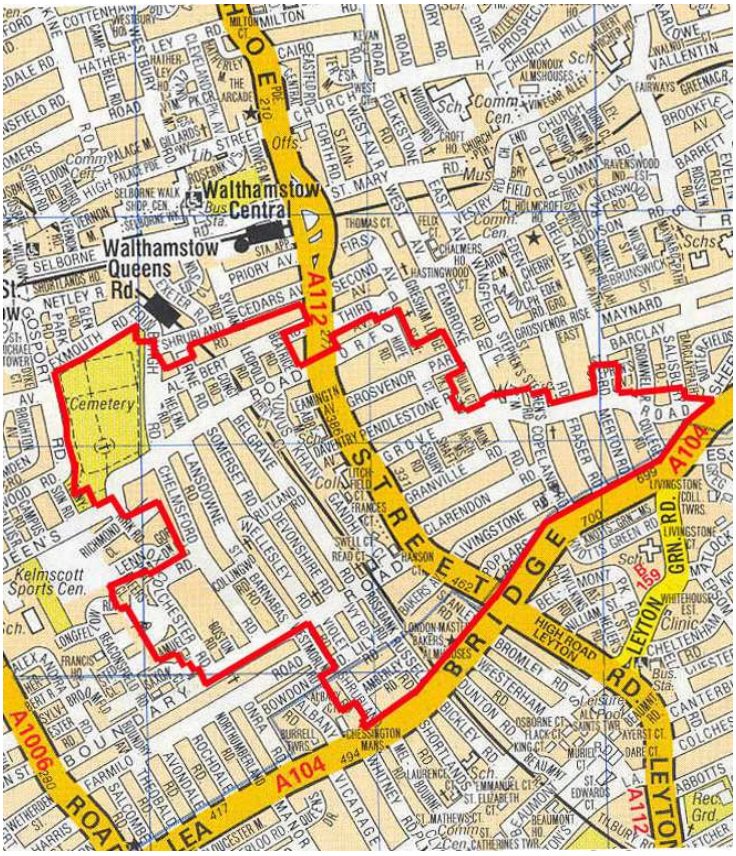
VICTORIAN MAINS REPLACEMENT WORKS

in the vicinity of Leyton/ Leyton Green and Walthamstow, (DMA Woodford 94)

London Borough of Waltham Forest

An Archaeological Watching Brief



COMPASS ARCHAEOLOGY

September 2012

VICTORIAN MAINS REPLACEMENT WORKS
in the vicinity of Leyton/ Leyton Green and Walthamstow,
(DMA Woodford 94)

London Borough of Waltham Forest

AN ARCHAEOLOGICAL WATCHING BRIEF

SITE CODE: TXK11

NGR: TQ 3779 8815 (SW point)
TQ 3826 8856 (NE point)
TQ 3760 8829 (NW point)

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September 2012

Abstract

Between June 2011 and September 2012 Compass Archaeology conducted an archaeological watching brief in the vicinity of Leyton, Leyton Green and Walthamstow. The watching brief took place during Thames Water's programme of Victorian mains replacement works in the District Metering Area Woodford 94.

This area encompassed the Archaeological Priority Zone 15, relating to the historic settlements of Leyton and Leyton Green, and due to the foreseen low potential for in-situ archaeological deposits over the DMA area it was decided that monitoring works would be limited to the area of the APZ.

In the end no significant archaeological deposits or features were encountered in any of the monitored areas. Truncated natural deposits were consistently encountered between 350mm and 600mm below the existing ground surface, sealed below various levelling deposits and aggregates comprising the modern road base. This was unsurprising considering the limited development of the area prior to the later 19th century, and the fact that the groundworks were often taking place in previously disturbed ground.

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List of Figures

1 Introduction

1.1 This document forms a summary of the findings of an Archaeological Watching Brief conducted during groundworks associated with Victorian Mains Replacement works, (VMR), in the vicinity of Leyton/Leyton Green and Walthamstow, between June 2011 and September 2012. The scheme of works involved replacement of the existing water mains, using a combination of methods including open-cut trenching and insertion.

