres 1 rood and 9 perches.

Due to wartime damage the working farm was re-located to a new site and new buildings erected, to the east adjacent to the south side of Green Street Green Road in the 1950's (centred on TQ 55857257).

References: Patterson and Smith 1977b, 31 citing CKS/Archives of the Dean and Chapter of Rochester Cathedral; CKS/TR2512/13 transcript dated 1752 referring to *Blackholes Farm*, Darenth; CKS/U855/T1/4 title deed dated 1786 to various properties including *Blackdall Farm*, Darenth; CKS/CTR/109B Ecclesiastical Parish of Darenth Tithe Apportionment Plan 1841; CKS/U2724/B3/90/1 and 3 dated 1950 and 1954.

Assessment Nr 18
Study Area

Darenth CP
Medieval/Late Medieval to Post Medieval Settlement and Farm
Gore Farm (Cottages)
at TQ 56387235

Period/Date: Medieval to post-medieval, circa 1225-1850, mid 13th-mid 19th century.

Historic
Landscape
Description: A minor medieval to late medieval settlement/farmstead was located as a roadside settlement abutting the east side of Green Street Green Road at Gore.

The place-name is first recorded in 1226 when it was named *Gare*, and later, in 1257, as *Gore* (OE *gara* - "triangular piece of land").

The late medieval and post-medieval layout of the settlement is depicted on the 1841 Tithe Apportionment Plan of Darenth Ecclesiastical Parish.

References: Wallenberg 1934, 38-39; CKS/CTR/109B Ecclesiastical Parish of Darenth Tithe Apportionment Plan 1841.

Assessment Nr 19
Study Area
Green Street Green Road

Darenth CP
Medieval/Late Medieval to Post Medieval Road
between TQ 56527190 and TQ 55307333

Period/Date: Medieval to post-medieval, *circa* 1225-1850, mid 13th-mid 19th century.

Historic Landscape Description: A secondary road connecting Dartford with Green Street follows an alignment along the eastern valley side of the river Darent.

The road is named, first in 1240, and later, in 1257 and 1290, as *Grenestrete* (OE *grenestraet* - "green road"). The name form suggests that this route may be of early medieval layout perhaps perpetuating a way known in the Roman period.

Its earlier alignment is depicted on the 1841 Tithe Apportionment Plan for Darenth Ecclesiastical Parish, and the Ordnance Survey 1st edition 6 in. map of 1869.

References: Wallenberg 1934, 38-39; CKS/CTR/109B Ecclesiastical Parish of Darenth Tithe Apportionment Plan 1841; Ordnance Survey 1/10560 (6") Map Kent Sheet IX 1st edition, published 1869.

Assessment Nr 20
Study Corridor
Darent Valley Link
Western Section

Darenth CP
Medieval/Late Medieval to Post Medieval Road
Darenth Road
between TQ 55507206 and TQ 54807330

Period/Date: Medieval to post-medieval, *circa* 1225-1850, mid 13th-mid 19th century.

Historic Landscape Description: A secondary road originally connecting Dartford with Darenth followed an alignment along the eastern valley floor of the river Darent. The routeway was probably laid out in the medieval period, if not earlier.

Since the construction of the A2 in 1962 the alignment has been broken.

Its earlier alignment is depicted on the 1841 Tithe Apportionment Plan for Darenth Ecclesiastical Parish and the Ordnance Survey 1st edition 6 in. map of 1869 and in parts is now represented by field boundaries and a path.

References: CKS/CTR/109B Ecclesiastical Parish of Darenth Tithe Apportionment Plan 1841; Ordnance Survey 1/10560 (6") Map Kent Sheet IX 1st edition, published 1869.

Assessment Nr 21
Study Corridor
Darent Valley Link
Western Section

Dartford CP
Early Post-Medieval Paper Mills
east of Brooklands
at about TQ 54807290

Period/Date: Post-medieval, *circa* 1580-1686, late 16th to late 17th century.

Industrial History: The site of the mansion and mills of the manor of *Portbrugge*, or *Bicknors*, Dartford, after the death of the owner Mr Vaughan, came, in 1580, into the ownership of Sir John Spilman who converted one or both of the mills into a paper mill.

By 1585 a successful commercial enterprise producing writing paper had been established. The manufactory is considered to be one of the first of its kind in England, a near contemporary description stating that "*Upon this Darent also, have beene lately erected two Milles of rare devised (or rather singular, within our Realme) the one emploid for the making of sortex of Paper*" (Lambarde 1576 [ed. 1826], 408-409).

The family business continued until *circa* 1686 when a Mr Blackwell was in possession. His successor, Richard Archer, failed in business in 1739. The mill became very dilapidated and remained unoccupied until *circa* 1732.

Historic Landscape Description: The precise site of the paper mills is not known but is probably located near the later gunpowder works (*Assessment nr 22*), south of Powder Mill Lane. No archaeological remains have been recorded.

