

**THAMES WATER
MAINS REHABILITATION WORKS,
WATERMILL WAY, SOUTH DARENTH, DARTFORD
DA4 9BB**

An Archaeological Watching Brief



November 2017

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An Archaeological Watching Brief

Site code: WMW17
Approximate site centre: NGR TQ 5599 6947
Scheme 1004

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November 2017

Abstract

Between the 28th September and 24th October 2017 Compass Archaeology conducted an Archaeological Watching Brief, located on Watermill Way, South Darenth, Dartford DA4 9BB, during groundworks associated with the abandonment of an old water main and connection to a new PE network. The work was commissioned by Thames Water Utilities, based on advice from the Kent County Archaeological Officer due to the site being located within 300m of the South Darenth Conservation Area.

The programme of archaeological works entailed the monitoring of the completion of 8 trenches located along the north-south length of Watermill Way and adjoining east-west cul-de-sacs. The open cut trenches were located in the main carriageway. Trenches 1 to 7 measured between 0.60m and 2.65m in length (N-S) x 0.60-0.80m in width x 0.90 – 1.25m (c19.35mOD) in depth. Trench 8 located at the southern end of Watermill Way, measured 22m in length x 0.35-0.40m in width x 0.90-1.20m (c19.40mOD) in depth.

The stratigraphy recorded across all eight trenches was broadly similar, comprising the existing road surface (1) overlying a layer of rubble and hardcore (2) and (5), black gravels (3) orange-brown gravels (4) and in the case of Trench 8, a band of dark grey-black wet silty clay (6).

The gravels observed in all trenches may have been dug up with the creation of the nearby reservoirs, or otherwise imported as backfill surrounding the numerous services.

No archaeologically significant features or deposits, or associated finds were recovered during the watching brief.

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1 INTRODUCTION

- 1.1 This document forms a summary of the results of an archaeological watching brief conducted at Watermill Way, South Darenth, Dartford DA4 9BB by Compass Archaeology between the 28th September and 24th October 2017 (fig.1).