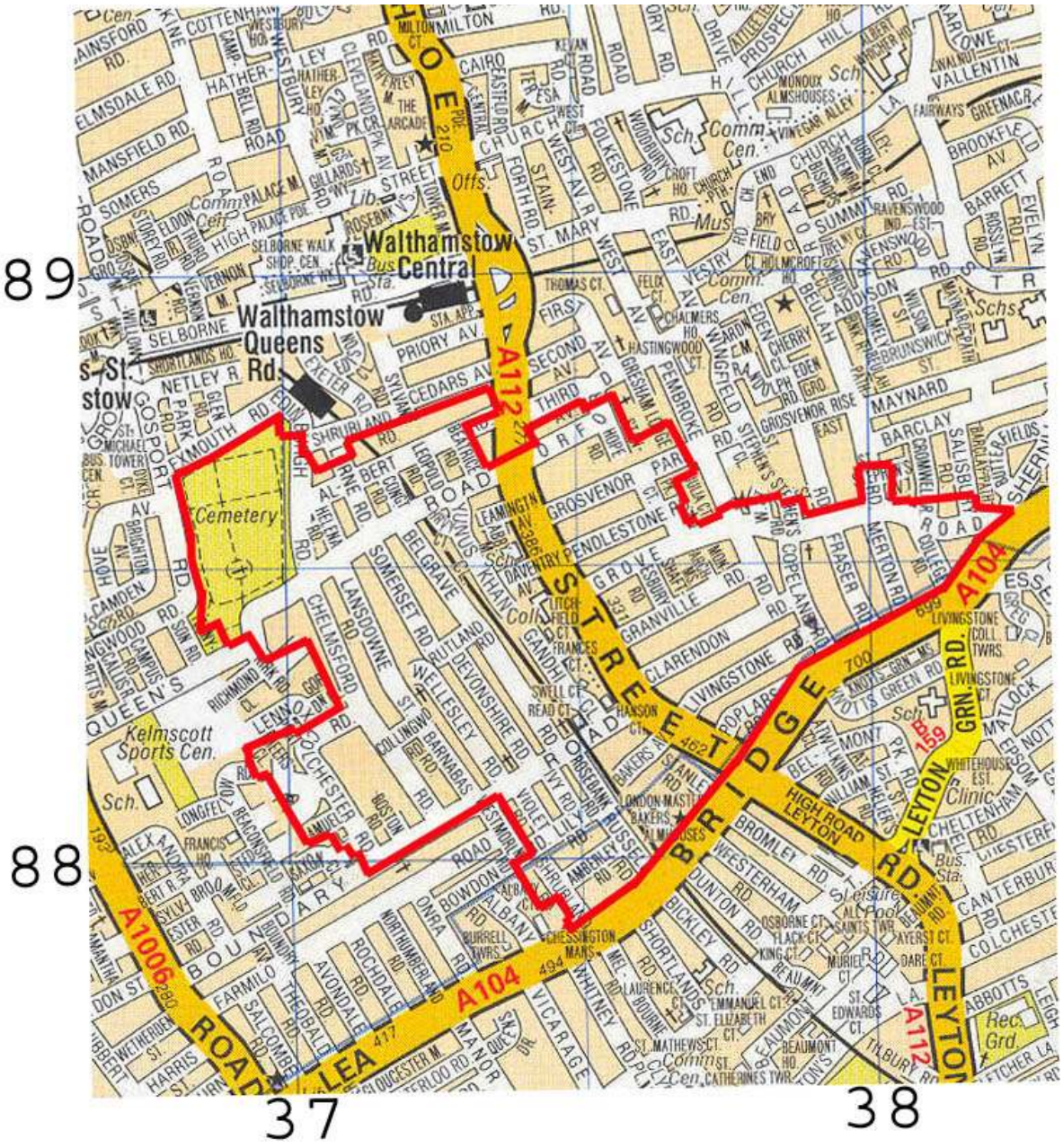

Fig.1: *Location of DMA Woodford 94 in relation to A-Z map of London*

1.2 Archaeological observations took place during contractors' groundworks, within the area shown in Figure 6, after consultations with Kim Stabler in the first instance, and later with Adam Single, both of English Heritage. The groundworks were conducted by Optimise on behalf of Thames Water.

2 Location, Geology and Topography

2.1 The study area lay within the District Metering Area, (DMA), Woodford 94 shown in Fig. 1. Due to the low potential for significant archaeological deposits over the majority of the DMA area, highlighted in the WSI, it was decided that monitoring works would be focused in the Archaeological Priority Zone 15 of Leyton/Leyton Green in the southeast portion of the area, (APZ15). This comprised a long, thin triangular area based around Lea Bridge Road to the south, Hoe Street to the west, Livingstone Road to the north, and the southern parts of Copeland Road, Fraser Road, Merton Road and College Road to the east.

2.2 The geology of the DMA is a mix of well-drained river terrace gravels including Hackney Gravel, Taplow Gravel and Lynch Hill Gravel over London Clay.

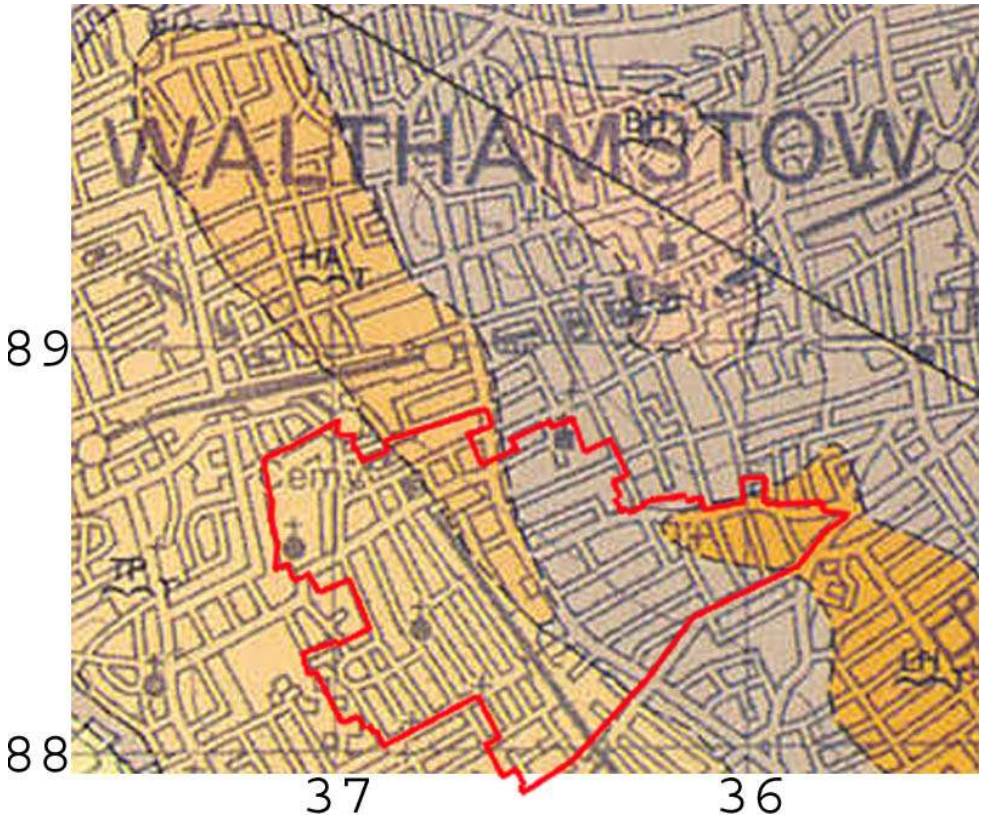

Fig.2: *DMA area outlined on the British Geological Survey, Sheet 256: North London. Solid and drift geology. (1993)*

3 Archaeological and Historical Background

3.1 The London Borough of Waltham Forest has evidence of prehistoric and early archaeological material, particularly in Leyton, with Palaeolithic findspots and a Roman cemetery and foundations of a Roman villa. In the 1920s a large grey coarseware cooking pot and wine jug was found in a garden off of 37 Clarendon Street, one road north from Livingstone Street. Leyton High Road follows a pre-Roman trackway and later was a principal ancient route to Waltham Abbey.