References: Lambarde 1576 [ed. 1826], 408-409; Dunkin 1844, 305-307; Hewitt 1932, 416-417 and notes 65-76; Keyes 1933, 395-403; RCHME/NMR NAR/TQ57SW33.

Assessment Nr 22
Study Corridor
Darent Valley Link
Western Section

Dartford CP
Late Post-Medieval Gunpowder Mills
near Wilmington
centred at TQ 54807290

Period/Date: Post-medieval, *circa* 1732-1918, early 18th to early 20th century.

Industrial History: The site of the paper milles (*Assessment Nr 21*), located south of Powder Mill Lane, was converted into a gunpowder factory *circa* 1732 by Messrs Pike and Edsall, from which date Dartford became a principal place for the manufacture of gunpowder.

On the death of Mr Pike, Mr Edsall became the sole proprietor, being in turn succeeded by his son Thomas, on whose bankruptcy, in 1778, it was sold by his assignees to Messrs Pigou and Andrews (Harris 1719, 98).

Until the late 19th century the Dartford works were one of the most important for military powders in England, but the invention of smokeless powders, especially cordite, put the mills out of use.

In 1912 gun-cotton and other modern explosives were being made in a factory quite close to the old Black Powder works.

In 1930 the owners were Messrs Curtis and Harvey but the Dartford works, together with the same firm's factory at Cliffe, have been closed since the end of the First World War (Hewitt 1932, 399).

*Archaeological
Description:*

The site is depicted on the 1841 Tithe Apportionment Plan for Dartford Ecclesiastical Parish, the accompanying award giving the owner as Frederick William and Clarence Pigou, the occupier as James Snowden.

The layout of the works is depicted on the 1841 Tithe Apportionment Plan for Dartford Ecclesiastical Parish and the Ordnance Survey 1st edition 6 in. map of 1869, and in more accurate detail on the Ordnance Survey 2nd edition 1/2500 plan surveyed in 1864 and revised in 1895.

Field survey by the Kent Archaeological Rescue Unit from August 1983 in advance of new industrial development, and the creation of a new river Darent channel, revealed the extent of the demolished gunpowder works, including various mill houses, millstones and sluices.

Archaeological excavations by the Kent Archaeological Rescue Unit between August 1983 and April 1984 exposed the foundations of the main mill-house. Additional work undertaken included repairs to the brickwork in the original river channels.

References:

Harris 1719, 98; Hewitt 1932, 399-400 and footnote 79; Anonymous 1984, 112-113 [notice of excavations with bw photographs showing survey and excavations in progress]; Dunkin 1844, 305-307; PRO/IR30/17/105 Ecclesiastical Parish of Dartford Tithe Apportionment Plan 30 September 1841; Ordnance Survey 1/10560 (6") Map Kent Sheet IX 1st edition, published 1869; Ordnance Survey 1/2500 Plan Kent Sheet IX.II 2nd edition, published 1897; CKS/U443/T4 and T5 Gunpowder Works, title deeds, 1873-98; RCHME/NMR NAR/TQ57SW33.

Assessment Nr 23
Study Corridor
Darent Valley Link
Western Section

Dartford CP
Post-Medieval Charcoal and Saltpetre Works
east of Blackdale Farm Cottages
centred at TO 55107285

Period/Date:

Post-medieval, circa 1840, early 19th century and later.

*Archaeological
and Historic
Landscape
Description:*

The site of a group of buildings, part of a belt of industrial sites located east and west of the Darent Road on the west bank of the river Darent valley.

The site is depicted on the 1841 Tithe Apportionment Plan for Dartford Ecclesiastical Parish, the accompanying award giving the owner as Frederick William and Clarence Pigou, the occupier as James Snowden, and describing the property (*Parcel 337*), which formed part of the *Powder Mill Estate*, as "*Chalk hole containing Saltpetre, Charcoal and other Works & 2 Cottages/Hopkins & Smith*", and extending to 1 acre 1 rood and 18 perches.

Two further buildings, one large and both belonging to the same property, were located immediately opposite the charcoal and saltpetre works on the west side of the Darent Road, set within their own enclosure (*Parcel 338*), and described as a "*Barn and Yard*".

These works presumably formed part of the gunpowder works complex (*Assessment Nr 22*).

The works and two original works buildings are extant (*see Appendix II Assessment Nos. 33-34*).

Reference:

PRO/IR30/17/105 Ecclesiastical Parish of Dartford Tithe Apportionment Award and Plan 30 September 1841.

Assessment Nr 24
Study Area

Dartford CP
Late Post Medieval Dusting House
north-east of Blackdale Farm Cottages
at TO 55307296

Period/Date: Post-medieval, *circa* 1840, early 19th century and later.

Archaeological and Historic Landscape Description The site of an isolated building, part of a belt of industrial sites located east and west of the Darent Road on the west bank of the river Darent valley, is depicted on the 1841 Tithe Apportionment Plan for Dartford Ecclesiastical Parish, the accompanying award giving the owner and occupier as Pigou and Company, and describing the property as a "dusting house".