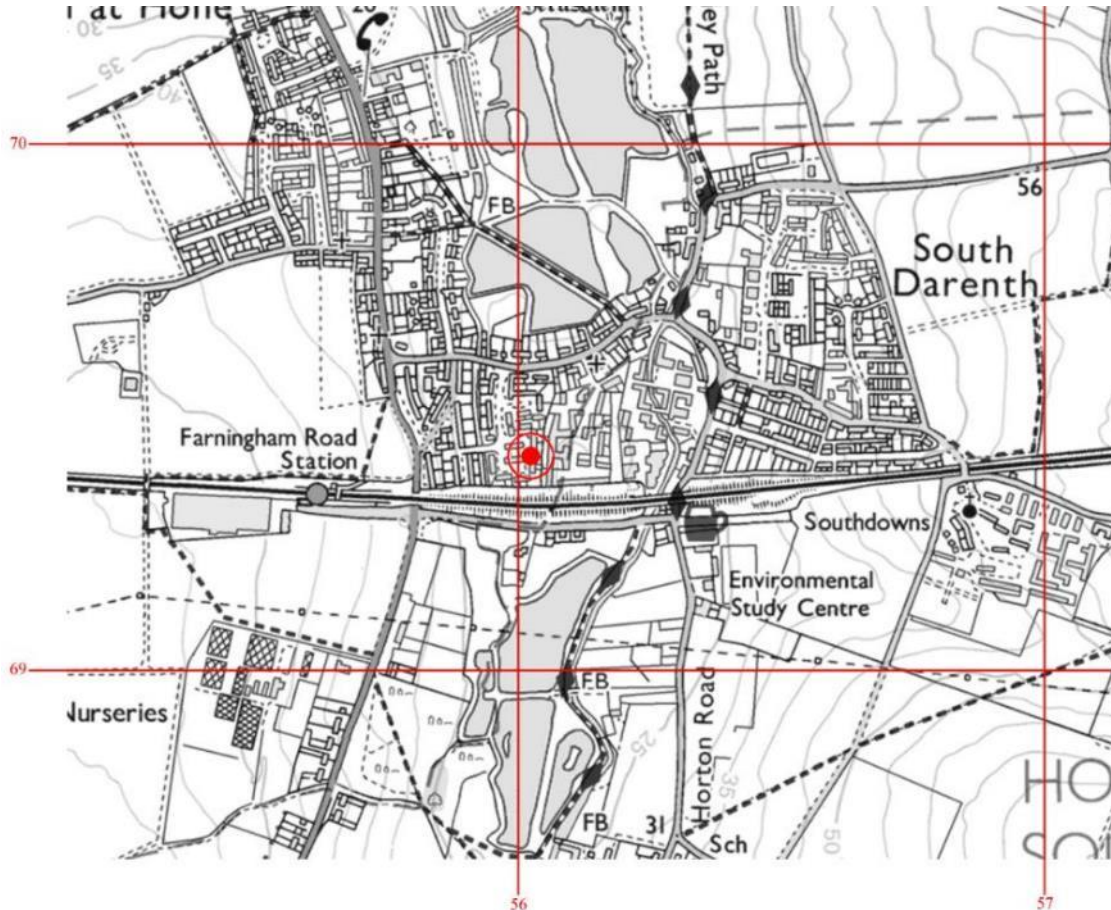


Figure 1: Site location, marked in red.

- 1.2 The watching brief was commissioned by Thames Water Utilities, following advice from the Kent County Archaeological Officer which considered the site as being an appropriate candidate for the monitoring, identification and recording of any archaeology. Additionally, the site is situated c290m west of the South Darenth Conservation Area and as such is in proximity to an area of archaeological sensitivity.
- 1.3 The programme of archaeological works entailed the monitoring of the completion of 8 trenches located along the north-south length of Watermill Way and adjoining east-west cul-de-sacs to expose the existing utilities network in preparation for replacement works.

2 ACKNOWLEDGEMENTS

- 2.1 Compass Archaeology would like to thank Thames Water Utilities for commissioning Compass to undertake the archaeological watching brief and for ensuring access to, and support on site during the groundworks.

3 SITE LOCATION, GEOLOGY AND TOPOGRAPHY

- 3.1 The groundworks spanned the north-south length of Watermill Way, with three additional east-west spurs to the north, middle and south, covering a total distance of approximately 33m.
- 3.2 According to the British Geological Survey (Sheet 271: *Dartford*) the site sits within a north-south band of alluvium, following the course of the River Darent, heavily disturbed by large areas of made ground, created as a result of the construction of the numerous reservoirs in the area (fig.2).
- 3.3 The northern end of the site sits at approximately 20.6mOD, and is relatively level throughout, with a sharper rise to 22.7mOD to the southeast of the railway line and 31.9mOD to the southwest.