3.2 The Anglo-Saxon place-name 'Leyton' means "settlement on the river Lea" and it is recorded in the Domesday Book of 1086. It remained a rural settlement with a small village centre and a number of estates with Hoe Street forming the major through-road linking them.

3.3 In 1993 at the Old Leyton Baths (just south of DMA area) evidence for 18th century domestic/commercial and industrial buildings was recorded, with early post-medieval dumping and pit-digging, early agricultural activity, a late medieval brick structure and pits, along with a late medieval boundary ditch running parallel to the High Road (infilled 1500-1550). This investigation showed that the medieval property divisions remained constant along the High Road area.

Investigations at the Livingstone College Tower, Leyton Green Road in 1994 (just south of the study area) recorded 16th and 17th century finds and the remains of an 18th century building.

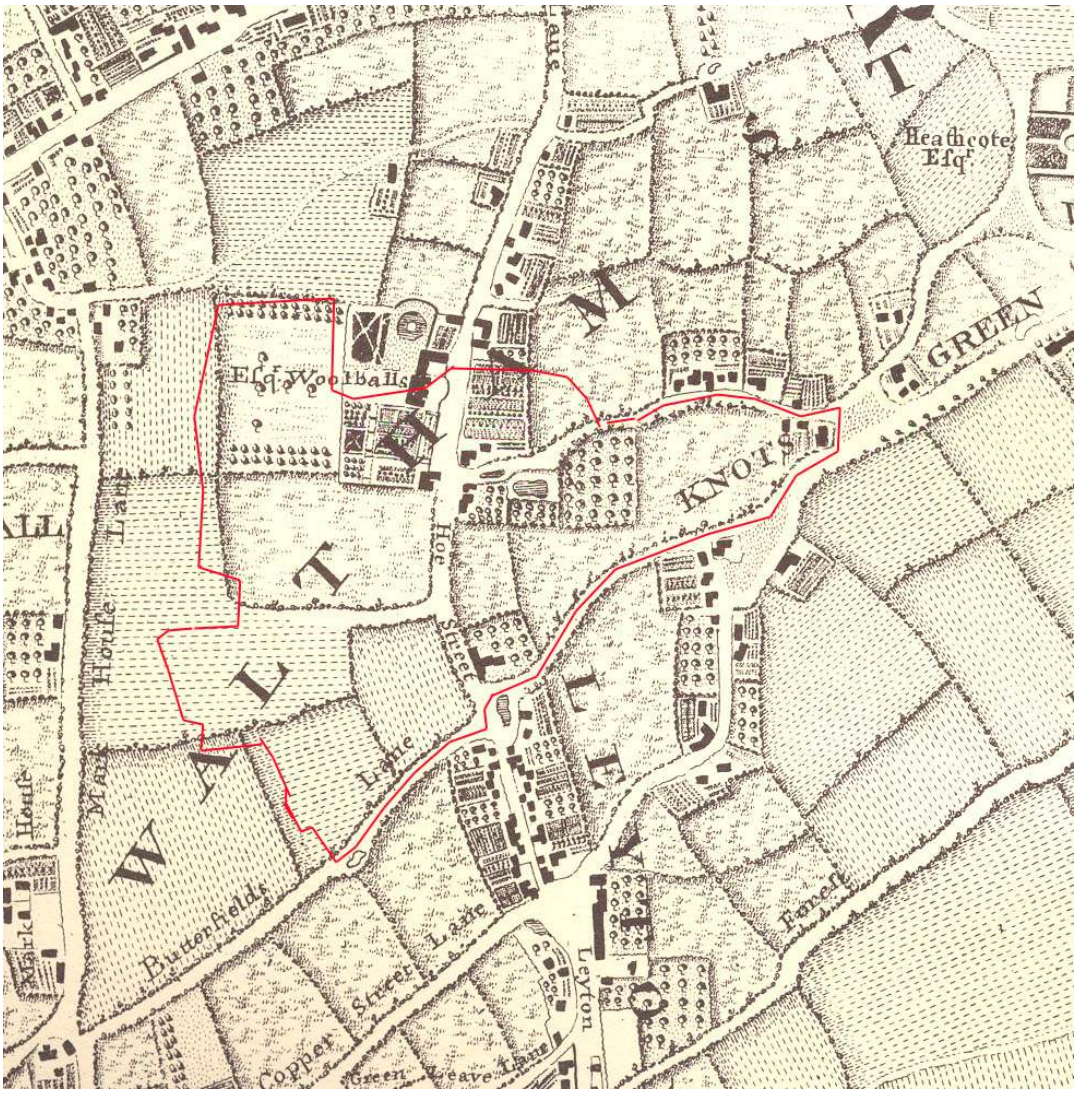

Fig.3: *Extract from Rocque's Survey 1741-45*

Rocque's depiction of Walthamstow shows the beginnings of linear development along Hoe Street, mainly in the form of large properties with formally laid gardens and orchards. Several of these larger properties are labelled such as Esq.Woolballs, Heathcote Esq. and Knots Green, which took its name from Thomas Knott who owned the estate prior to 1451. The impressive mansion is depicted immediately north of the crossroads between Hoe Street and Lea Bridge Road, with orchards attached. This property was rebuilt in 1775, renamed Poplars, and the estate passed through several owners, including William Copeland of Copeland-Spode fame, surviving until 1854 when it was broken up. The house was sold for a final time in 1892 when it is listed as having 17 bedrooms. It was demolished in 1893 when the area was comprehensively redeveloped as depicted in Fig. 5.