This building formed part of the gunpowder works complex (*Assessment Nr 22*).

References: CKS/Q/SBW112 Petition for gunpowder dusting house, 1828; PRO/IR30/17/105 Ecclesiastical Parish of Dartford Tithe Apportionment Award and Plan 30 September 1841.

Assessment Nr 25
Study Area

Dartford CP
Late Post Medieval Powder Magazine
north-east of Blackdale Farm Cottages
at TO 55407292

Period/Date: Post-medieval, *circa* 1818-1840, early to mid 19th century.

Archaeological and Historic Landscape Description The site of an isolated building, part of a belt of industrial sites located east and west of the Darent Road on the west bank of the river Darent valley, is depicted on the 1841 Tithe Apportionment Plan for Dartford Ecclesiastical Parish, the accompanying award giving the owner and occupier as Pigou and Company, and describing the property as a "powder magazine".

This building formed part of the gunpowder works complex (*Assessment Nr 22*).

Reference: PRO/IR30/17/105 Ecclesiastical Parish of Dartford Tithe Apportionment Award and Plan 30 September 1841.

Assessment Nr 26
Study Area

Dartford CP
Late Post Medieval Zinc Works
north-east of Brooklands
centred TQ 54707322

Period/Date: Post-medieval, *circa* 1840-1870, mid to late 19th century.

Archaeological and Historic Landscape Description A group of large buildings, part of a belt of industrial sites located east and west of the Darent Road on the west bank of the river Darent valley, is depicted on the 1841 Tithe Apportionment Plan for Dartford Ecclesiastical Parish, the accompanying award giving the owner as William Frederick and Clarence Pigou and the occupier as Kennard and Company, with the plan labelling the buildings and property as a zinc works.

The works were extant in the 1860s when they were depicted on the Ordnance Survey 1st edition 6 in. map of 1869.

References: CKS/CTR/109A-B Ecclesiastical Parish of Darent Tithe Apportionment Award and Plan 1840-41; Ordnance Survey 1/10560 (6") Map Kent Sheet IX 1st edition, published 1869.

Assessment Nr 27
Study Area

Sutton-at-Hone CP
Late Medieval to Post-Medieval Mill
Hawley Mill
at TQ 55227185

Period/Date: Late-medieval to post-medieval, *circa* 1450-1978, mid 15th to late 20th century.

Historic Landscape Description The site of mill was formerly located adjacent to the Hawley Road, utilising the waters of the river Darent.

Architectural and Historical Description The mill house was demolished during February 1978, when it was subject to an historic building survey by the Dartford District Archaeological Group.

The building was originally a single storey timber-framed structure of mid 16th century date, with a later two storey extension built onto its west end. The whole structure was reclad in the late 18th century.

In its final form the building formed part of a large mill structure which extended eastward over the river Darent, and was equipped with water wheels. The 1840 Tithe Apportionment Award and Plan for Sutton-at-Hone Ecclesiastical Parish shows the arrangement of the mill buildings at that date. A more detailed and accurate plan is depicted on the Ordnance Survey 2nd edition 1/2500 plan surveyed in 1864 and revised in 1895.

The mill had been used for various processes including the manufacture of paper in the late 18th and late 19th centuries, the extraction of oil from seed in the late 18th century (Hasted 1797 II, 357), and for the dyeing and finishing of leather products (Anonymous 1976, 30-31).

Tenorial History The mill formed part of the holdings of Hawley manor. This manor is first recorded in 1086, as *Hugelei*, when it included within its *demesne* a mill valued at 20s. (*Domesday Book* ed. Morgan 1983, 5/1). The medieval and late medieval mill was perhaps situated on the same site.

In the late 18th century the mill house served as one of two manorial residences of the owner, Samuel Percival who was responsible for it being "*rebuilt*" at this date. Thereafter the building was owned successively by Rear Admiral Robert Robinson of Eltham, and Thomas Frazer. In the late 1790s it was occupied by Hussey Fleet, a local brewer (Hasted 1797 II, 357).

The 1840 Tithe Apportionment Award and Plan for Sutton-at-Hone Ecclesiastical Parish gives a William Fleet as the owner, and a Mr Lamb as occupier.

References: Hasted 1797 II, 357; Anonymous 1976, 30-31 [interim report on building recording with bw photograph, plan, and elevations]; Morgan 1983, 5/2; CKS Secondary Sources Card Index Pictorial Sources Darent: The Old Mill, Darent, *circa* 1910 (bw photograph); CKS/CTR/358A-B Ecclesiastical Parish of Sutton-at-Hone Tithe Apportionment Award and Plan, 31 October 1840; Ordnance Survey 1/2500 Plan Kent Sheet IX.11 2nd edition, published 1897.

Assessment Nr 28
Study Area

Darenth CP
Late Post-Medieval Building
north-west of Gore Cottages
at TQ 56157240

Period/Date: Post-medieval, *circa* 1837-1870, mid to late 19th century.