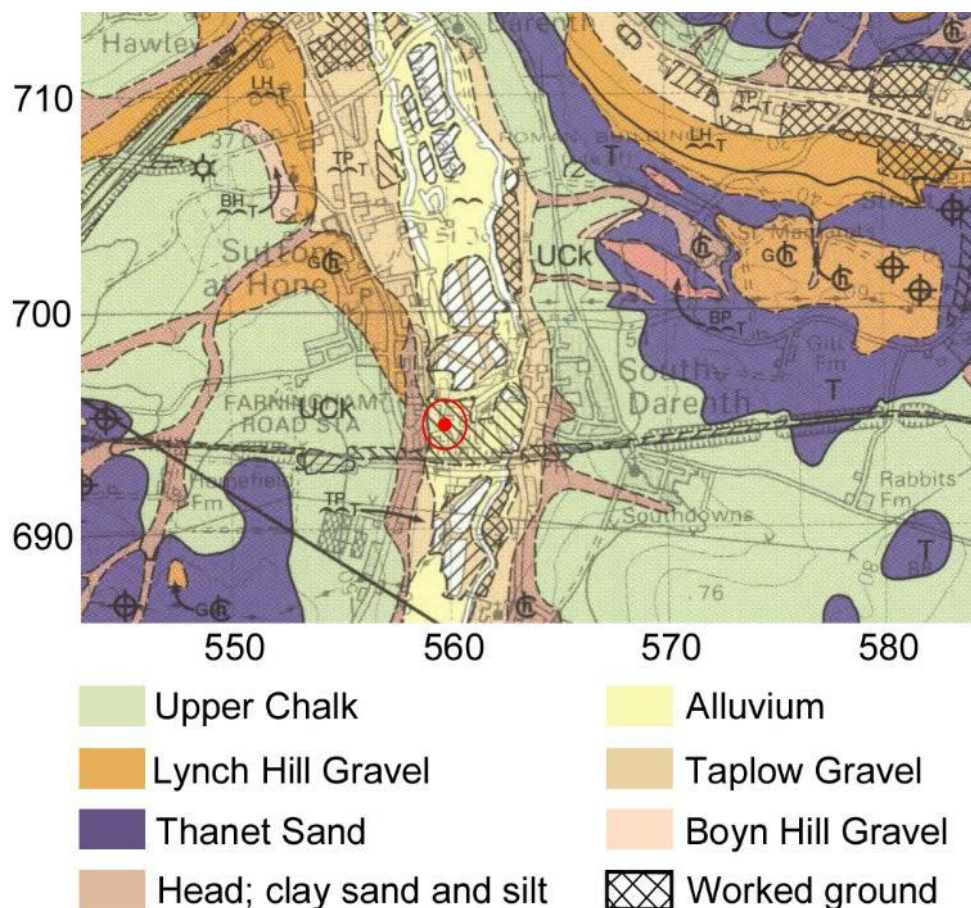


Figure 2: Extract from the BGS Sheet 271: *Dartford*, with site location marked in red.

4 ARCHAEOLOGICAL AND HISTORIC BACKGROUND

4.1 Included here is a summary of the archaeological and historical background of the site, which was discussed in depth in the accompanying Written Scheme of Investigation (Compass Archaeology September 2017).

4.2 *Prehistoric*

There is some archaeological evidence of general ‘background activity’ taking place in the vicinity of the site during the prehistoric period. As a whole, Kent was exploited for its natural resources and was extensively quarried.

Archaeological evidence recorded in the area, in particular cropmarks associated with ditches and enclosures, and flint tools, would suggest that the area was occupied to some degree. Additionally, geoarchaeological investigations conducted on the site of Horton Kirby Paper Mill, to the east of the site, found evidence of cereal cultivation dated to 5650-5480 BC (KHER TQ 56 NE 107; EKE9355). This is some of the earliest evidence of cereal cultivation in the UK and indicates that the settlement and utilisation of the area most likely occurred and remained over a long period of time.

4.3 *Roman*

Situated in the north-western corner of the county of Kent, the site saw little occupation in the Roman period, with more permanent settlements focused towards the coast and Dartford (c.4 miles north of the study site). The Romans built a military road from their invasion point along the Kent coast, to London crossing the River Darent. Dartford sprang up around this ford with settlers attracted to the rich soils of the Darent Valley. A large Roman villa was discovered at Darenth, just 1 mile north of the site, however there is no evidence for significant activity or occupation within 500m of the study site.

4.4 *Saxon*

Similarly, there is little archaeological evidence of settled occupation or large scale activity occurring in the vicinity of the site during the Saxon period. The documentary evidence suggests that Darenth (*Tarent*) existed as a large (59 households) settlement, appearing in Domesday, along with Horton Kirby (*Hortune*) which was another fairly sizeable settlement at the time.

4.5 *Medieval*

Throughout the medieval period, the towns surrounding the site continued to expand. There is no evidence of any occupation or activity in the vicinity of the study site however, and it is likely that it remained open field or wooded land until the late-18th century.

4.6 *Post-Medieval - Modern*

The town of South Darenth grew up around a flour mill, built in the late-18th to early 19th century. The mill was later converted into the Horton Kirby Paper Mill in c1825-30 by John Hall and contains a number of Listed Buildings. The most impressive of the

structures is the Italianate-style chimney at the Horton Kirby Paper Mill, constructed in 1881 (KHER TQ 56 NE 122).