The north end of Leyton village, based around the crossroads with Lea Bridge Road has a greater collection of properties, but smaller with market garden plots to the rear.

The cross-roads between High Road, Hoe Street, and Lea Bridge Road is called ‘Bakers Arms’ after a pub of that name and its association with the almshouses on Lea Bridge Road, built by the London Master Bakers’ Benevolent Institution in 1857, (see map below). Note ‘The Poplars’ estate opposite the almshouses, which were torn down in 1893 to make way for the new, terraced housing that came to dominate the area.

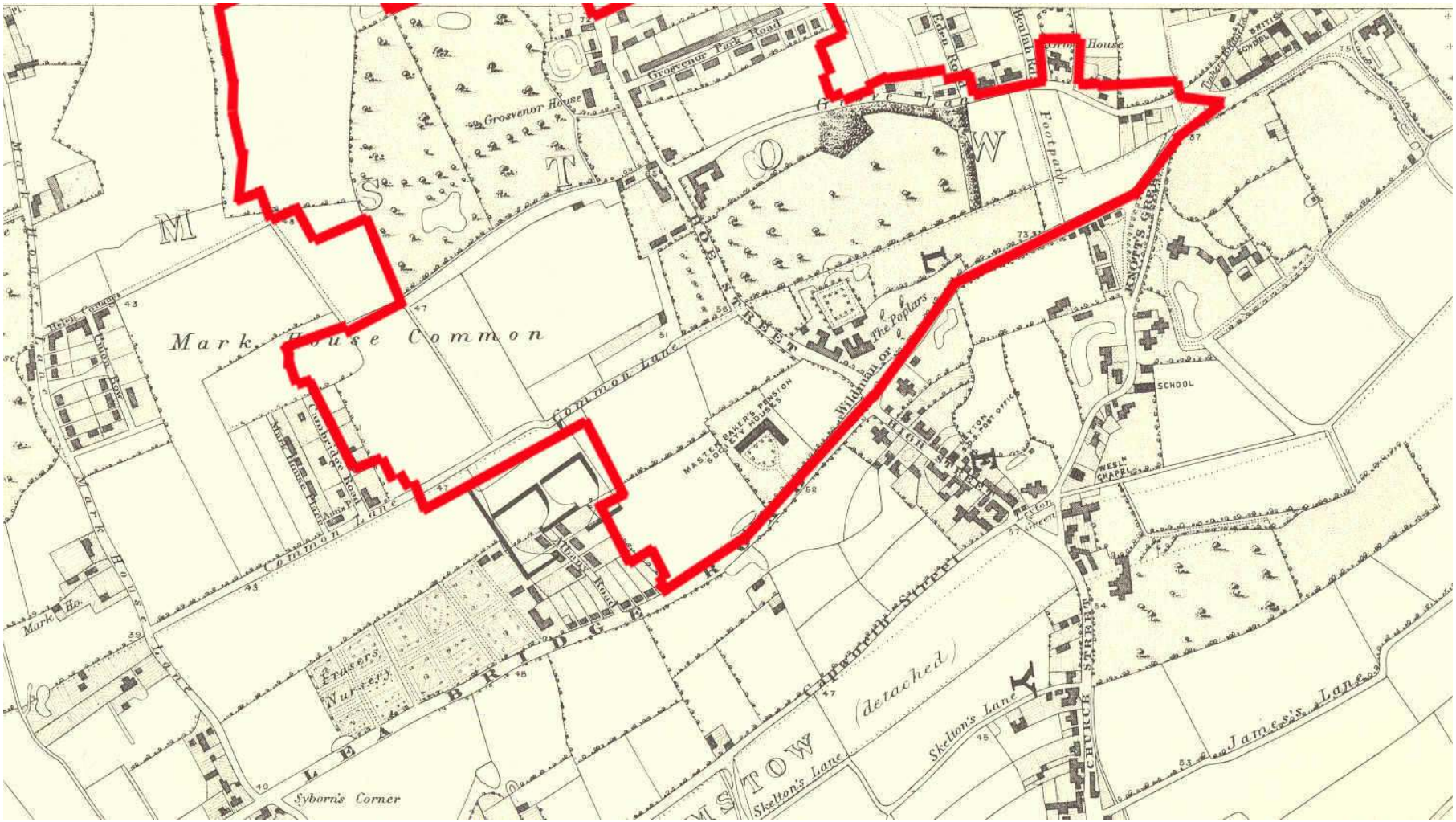

Fig.4: *Extract from Stanford’s map of London, c1862 with the DMA area outlined in red*

3.4 The area later saw rapid expansion after the arrival of the railways with a proliferation of terraced property developments. The Leyton area was very heavily bombed, both in WWI via Zeppelin, and in WWII by the Luftwaffe. Its proximity to the London Docks and the Temple Mill rail yard made it an obvious target. Investigations in Queen's Road, 1992 discovered a WWII generator-shed and evidence for the placement of barrage balloons as well as undated post-holes and gullies beneath a medieval and post-medieval ploughsoil.