Historic Landscape Description: The site of a building, now demolished, was formerly located north-west of Gore Cottages to the south of Green Street Green Road.

The building was extant in 1840 when it was depicted and named on the Tithe Apportionment Plan for Darenth Ecclesiastical Parish as *Littledale*, the accompanying 1841 Award describing the close (*Parcel 26*), which formed part of Blackdale Farm, in which the building stood as a "*House and Plantation, fruit etc*", extending to 2 acres and 28 perches.

The building is also depicted on the Ordnance Survey 2nd edition 1/2500 plan surveyed in 1864 and revised in 1895 when two further minor structures are shown located to the north-east and south-east of and adjacent to the main building.

References: CKS/CTR/109A-B Ecclesiastical Parish of Darenth Tithe Apportionment Award and Plan 1840-41; Ordnance Survey 1/2500 Plan Kent Sheet IX.11 2nd edition, published 1897.

Assessment Nr 29
Study Area

Darenth CP
Chalk Quarry
north-west of Gore Cottages
centred at TQ 55927268

Period/Date: Post-medieval, *circa* 1840, early to mid 19th century.

Historic Landscape Description: The 1840 Tithe Apportionment Plan for Darenth Ecclesiastical Parish, and the accompanying 1841 Award, depicts and lists a close named *Chalk Hole Field* at a location north-west of Gore Cottages, and abutting the south side of Green Street Green Road.

The close (*Parcel 25*) formed part of the land holdings of Blackdale Farm, was under arable cultivation, and extended to 10 acres and 4 perches.

A rectangular pit, located on the south-eastern edge of a roadside copse, is depicted on the Ordnance Survey 2nd edition 1/2500 plan surveyed in 1864 and revised in 1895; and again on a plan of 1950 (CKS/U2724/B3/90/3), when it is labelled as a chalk pit, at about this location (at TQ 55927268), on the right hand side of a track leading from the old to the new site of Blackdale Farm.

References: CKS/CTR/109A-B Ecclesiastical Parish of Darenth Tithe Apportionment Award and Plan 1840-41; Ordnance Survey 1/25000 Plan Kent Sheet IX.11 2nd edition, published 1897; CKS/U2724/B3/90/3 War Damage Compensation [Plan of] Blackdale Farm Darenth Kent Reinstatement of Farmhouse After Destruction by Enemy Action, January 1950.

Assessment Nr 30
Study Area

Darenth CP
Late Post-Medieval Brick Works
west of Littledale Cottages
centred TQ 56157210

Period/Date: Late post-medieval, *circa* 1840, early to mid 19th century.

Historic Landscape Description: The 1840-41 Tithe Apportionment Award and Plan for Darenth Ecclesiastical Parish depicts and lists a close named *Brick Kiln Field* at a location to the west of the present Littledale Cottages and south of the A2.

The close (*Parcel 33*) formed part of the land holdings of Blackdale Farm, was under arable cultivation, and extended to 39 acres 1 rood and 34 perches.

Archaeological Survey and Description: The close name suggests the former presence of a brick works, probably of similar date *Field* to those known to have been located within Darenth Wood at Badger's Mount (*Assessment Nr 31*).

Archaeological field survey undertaken during October 1993 did not indicate the presence of any earthworks or other landscape archaeological features indicating the former presence of such a brickworks.

Such features, including a square or rectangular mound indicative of the site of a former clamp kiln, however, would have been eroded, infilled and subsequently levelled by modern ploughing.

No detailed field survey plotting the distribution of any re-deposited surface artifacts was undertaken.

References: CKS/CTR/109A-B Ecclesiastical Parish of Darenth Tithe Apportionment Award and Plan 1840-41.

Assessment Nr 31
Study Area

Darenth CP
Late Post-Medieval Brick and Tile Works
Badger's Mount, Darenth Wood
centred TQ 57757210

Period/Date: Late post-medieval, *circa* 1650/1680-1800, mid to late 17th to late 18th century.

Landscape Archaeological Description: Brick and Tile Manufactory. A substantial sinuous earthen bank and ditch defines the northern and eastern boundaries of the works which are located at Badger's Mount on the southern edge of Darenth Wood. The western boundary has been largely removed by clay digging.

The enclosed area is scarred by pits, mounds and scarping, indicating intense digging and industrial activity during the period when the works were in production. These features are presumably the remains of worked-out clay pits, sand pits and waster pits. A square mound is probably the remains of a clamp kiln. The clay pits had been cut through the alignments of at least two north-south field banks possibly of late medieval or early post-medieval date (Caiger 1964, 79 figure 1 and 91-93).

Three oblong buildings are depicted and labelled as *Brick Kilns* on maps of 1769 (Andrews, Drury and Herbert) and 1797 (Hasted 1797 II, facing p.343) on the southern edge of the works. All of these were perhaps demolished by the late 1790's, none being shown on the Ordnance Survey 1st edition 3 in. map of Kent of 1800.