The railway line that runs east-west at the southern end of the site is part of the Chatham and Dover line, built by the East Kent Railway Company in 1853-1861. The construction of the railway boosted the population of South Darenth, however the site itself remained undeveloped, situated within open fields until post-1960 (figs 3-4).

The present Watermill Way is well developed with three cul-de-sacs branching off the main road, lined by semi-detached residential properties.

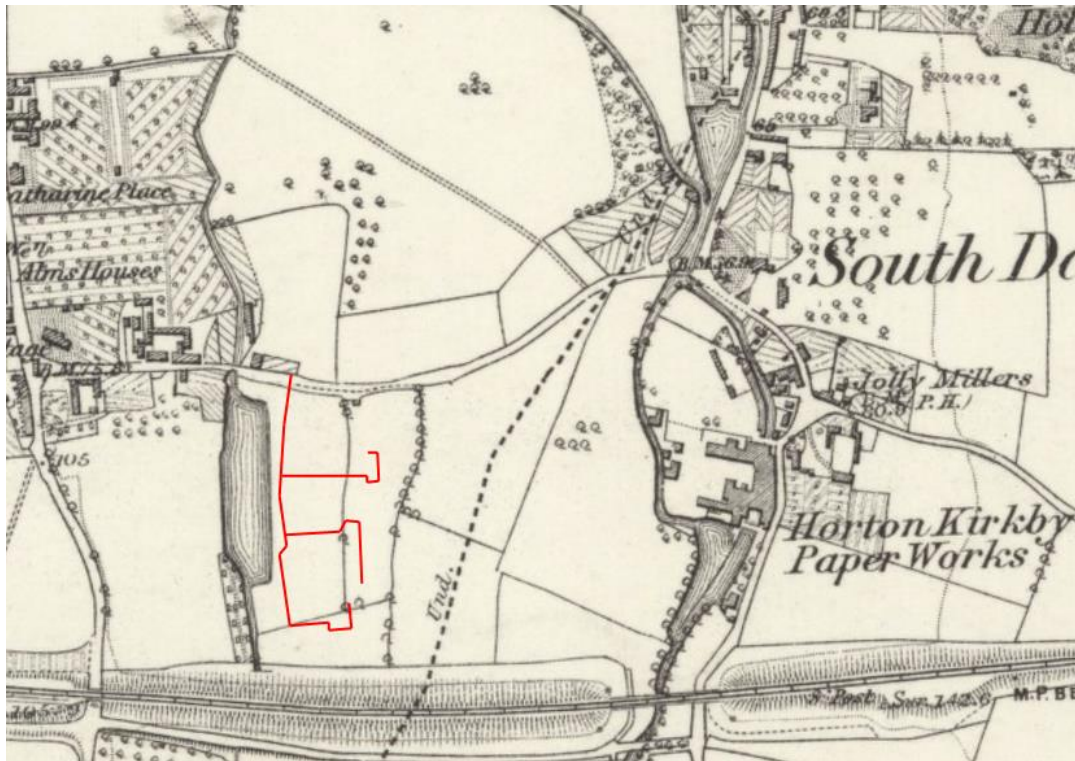


Figure 3: Extract from the OS six-inch map (1872), Essex Sheet LXXX VIII, showing the site (red) in relation to the paper mill and newly created railway.