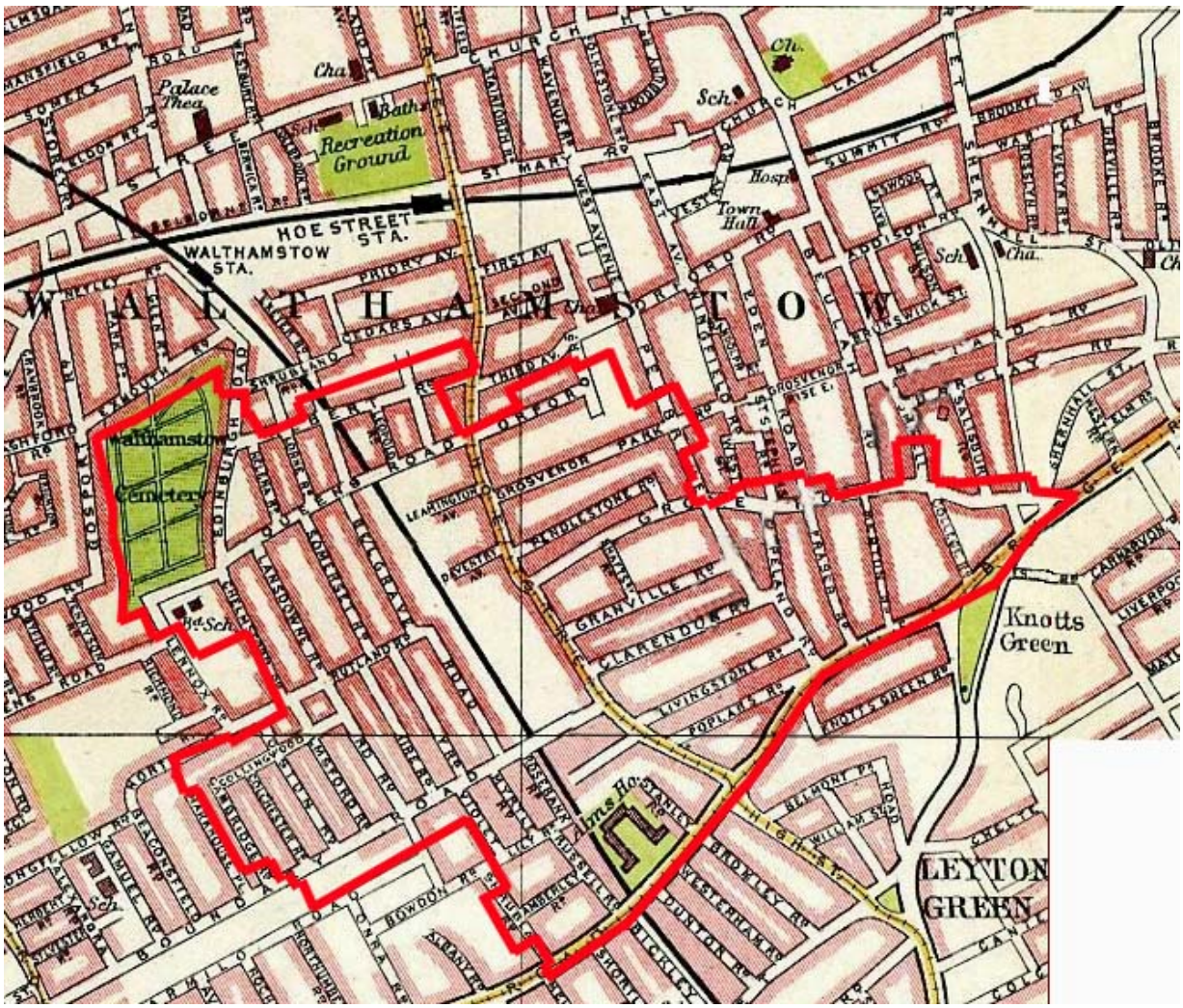

Fig.5: *Extract from Bartholomew's 'Handy Reference Atlas of London and Suburbs' 1908. The road layout is largely unchanged since this time. It shows the DMA having been comprehensively redeveloped since the arrival of the railway in 1870, less than 40 years previously*

4 Archaeological Research Questions

The fieldwork presents an opportunity to address the following general and specific research questions:

- Is there any evidence for prehistoric to medieval activity, and what is the nature of this?
- Is there any evidence of the Roman or pre-roman road system?
- Is there any evidence for the line of the medieval roads or early settlement patterns in this area?
- What evidence is there for post-medieval activity in the area?
- At what level do archaeological deposits survive in the highways across the area?
- Can the watching brief works inform on the site-specific research questions of local archaeological sites and archaeological priority areas

5 Methodology

5.1 Fieldwork

The fieldwork was carried out in accordance with current English Heritage guidelines (in particular, GLAAS *Standards Paper 3: Fieldwork)* and to the standards of the Institute for Archaeologists *(Standard and Guidance for an archaeological watching brief, 2008).* Overall management of the project was undertaken by a full Member of the Institute.

Adequate time was given for investigation and recording of the observed trenches, although every effort was made not to disrupt the contractors' programme. Observations were recorded on *proforma* trench sheets, and drawn in plan with measured sketches taken of sample sections. The investigations were recorded on a general site plan and related to the Ordnance Survey grid. The fieldwork record was supplemented as appropriate by digital photography.

Close liaison was maintained with the groundworks team to ensure a presence on site as and when necessary. The Client and Adam Single of English Heritage were kept advised of the progress of the fieldwork.

5.2 Post-excavation work

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

Copies of this report will be supplied to the Client, English Heritage and the local planning authority. A short summary of the fieldwork has been appended to this report using the OASIS Data Collection Form, and in paragraph form; suitable for publication within the 'excavation round-up' of the *London Archaeologist*.

6 Results

Fig.6: *Location plan of the monitored groundworks, (red), within APZ15, (outlined in blue).* Adapted from a plan provided by Thames Water

College Road

On the 6th June 2011 four launch pits were monitored on the eastern side of College Road extending in a line north from the junction with Lea Bridge Road to outside no.15 College Road. The pits were rectangular in shape, with the long axis aligned N-S, ranging between 0.9m to 4m long and 1m to1.3m wide and up to 1.2m deep.