The earthworks were noted by F J C Spurrell in the late 1890s when they were described as an "earth-walled enclosure... only just discoverable. on Badgersmount, Darenth Wood, it is a rough square with rounded corners; it was 200 feet in diameter outside the wall at the ground level; with a ditch round it about 10 feet across and 8 feet deep. Much stone chipping covers the place" but who was unable either to date or classify the earthworks (Spurrell 1889, 305-307 site 40).

*Archaeological
Description:*

Archaeological field survey and excavations were undertaken by J E L Caiger for the Ministry of Public Buildings and Works in 1962 prior to the construction of the present A2.

A new 1/2500 ground survey of Darenth Wood and parts of Ladies Wood was carried out which included plotting the remains described above.

Excavation of a trench across a pit (Caiger 1964, 92) showed that it was originally cut as a clay pit later backfilled with kiln wasters of spoilt bricks and peg-tiles. The tiles had been impressed with a maker's mark, a circule with the initial *W*, the implement also serving the function of cutting the square peg hole (Caiger 1964, 92-93 and figure 3).

Commercial gravel and sand quarrying across the eastern portion of the site commenced in 1962 during which the brick foundations and the cellar of a building approximately 80 feet by 40 feet were destroyed. Finds recovered included a number of broken wine bottles, a large number of clay tobacco pipes, and pottery which indicated a late 17th century date for the building. The present condition of the site is not known.

*Historical
Description:*

Evidence from archaeological field survey and excavations undertaken in 1962, together with contemporary cartographic sources (cited above), indicates that the works commenced brick and tile manufacture in the late 17th century, and that production had ceased by *circa* 1800.

Spreads of Plateau Gravel of Pleistocene date occur across the north-east parts of the site, and clays of the Woolwich Beds occur across the south-west.

References:

Spurrell 1889, 305, 306-307 [map and key site 40]; Caiger 1964, 79 figure [plan of earthworks], 91-93 and figure 3 line drawing of enar complete peg-tile showing maker's stamp; Andrews, Drury and Herbert *Map of Kent* 1769; Hasted 1797 II, facing p.343; *Plan of the Hundred of Axtane*; Ordnance Survey 3" Map of Kent 1st edition, 1799/1800.

*Assessment Nr 32
Study Area*

Stone-next-Dartford CP
Modern (Branton's) Brickfield or Quarry
centred TQ 58607295

Period/Date:

Modern, *circa* 1900-1920, early 20th century and later.

Description:

The site of a brickfield or quarry was extant at the turn of the century on the east side of Bean Lane at its junction with the A296 (Watling Street) exploiting a very localised deposit of Pleistocene head brickearths. There is no indication that this was also the site of a brick manufactory.

The quarry is not depicted on the 1837 Tithe Apportionment Plan for Stone-next-Dartford Ecclesiastical Parish when the area formed part of Red Barn Farm, and was in part covered by linear shaws (*Parcel 296* named *Stems Shaw*) adjacent to Watling Street and Bean Lane, and a large close (*Parcel 297* named *Stems Field*) put down to arable cultivation.

The Ordnance Survey 1st edition 6 in. map of 1869 depicts the same land use and divisions.

The area has since been infilled and is now waste ground with new residences (*Ightham Cottages*) and a nursery (*Brickfield Nursery*) being erected on the edges of the former quarry site.

References:

CKS/CTR/352A-B Ecclesiastical Parish of Stone-next-Dartford Tithe Apportionment Award and Plan 8 August 1837; Ordnance Survey 1/10560 (6") Map Kent Sheet IX 1st edition, published 1869.

Appendix II

Gazetteer of Recorded Historic Buildings

Assessment Nos 33-34
Study Corridor
Darent Valley Link
Western Section

Dartford CP
Late Post-Medieval Industrial Buildings
Charcoal and Saltpetre Works
at TQ 55107288 and 55057286

Period/Date: Post-medieval, *circa* 1840, early 19th century and later.

Archaeological Historic Landscape Description: The site of a group of buildings, part of a belt of industrial sites located east and west of and the Darent Road on the west bank of the river Darent valley.

The site is depicted on the 1841 Tithe Apportionment Plan for Dartford Ecclesiastical Parish, the accompanying award giving the owner as Frederick William and Clarence Pigou, the occupier as James Snowden, and describing the property (*Parcel 337*), which formed part of the *Powder Mill Estate*, as "*Chalk hole containing Saltpetre, Charcoal and other Works & 2 Cottages/Hopkins & Smith*", and extending to 1 acre 1 rood and 18 perches.

The complex contained five buildings arranged around the edge of what must once have been a chalk quarry. Two of these buildings are extant.

Two further buildings, one large and both belonging to the same property, were located immediately opposite the charcoal and saltpetre works on the west side of the darent Road, set within their own enclosure (*Parcel 338*), and described as a "*Barn and Yard*". Neither are extant.