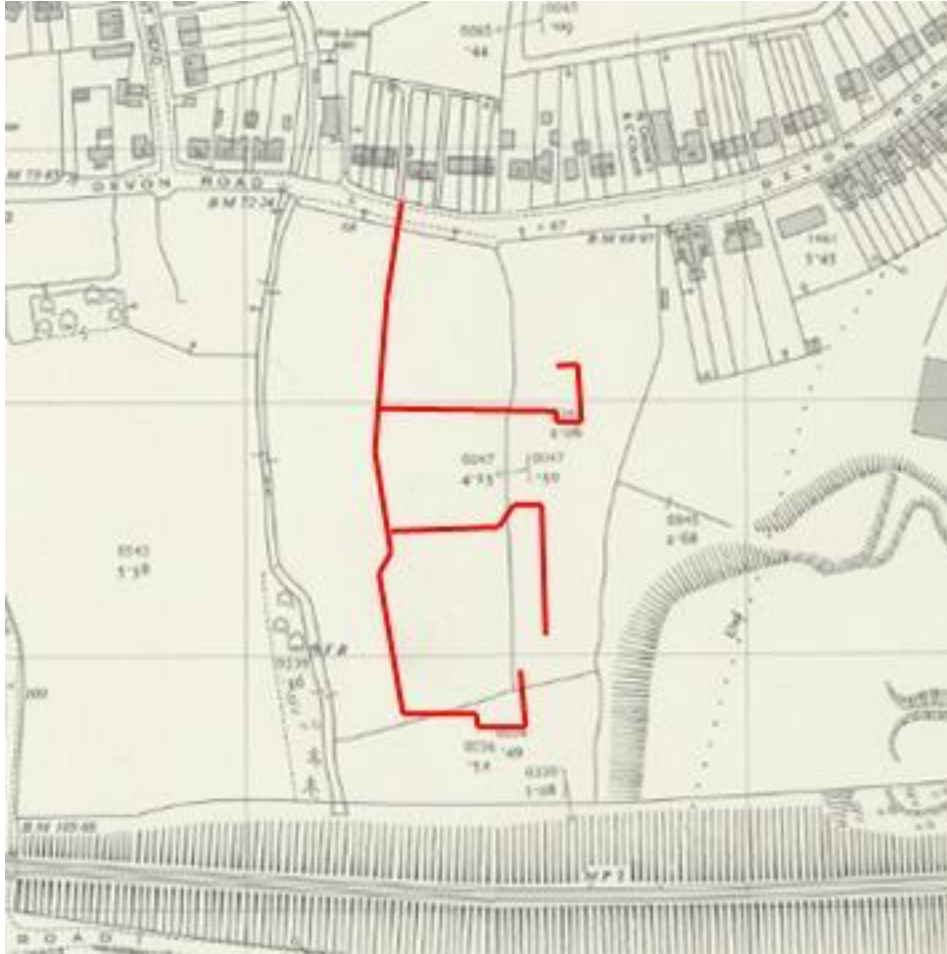


Figure 4: Extract from the OS 1:1250 map (1962), sheets TQ5469-TQ5569 A & TQ5669-TQ5769 A, showing the site area prior to the laying out of the present estate.

5 OBJECTIVES

- 5.1 The objectives of the archaeological watching brief were to contribute to heritage knowledge of the area through the recording of the archaeological remains exposed as a result of excavations in connection with the groundworks.

6 METHODOLOGY

6.1 Standards

- 6.1.1 The field and post-excavation work was carried out in accordance with Historic England guidelines (*Greater London Archaeology Advisory Service: Standards for Archaeological Work, 2015*). Works also conformed to the standards of the Chartered Institute for Archaeologists (*Standard and guidance for an archaeological watching brief 2015*). Overall management of the project was undertaken by a full member of the Chartered Institute.
- 6.1.2 Fieldwork was carried out in accordance with the Construction (Health, Safety & Welfare) Regulations. All members of the fieldwork team held valid CSCS (Construction Skills Certificate Scheme) cards, and wore hi-vis jackets, hard-hats, steel-

toe-capped boots, etc., as required. All members of the fieldwork team also followed the contractors' health and safety guidelines.

- 6.1.3 The Client and Kent County Council's Archaeological Officer were kept informed of the progress of fieldwork.

6.2 Fieldwork

- 6.2.1 The fieldwork entailed the monitoring of 8 trenches located along the north-south length of Watermill Way. The trenches were located on the western side of the main carriageway. The trenches measured between 0.60m and 22m long x 0.35m and 0.80m wide x a maximum of 1.25m deep (c19.35mOD).