Re-worked natural deposits were exposed at a depth of 600mm below the modern ground surface and comprised a series of orange-brown clayey gravels. These deposits had been truncated by the existing water main and hardcore aggregate backfilled around the pipe. Sealing the gravels was a thick layer of made ground composed of red and yellow stock brick rubble, and mortar and gravel lenses within a light brown silty matrix. Above this made ground was the tar and gravel road base topped with a layer of rolled tarmac.

No archaeologically significant deposits were exposed.

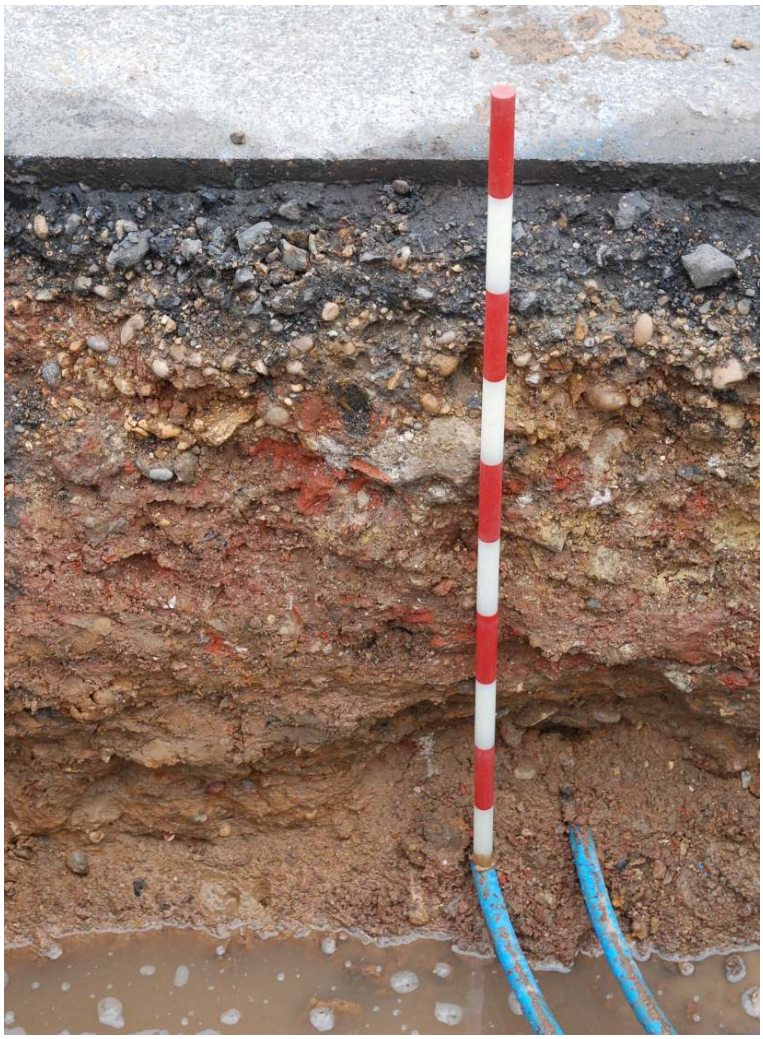

Fig.7: *Pit 1 on College Road, facing W, 6th June 2011* (1m scale)

Copeland Road

On the 11th August 2011 a total of seventeen launch pits were recorded on the eastern side of the road. The first pit was at the far northern end of the road, (on the junction with Grove Road); the other sixteen pits were aligned from opposite no.18 Copeland Road to the southern junction with Lea Bridge Road. They were of various sizes and shapes, with the majority being rectangular or square. They ranged in size between 1m to 4.5m long and from 0.8m to 2m wide. The pits were excavated by machine to a depth of between 0.95m and 1.2m deep.

600mm below ground level truncated natural deposits were observed as mixed grey-brown clay-silt containing the occasional rounded pebble and gravel lens. Above these clays were vivid orange gravels, 150mm thick, sealed by coarse grey gravels, 120mm thick, forming the existing road base topped with 80mm of rolled tarmac.

No finds or features were exposed in any of the pits.

Fraser Road

A 5m stretch of open-cut trenching was opened along the centre of Fraser Road on the 30th June 2011. The trench was aligned approximately N-S and measured 1m wide and 0.9m deep.

Natural, sandy gravels were recorded from 570mm below the present ground surface to the base of the trench and continuing. These were beneath another truncated layer of mid-brownish/yellow clay 300mm thick. The clay was sealed beneath 150mm of compacted gravels and 110mm of tarmac.

Fig.8: *East facing section through trench on Fraser Road, 30th June 2011* (1m scale)

A single launch pit, 6.5m long, (NW-SE), and 4m wide, (NE-SW), was observed on the corner of Fraser Road and Lea Bridge Road, on the 9th of May. The pit contained similar stratigraphy as observed on the 30th June 2011, being banded gravels 500mm+ below ground level sealed beneath crushed concrete aggregate and tarmac.

Lea Bridge Road

On the 21st of March 2012 three small launch pits 3.5m long, (NE-SW), 1.2m wide, (NW-SE), and up to 1.2m deep were investigated on the northern side of Lea Bridge Road, one on the junction with Grove Road, and two opposite the Esso garage forecourt.

All three pits followed the alignment of the existing water main and so the underlying stratigraphy was heavily disturbed within the trench. The re-worked natural brown-yellow clay deposits contained up to 50% inclusions of coarse gravels but were otherwise sterile, and were sealed below a poured concrete road base topped with tarmac.