All of these buildings, and one additional structure, are depicted on the Ordnance Survey 1st edition 6 in. map of 1869.

These works presumably formed part of the gunpowder works complex (*Assessment Nr 22*).

References: PRO/IR30/17/105 Ecclesiastical Parish of Dartford Tithe Apportionment Award and Plan 30 September 1841; Ordnance Survey 1/10560 (6") Map Kent Sheet IX 1st edition, published 1869.

Assessment Nr 35
Study Area

Sutton-at-Hone CP
Early Post-Medieval Dovecote, Gate Piers and Walls
Hawley Manor
centred TQ 54887205

Period/Date: Early to late post-medieval, mid 16th century to mid 17th century and later.

1. *Archaeological and Architectural Description (Dovecot):* A brick-built dovecote or pigeon-house is located at Hawley Manor. The structure is just over seven square metres, with thick walls of red brick laid in English bond brick, and is lit by three dormer windows.

Pyramidal old tiled roof with curved gable to three faces. This is surmounted by an elaborate glazed louvre with ogee-shaped tiled canopy having pendants which were renewed in 1922 at the same time as the pigeon house was carefully restored. Originally with a weather-vane. Moulded wooden eaves cornice.

The interior is lime-washed, with original entrance door, and contains 549 nesting boxes and two wooden beams with pegs used to gain access to the holes and a smaller ladder to gain access inside the roof.

A date over the east dormer window reads 1556 or 1545 but there is doubt as to its authenticity. The date does not appear on a photograph of the structure taken in *circa* 1890, nor on a later photograph which was taken after the 1922 restorations.

The dovecote suffered some wartime damage. Repairs were undertaken in 1922 by G E Burgess F.R.I.B.A., 21 High Street, Dartford. Part of the roof was damaged by fire in October 1970, and, in 1974, the weather-vane was stolen and the windows broken.

2. *Archaeological and Architectural Description (Gate and Wall)*: A wall, gate and a pair of gate piers are located adjoining and running south-east from the corner of the Dovecote, and turning north-east to the north front of the former stables.

The pair of gates are probably originally stable gates. Late 19th century with brick and flint square piers having iron gates with spear railings. In 1947 the gate piers had recumbent lions for the Leigh family but are not presently *in situ*.

Attached is a section of 18th century red brick wall about 8 ft high laid in an irregular bond neither Flemish nor English.

The dovecote and gateway are a Scheduled Ancient Monument (Site Nr 12961).

References: Caiger 1974, 33-36, plate 1 [copy of *circa* 1890 bw photograph showing pigeon-house, gate-piers and recumbent lion] and figure 1 [elevation drawings]; *Transactions of the Dartford District Antiquarian Society* 3 (1933), 5; English Heritage Records Office, Scheduled Ancient Monuments Record Site Nr 129621 [and authorities cited therein]; DOE Listed Building Index District of Dartford (Sutton-at-Hone) 1975, 27-29; Nos TQ57SW3/75 (dovecote) and TQ57SW 3/76 (wall, gate and gate piers).

Appendix III

List of Primary and Secondary Sources Consulted

1 Primary Manuscript Cartographic and Documentary Sources

1.1 Ecclesiastical Parish Tithe Apportionment Awards and Plans

Dartford Parish

PRO/IR30/17/105 The Ecclesiastical Parish of Dartford Tithe Apportionment Award and Plan, 30 September 1841.

PRO/IR30/17/105 The Ecclesiastical Parish of Dartford Altered Apportionment of Tithe Rentcharge The Second Schedule, 31 March 1932.

Darenth Parish

PRO/IR30/17/104 *Plan of the Parish of Darenth Kent* Surveyed by William Hubbard, Dartford, 1833.

PRO/IR30/17/104 The Ecclesiastical Parish of Darenth Tithe Apportionment Award and Plan, 1840-1841.

PRO/IR30/17/104(2) The Ecclesiastical Parish of Darenth Altered Apportionment of Tithe Rentcharge, (Plan of) Darenth Wood, 21 February 1934.

CKS/CTR/109A The Ecclesiastical Parish of Darenth Tithe Apportionment Award, 1840.

CKS/CTR/109B The Ecclesiastical Parish of Darenth Tithe Apportionment Plan, 1841.

Sutton-at-Hone Parish

CKS/CTR/358A The Ecclesiastical Parish of Sutton-at-Hone Tithe Apportionment Award, 31 October 1840.

CKS/CTR/358B The Ecclesiastical Parish of Sutton-at-Hone Tithe Apportionment Plan, 31 October 1840.

PRO/IR30/17/359 The Ecclesiastical Parish of Sutton-at-Hone Tithe Apportionment Award and Plan, 1840.

Stone-next-Dartford Parish

CKS/CTR/352A The Ecclesiastical Parish of Stone-next-Dartford Tithe Apportionment Award, 8 August 1837.

CKS/CTR/352B The Ecclesiastical Parish of Stone-next-Dartford Tithe Apportionment Plan, 8 August 1837.