- 6.2.2 The works were undertaken via a mechanical excavator fitted with a toothless grading bucket to clear the extant road surface, followed by hand excavation and cleaning to expose the existing services. Upon completion of the trenching works new plastic piping was laid down using the insertion method.

- 6.2.3 Adequate time was given for investigation recording of the trenches, although every effort was made not to disrupt the development programme.

- 6.2.4 Observations were recorded as appropriate on *pro-forma* Trench sheets by written and measured description, and a sample drawn in plan or section. The investigations were recorded on a general site plan and related to the Ordnance Survey grid. The fieldwork record was supplemented by digital photography, in .jpeg and RAW formats.

- 6.2.5 The recording system followed the procedures set out in the Museum of London recording manual. By agreement the recording sheets used are directly compatible with those developed by the Museum.

6.3 Post-excavation

The fieldwork was followed by off-site assessment and compilation of a report, and by ordering and deposition of the site archive.

6.3.1 Finds and samples

No finds or samples were recovered during the archaeological watching brief, from either the trenches or spoil.

6.4 Report procedure

- 6.4.1 This report contains a description of the fieldwork plus details of any archaeological remains or finds, and an interpretation of the associated deposits. Illustrations have been included as appropriate, including a site plan located to the OS grid. A short summary of the project has been appended using both the OASIS Data Collection Form and Kent County Historic Environment Record Report Form.

6.4.2 Copies of this report will be supplied to the Client and The Archaeological officer at Kent County Council.

6.4.3 There is no provision for further analysis or publication of significant findings. Should these be made the requirements would need to be discussed and agreed with the Client.

6.5 The site archive

Assuming that no further work is required, an ordered indexed and internally consistent archive of the evaluation will be compiled in line with CIfA standards and guidance (CIfA 2014), and will be deposited in the Dartford Borough Museum under site code WMW17.

7 RESULTS

7.1 The following forms a written description of observations made during the watching brief. Deposits are shown as (x), cuts and structures as [x]. The text is supplemented with illustrative photographs.

7.2 The watching brief was conducted over the course of two site visits between the 28th September and 24th October 2017. The results will be discussed in the context of these visits. Observed trenches are shown on fig.5 below and should be referred to throughout.



Figure 5: Trench locations, marked in pink. Map base adapted from the City of London Geocortex Viewer.

7.3 Monitoring visit 1: 28th September 2017

7.3.1 A total of 7 trenches were observed on this occasion, located on the western side of the carriageway between Devon Road in the north and the middle east-west cul-de-sac, measuring the following:

Trench No.	Length (m)	Width (m)	Depth (m)
1	2.65	0.80	1.02
2	1.20	0.80	0.90
3	1.40	0.80	1.20
4	1.55	0.80	0.90
5	0.60	0.60	0.90
6	1.90	0.85	1.25
7	2.00	0.60	1.20

7.3.2 The stratigraphy observed across all seven trenches was broadly similar, comprising 30mm of the existing black asphalt road surface (1) overlying 370mm of brick and tile rubble, and gravel hardcore road base (2) (fig.6).



Figure 6: Trench 1. Gravels (3) and (4) below road surface and make up (1) - (2). Facing E. Scale 1m.

7.3.3 Below the rubble road base a 140mm lens of black gravels was observed in all seven trenches, stretching across the trench entirety (3). This sealed at least two slightly different types of coarse gravels, orange-brown and grey-brown in colour (4) taken to continue below the level of excavation (fig.7).



Figure 7: Trench 6. Dark orange gravels (4) can be seen below a thin black lens (3) and rubble abundant road make up (2). Facing SE. Scale 1m.

7.3.4 The majority of the excavated trenches were situated over existing services and as a result were totally devoid of undisturbed ground. No archaeological finds or features were observed.

7.4 Monitoring visit 2: 24th October 2017

7.4.1 A second visit was made to the site in October 2017 to observe and record the completion of Trench 8, situated at the southern end of Watermill Way.