Fig.9: *Pit opened on Lea Bridge Road, March 21st 2012, facing SE*

A further nineteen launch pits were observed on the 29th of March 2012 from outside the Esso garage and spaced every few metres apart to the corner of Merton Road, 0.3m south of the kerbline. These ranged from 1.2m square pits, to longer, 9m long and 1.8m wide, trenches.

Within these pits truncated natural clays were observed from as little as 350mm below existing ground surface. These clays were orange-brown, thick and largely sterile save the occasional patch of gravels or crushed CBM fragment. This layer was overlain with poured concrete, with some steel reinforcing in places, and the existing tarmac road surface, amounting to between 350-400mm deep.

The pits all followed the existing route of the cast-iron Victorian water main and no archaeologically significant deposits were observed.

Fig.10: *Launch pits on Lea Bridge Road, from outside no.713 facing SW towards College Road, 29th March 2012*

Fig.11: *Pit outside of no.701Lea Bridge Road, facing S. Pipe being inserted, (so access to pit limited)*

A visit on the 2nd May 2012 monitored two areas of open-cut trenching either side of the junction with Poplars Road. The northwestern trench measured 22m long, and the southern trench was 12m long, both aligned alongside the kerb-line. The trench was largely machine dug, with the existing pipe exposed by hand. The trench was cut 0.5m wide and up to 0.8m deep.

Recorded stratigraphy included 400mm+ of compacted brown-orange clay containing infrequent crushed purple-brick fragments in the base of the trench, sealed below 400mm of mixed concrete and crushed brick forming the current road base, topped with rolled tarmac.

On the 24th of May 2012 a total of 80m of open-cut trenching was recorded on the north side of Lea Bridge Road. The trenching was comprised of a 52m length on the north pavement, from the junction with Poplars Road to outside no.607, and a second, 28m length cut, in the carriageway flush with the northern kerb-line, extending from outside no.607 to outside no.603.

520mm+ below the existing ground surface light-orange brown clay containing occasional gravels was exposed. Above this was 320mm of dark brown-grey clay containing infrequent crushed CBM fragments and occasional rounded flint and chalk pebbles. This clay was sealed below a layer of yellow builders sand 120mm thick forming the base for paving slabs, northern section, or 150mm of kerbstone to the south.

No archaeologically significant deposits were seen or datable finds recovered. The stratigraphy probably represented the truncated natural deposits overlain by made-

ground imported during construction of the existing pavement and roadside developments.

Fig.12: *Section through trench recorded on Lea Bridge Road, 24th May 2012. Facing NW* (1m scale)

Livingstone Road

Five service and launch pits were monitored on the 18th June 2012. The first pit was opened 10m NW from the junction with Hoe Street on Livingstone Road, and another 15m further round the corner outside no.2. 3 other pits were opened outside no.4, 8 and 15 respectively. They were approximately 7m apart and 1.7m from the southern kerb-line. The pits ranged from 2.5m to 3.5m long, (E-W), and were approximately 1.2m wide, and up to 1.2m deep.

500mm below the current ground surface was similar truncated natural clays as observed elsewhere across the DMA area - a light yellow-brown colour with some evidence of iron panning towards the upper levels caused by chemical leaching and intense compaction. The yellow-brown clay was overlain by a strong, brown, silty-clay, interpreted as a possible leached soil. This was sealed by a mix of gravel and crushed brick rubble overlain by the existing tarmac road surface.

Fig.13: *Pit 1 outside No.15 Livingstone Road, facing S, 18th June 2012* (1m scale)

A further visit on the 24th of June 2012 monitored five pits between nos.14 and 32. These pits were rectangular, measuring from 1.8m to 4.25m long and between 1.03 and 1.25m wide. They were excavated to a depth of 1.2m to 1.38m deep to expose the existing mains pipe in the base of the pits.

Like the other pits recorded on this road the stratigraphic sequence was fairly homogenous. 750mm+ below the ground surface clean, sterile orange-brown clay survived, from 300-750mm below the ground surface a dark-brown / grey clay was present containing rare gravels and crushed CBM fragments, this layer was progressively thicker in the eastern pits. This leached horizon was sealed below a crushed concrete bedding layer and the existing tarmac road surface, 300mm thick.

Fig.14: *Pit outside no.28 Livingstone Road, facing SE. 24th June 2012* (1m scale)

Merton Road

A series of nine launch pits were investigated on the eastern side of Merton Road on the 14th July 2011. The first pit was on the junction with Lea Bridge Road and the ninth was outside no.29 Merton Road. The pits ranged in size from 1m to 3m long and were cut approximately 1m wide, and machine dug up to 1m deep.

Truncated natural orange-brown clays were exposed at 900mm+ in the base of the excavations and this was sealed by a very-dark grey-brown silty subsoil containing occasional rounded pebbles and CBM fragments, (450-900mm below present ground level). This subsoil was sealed below the existing gravel and rubble road base and tarmac surface, comprising the uppermost 450mm of exposed stratigraphy.

No archaeologically significant deposits were observed.