1.2 Miscellaneous Plans

Blackdale Farm, Darenth Parish

CKS/U2724/B3/90/1: [Plan of] *Blackdale Farm - Darenth Farm - Darenth - Kent: Town and Country Planning Application for:- W Hyams Esqre.* [By] Gerald E Burgess F.R.I.B.A., Chartered Architect & Surveyor, 21 High Street, Dartford, Kent. Drawing Nr T.111 File Nr 651. Scale of 1/2500. 28 July 1954.

CKS/U272/B3/90/3: *War Damage Compensation: [Block Plan of] Blackdale Farm Darenth Kent: Reinstatement of Farmhouse After Destruction by Enemy Action: For:- The Trustees - Algernon Massy Fleet dec'd.* [By] Gerald E Burgess F.R.I.B.A., Chartered Architect & Surveyor, 21 High Street, Dartford, Kent. Drawing Nr 60 File Nr 591. Scale of 1/2500. January 1950.

Hawley Manor, Darenth Parish

CKS/U2724 B3/361(1) Plan of Hawley Manor showing block plans of existing buildings at the junction of Burnt House Lane and Hawley Road partly coloured denoting proposed alterations and additions. Dated 1 January 1921 By Gerald E Burgess, Architect, Market Place Chambers, High Street, Dartford, Drawing Nr G.388.

CKS/U2724 B3/361(2) Plan of additions and alterations to the old cottage, Hawley Manor showing sections and ground and first floor plans with sections and ground and first floor plans partly coloured denoting proposed alterations and additions. Dated 23 September 1930. By Gerald E Burgess, Architect, Market Place Chambers, High Street, Dartford, Drawing Nr K.193.

CKS/U2724B3/361(3) Plan of old kitchen quarters showing partly coloured sections, floor plan, and various elevations denoting proposed conversion to a cottage, elevations and sections, and floor plan. Dated 23 January 1920. By Gerald E Burgess, Architect, Market Place Chambers, High Street, Dartford, Drawing Nr G.347.

Bean Farm, Stone-next-Dartford

CKS/U146/P2: [Estate Plan of] *Bean Farm and Woodland*. 1707.

2 Primary Printed Cartographic and Documentary Sources

2.1 Ordnance Survey Maps and Plans

[Ordnance Survey] *General Survey of England and Wales. An entirely new and accurate survey of the county of Kent, with part of the county of Essex, done by the Surveying Department of His Majesty's Honourable Board of Ordnance, on the basis of the Trigonometrical Survey carried on by their orders under the direction of Capt'n Wl Mudge of the Royal Artillery F.R.S.* Engraved by Thomas Foot. Survey completed by 1799/1800. London, published by W. Faden, 1 January 1801. Scale of 1in. to 1ml.

Ordnance Survey 1/2500 Plan Kent Sheet LX.11 2nd edition, surveyed 1864, revised 1895 published Southampton, 1897.

Ordnance Survey 1/10560 (6") Map Kent Sheet IX 1st edition, surveyed and contoured by Captain Carey and Captain Sandford, Royal Engineers 1863-66, engraved 1868, published Southampton, 15 November 1869.

2.2 Miscellaneous Maps and Plans

Andrews, Drury and Herbert *Map of Kent* 1769.

Plan of the Hundred of Axtane in: E. Hasted (1797) *The history and topographical survey of the county of Kent* Volume 3, Canterbury, W Bristow, facing p. 343.

2.3 Miscellaneous Manuscripts

Manuscript in Dartford Museum entitled *Dartford 571 Prehistoric Archaeology* [being notes by J N Carrick].

Manuscript in Dartford Central Public Library entitled *Archaeology Roman* [being notes on, and bw photograph of, Roman foundations exposed in 1895 at Tenter's Hill Field, Dartford].

Manuscript in Dartford Central Public Library entitled *Dartford 913 Parish File* [being notes on Anglo-Saxon cemetery, Darenth Park Hospital including excavations by Lt. Col. G W Meates and J Ritson].

CKS/TR *Gordon Ward Collection* Annotated Ordnance Survey 1/10560 (6") Maps. Kent Sheets. Various editions.

3 Inventories, Lists and Indices

3.1 Archaeological Inventories

Royal Commission for Historical Monuments in England, National Monument Record, Archaeological Section (National Archaeological Record).

TQ57SE4 and *TQ57SW37*: North-west of Blackdale Farm Cottages on site former powder magazine, Darenth CP, early medieval, ? *circa* 550-650, spearheads, shield boss and other finds representing inhumation burials, found October 1818 (at TQ 54817297) [original entries compiled 3.XI.1959 and here updated].