Trench No.	Length (m)	Width (m)	Depth (m)
8	22	0.35-0.40	0.90-1.20

7.4.2 The groundworks comprised a long section of open-cut trenching, following the curve of the stretch of road leading west towards Cedar Drive, dug by mechanical excavator and completed by hand.

7.4.3 The observed stratigraphy was broadly similar to trenches 1-7, comprising 80mm of compact black asphalt road surface (1) overlying 200mm of concrete and rubble (5), taken to be a bedding layer. This overlay a 170mm thick black gravel lens (3), as observed in trenches 1-7, above a further 330mm of orange gravels (4) (fig.8).



Figure 8: Trench 8. Road make up and gravel layers, (5) and (4). Facing NNE. Scale 1m.

7.4.4 The gravel layers described above sealed at least 320mm of dark grey-black moderately wet silty clay (6), taken to continue below the level of excavation (figs 9-11).



Figure 9: Darker silty clay (6) seen towards the trench base. Facing NW. Scale 1m.



Figure 10: A similar stratigraphy of road make up and gravels overlying a darker, wetter clay was seen throughout Trench 8. Facing NW. Scale 1m.



Figure 11: Detail of the concrete bedding layer (5) for the asphalt road surface (1) observed in Trench 8. Facing SW. Scale 1m.

- 7.4.5** No finds or features of archaeological interest were observed in Trench 8.
- 7.5** Similarly to above, the stratigraphic sequence was heavily disturbed by numerous modern services. Some of the gravel deposits observed may have been dug up with the creation of the nearby reservoirs, however there was little other evidence of significant activity.
- 7.6** Once all 8 trenches had been appropriately recorded the new PE network was installed and reinstatement undertaken.
- 8 CONCLUSION**
- 8.1** The stratigraphic sequence recorded in all trenches is taken to be modern in date, created during the original laying out of the housing estate in the post-1960s, and subsequently disturbed by the installation and alteration of numerous services.
- The sequence comprised the existing road surface and bedding layer overlying a series of gravels and silts – subsoil layers frequently disturbed by services and possible gravel extraction.
- 8.2** No finds or features of archaeological significance were recorded during the watching brief.
- 8.3** Natural deposits were not observed.

9 SOURCES

9.1 Bibliography

Chartered Institute for Archaeologists (2014). *Standard and guidance for the creation, compilation, transfer and deposition of archaeological archives.*

Chartered Institute for Archaeologists (2015). *Standard and guidance for an archaeological watching brief.*

Communities and Local Government (2012). *National Planning Policy Framework.*

Compass Archaeology (2017). *Specification for an Archaeological Watching Brief for Linear Utility Scheme at Watermill Way, South Darenth, Dartford DA4 9BB.*

Historic England (2015). *Greater London Archaeology Advisory Service: Standards for Archaeological Work.*

Mackinder et al, (2010). *A Romano-British Site at Swanscombe, Kent*

Mayor of London (2015). *The London Plan.*

Victoria County History (1932). *Kent, Vol.III*

9.2 Cartographic Sources (in chronological order)

Ordnance Survey (1872). *Essex Sheet LXXXX VIII. Six-inch.*

Ordnance Survey (1961). *TQ 5469 – TQ 5569 A. 1:1250*

Ordnance Survey (1961). *TQ 5669 – TQ 5769 A. 1:1250.*

British Geological Survey (1998). *Sheet 271: Dartford.*

APPENDIX I: LIST OF CONTEXTS

Number	Trench	Description
(1)	1-8	Existing asphalt road surface
(2)	1-7	Rubble and hardcore road base
(3)	1-8	Black gravel lens
(4)	1-8	Group: orange-brown gravels
(5)	8	Concrete and rubble bedding layer
(6)	8	Dark grey-black silty clay