TQ57SE29: Darenth Park Hospital entrance and east of Gore Road, Darenth CP, early medieval, *circa* late 5th-7th century, [twelve] inhumation burials [with spearhead, shield boss, square-headed brooch, bronze bowls, grass-tempered pottery, late 5th century Frankish moulded glass cup or bowl with Chi-Rho monogram, iron knife blades, applied saucer brooches, beads, and other] grave goods found in 1881 during building of hospital, and during archaeological excavations in June 1954, between 1972/1973, in March 1978, [and in July 1981], part of a cemetery complex (centred TQ 56537294) (Scheduled Ancient Monument Kent Nr 380) [original entry compiled 3.III.1988 and here updated].

TQ57SE23: Hesketh Park, Dartford CP, earthen mounds, undated, extant in 1889 now levelled (at TQ 55337347).

TQ57SE32: Branton's Brickfield, Stone Wood, Stone-next-Dartford CP, late Iron Age/early Roman, *circa* 50-200, mid 1st to late 2nd century, pottery, pits, settlement, ? kiln, found during salvage archaeological excavations in 1918 (centred TQ 58607290) [original entry compiled 14.XII.1964 and here updated].

TQ57SE38: Darenth Wood, Darenth CP, *circa* 1200-1250 enclosure and earthworks, lesser medieval enclosures, field banks and deneholes (centres TQ 57757255) [original entry compiled 15.VI.1960 and here updated].

TQ57SE67: Wilmington Gravel Pits, Mesolithic, *circa* 8500-4250 B.C., axe-head, found 1956 (at TQ 55027255).

TQ57SE96: Wilmington Gravel Pits, Darenth CP, late Neolithic to early Bronze Age, *circa* 2800-1700 B.C., axe-head, found during topsoil stripping 1975 (at TQ 55307230).

TQ57SE98: Wilmington Gravel Pits, Darenth CP, late Mesolithic to Iron Age, *circa* 4500-600/200 B.C., multi-period settlement, peat deposits, environmental deposits, C¹⁴ age estimation charcoal samples, flint industries and artifacts, pottery, features, saddle quern, found during rescue archaeological excavations between January 1975 and 1978 (centred on TQ55407220).

TQ57SE111: West of Littledale, Darenth CP, circular shadow or crop-mark, ring-ditch (at TQ 56207192).

TQ57SE112: West of Littledale, Darenth CP, circular shadow or crop-mark, ring-ditch (at TQ 56407200).

TQ57SE119: Wilmington Gravel Pits, Darenth CP, prehistoric, settlement, flint industries and artifacts, features, found during rescue archaeological excavations (centred on TQ 55307220).

TQ57SW11: Tenter's Hill Field, Dartford, Dartford CP, *circa* 1st-3rd century, Roman building, clearance and archaeological excavations in 1895 and June 1979 (at TQ 54647345) [original entry compiled 23.X.1959 and here updated].

TQ57SW33: Brooklands, Dartford CP, paper mills, *circa* 1580-1686 and gunpowder mills, *circa* 1732-1918, demolished, site partially extant, archaeological excavations 1983-84 [at about and centred TQ 54807290] [original entry compiled 11.XI.1959 and here updated].

3.2 *Historic Buildings Inventories*

Department of the Environment *List of buildings of special architectural and historic interest: District of Dartford, Kent* London, Her Majesty's Stationery Office, 1975, 27029.

[Nos: TQ57SW3/73 Hawley Manor; TQ57SW3/74 Stables; TQ57SW3/75 Dovecot; TQ57SW3/76 Wall, Gate and Gate Piers; TQ57SW3/77 The Old House and TQ57SW3/78 Wall]

Department of the Environment *List of buildings of special architectural interest: Borough of Dartford, Kent (not including the area of the former Borough of Dartford)* London, Her Majesty's Stationery Office, 1982.

3.3 *Historical Indices*

CKS Manuscript Civil Parish Card Index to Manuscripts, Maps and Plans: Dartford.

CKS Manuscript Civil Parish Card Index to Manuscripts, Maps and Plans: Darenth.

CKS Manuscript Civil Parish Card Index: Manuscripts, Maps and Plans: Sutton-at-Hone.

CKS Manuscript Civil Parish Card Index: Manuscripts, Maps and Plans: Stone-next-Dartford.

CKS Manuscript Secondary Sources Card Index Places: Dartford.

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4 *Secondary Printed Sources*

4.1 *Archaeological Sources*

Anonymous (1980) Roman building at Dartford in: *Kent Archaeological Review* 59, 214.

Anonymous (1986) 3. Tenter's Field, Dartford in: Anonymous *Re-discovering Dartford* Dartford, Dartford District Archaeological Group, 7-9.

Anonymous (1986) 6. Darenth Park Hospital in: Anonymous *Re-discovering Dartford* Dartford, Dartford District Archaeological Group, 14-17.

Anonymous (1984) Dartford Gunpowder Mills major industrial site saved from destruction in: *Kent Archaeological Review* 99, 112-113.

Anonymous (1993) Dartford Gunpowder Mills in: *Kent Archaeological Review* 112, 31-33.

Anonymous (1993) *The Dartford Gunpowder Mills* West Wickham, Kent Archaeological Rescue Unit.

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