APPENDIX II: OASIS RECORDING FORM

OASIS ID: compassa1-302642

Project details

Project name	Thames Water Mains Rehabilitation Works. Watermill Way, South Darenth, Dartford DA4 9BB.
Short description of the project	A watching brief conducted on 8 trenches between the 28th September and 24th October 2017 undertaken to replace the existing main with a new PE network. Trenches 1 to 7 measured between 0.60m and 2.65m in length (N-S) x 0.60-0.80m in width x 0.90 - 1.25m in depth. Trench 8 located at the southern end of Watermill Way, measured 22m in length x 0.35-0.40m in width x 0.90-1.20m in depth. The stratigraphy recorded across all eight trenches was broadly similar, comprising the existing road surface (1) overlying a layer of rubble and hardcore (2) and (5), black gravels (3) orange-brown gravels (4) and in the case of Trench 8, a band of dark grey-black wet silty clay (6). No archaeological finds or features were recorded.
Project dates	Start: 28-09-2017 End: 24-10-2017
Previous/future work	No / No
Any associated project reference codes	WMW17 - Sitecode
Type of project	Recording project
Site status	None
Current Land use	Transport and Utilities 1 - Highways and road transport
Monument type	NONE None
Significant Finds	NONE None
Investigation type	"Watching Brief"
Prompt	Water Act 1989 and subsequent code of practice

Project location

Country	England
Site location	KENT DARTFORD SUTTON AT HONE AND HAWLEY Watermill Way
Postcode	DA4 9BB

Study area	17 Square metres
Site coordinates	TQ 5599 6947 51.402254746589 0.242832436001 51 24 08 N 000 14 34 E Point

Project creators

Name of Organisation	Compass Archaeology
Project brief originator	County Planning Archaeologist
Project design originator	Kent Heritage Conservation group
Project director/manager	Compass Archaeology
Project supervisor	James Aaronson
Type of sponsor/funding body	Thames Water Utilities

Project archives

Physical Archive Exists?	No
Digital Archive recipient	Dartford Borough Museum
Digital Contents	"other"
Digital Media available	"Images raster / digital photography", "Text"
Paper Archive recipient	Dartford Borough Museum
Paper Contents	"other"
Paper Media available	"Map", "Photograph", "Unpublished Text"

Project bibliography 1

Publication type	Grey literature (unpublished document/manuscript)
Title	Thames Water Mains Rehabilitation Works. Watermill Way, South Darenth, Dartford DA4 9BB. An Archaeological Watching Brief.
Author(s)/Editor(s)	Archer, H.
Date	2017
Issuer or publisher	Compass Archaeology
Place of issue or publication	250 York Road, London, SW11 3SJ
Description	A brief summary of the results of the watching brief. Includes site background, historic context, aims and objectives, methodology, written description of observations, conclusions reached. Accompanied by maps, location plans, and illustrative photographs.

APPENDIX III: KENT COUNTY HISTORIC ENVIRONMENT RECORD REPORT FORM

Site Name: Thames Water Mains Rehabilitation Works – Watermill Way	
Site Address: Watermill Way, South Darenth, Dartford DA4 9BB	
Summary: A watching brief conducted during mains water replacement works monitored 8 trenches along Watermill Way. The pits were situated in the main carriageway, dug to a maximum depth of 1.25m (c19.35mOD). No archaeologically significant deposits were exposed or finds recovered from sections or spoil heaps.	
District/Unitary: Dartford	Parish: Sutton at Hone and Hawley
Period(s): Modern	

NGR: TQ 5599 6947 (centre)	
Type of archaeological work Archaeological watching brief	
Date of Recording: 28 th September to 24 th October 2017	
Unit undertaking recording: Compass Archaeology Ltd	
Geology: Alluvium / worked ground (not observed)	
Title and author of accompanying report: Thames Water Mains Rehabilitation Works, Watermill Way, South Darenth, Dartford DA4 9BB: An Archaeological Watching Brief - Heidi Archer	
<p>Summary of fieldwork results (begin with earliest period first, add NGRs where appropriate)</p> <p>No archaeologically significant deposits were exposed or finds recovered from sections or spoil heaps.</p> <p>Stratigraphy and material observed was disturbed as a result of previous groundworks associated with the installation and alteration of the existing services.</p>	
Location of archive/finds: Compass Archaeology Ltd	
Contact at Unit: Geoff Potter	Date: November 2017