Fig.15: *Pipe insertion on junction of Merton Road and Lea Bridge Road, 14th July 2011. Facing S*

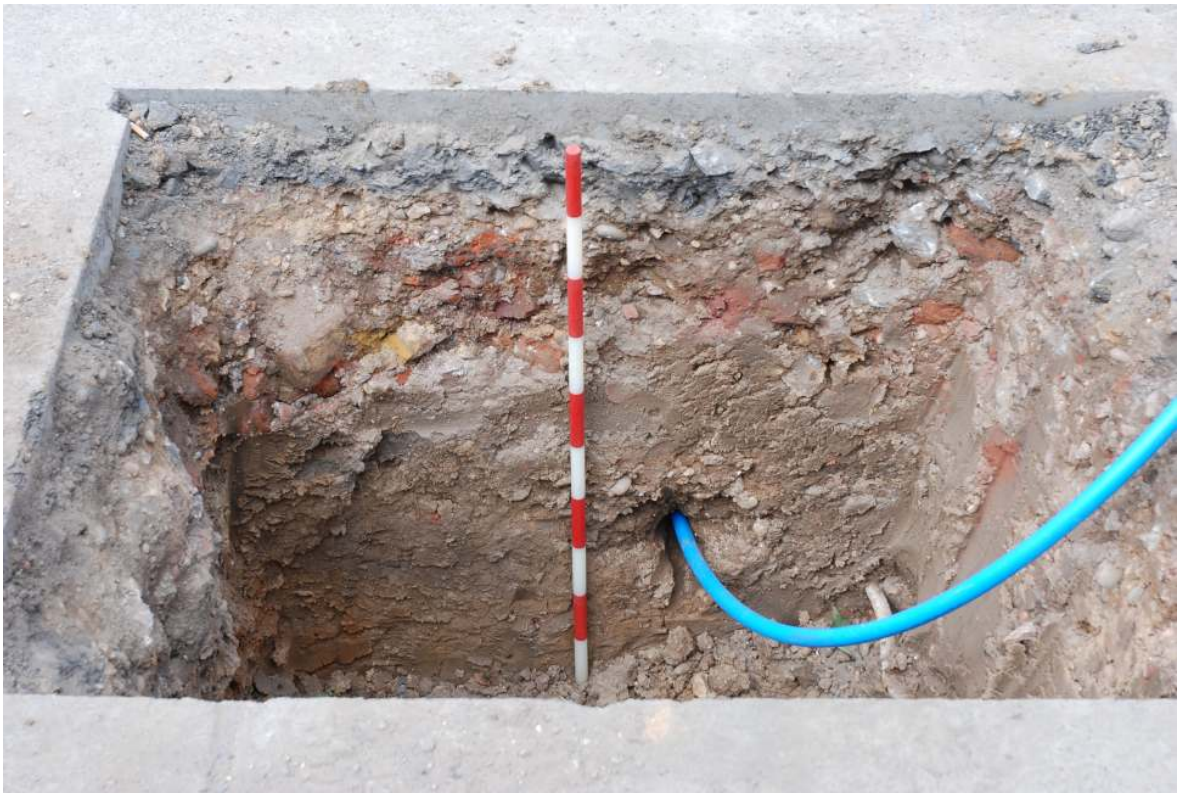

Fig.16: *Pit opposite no.30 Merton Road, facing W. 14th July 2011* (1m scale)

Poplars Road

On the 19th of September 2012 a visit was made to monitor seven pits on the north side of Poplars Road from the junction with Hoe Street to outside No.21. The pits ranged in size from 2m to 8m long, between 0.65m and 1.4m wide, and were dug to a depth of 1.25m to 1.40m below existing ground level to expose the cast iron mains water pipes. No archaeologically significant deposits were encountered in the pits despite its proximity to the former estate of Poplars.

Truncated brown clay geology was exposed at a depth of 600mm below ground level sealed beneath a thin layer of crushed CBM, tar and mortar within a black-brown silt mix forming a hardcore bed for the modern road surface. The bedding layer was between 250-350mm thick. This was overlain with 310mm of large yellow gravels and MOT Type 1 beneath the rolled tarmac road surface, which comprised the top 50mm of the modern ground surface.

Fig.17: *Section through W end of pit E, Poplars Road, facing S. 19th September 2012* (1m scale)

7 Conclusions

In conclusion, no archaeologically significant deposits were exposed across the APZ during the mains replacement programme. Truncated natural geology, taking the form of compacted, strong-brown clay, was encountered from as little as 350mm below the modern ground surface sealed below aggregate road base deposits.

This is because this area was not close to the centre of the medieval settlement of Leyton and any activity on the periphery of the village was probably ephemeral in nature, (agricultural trenches, orchards, isolated buildings), and so unlikely to have survived the comprehensive redevelopment that occurred in the later 19th century.

8 Bibliography

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Appendix I: OASIS data collection form

OASIS ID: compassa1-134198

Project details

Project name	Thames Water Victorian Mains Replacement works DMA WDF94 in the vicinity of Leyton / Leyton Green and Walthamstow
Short description of the project	Between June 2011 and September 2012 Compass Archaeology conducted an archaeological watching brief in the vicinity of Leyton, Leyton Green and Walthamstow. The watching brief took place during Thames Water's programme of Victorian mains replacement works in the District Metering Area Woodford 94. This area encompassed the Archaeological Priority Zone 15, relating to the historic settlements of Leyton and Leyton Green, and due to the foreseen low potential for *in-situ* archaeological deposits over the DMA area it was decided that monitoring works would be limited to the area of the APZ. In the end no significant archaeological deposits or features were encountered in any of the monitored areas. Truncated natural deposits were consistently encountered between 350mm to 600mm below the existing ground surface and beyond, sealed below various levelling deposits and aggregates comprising the modern road base. This was interpreted as unsurprising considering the limited development of the area prior the later 19th century, and the fact that the groundworks were often taking place in previously disturbed ground.
Project dates	Start: 11-06-2011 End: 19-09-2012
Previous/future work	No / No
Any associated project reference codes	TXK11 - Sitecode
Type of project	Recording project
Site status	Local Authority Designated Archaeological Area
Current Land use	Other 11 - Thoroughfare
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	GREATER LONDON WALTHAM FOREST WALTHAMSTOW Thames Water District Metering Area WDF 94
Postcode	E17
Study area	5.80 Hectares
Site coordinates	TQ 3779 8815 51 0 51 34 29 N 000 00 40 W Polygon
Site coordinates	TQ 3826 8856 51 0 51 34 42 N 000 00 15 W Polygon
Site coordinates	TQ 3760 8829 51 0 51 34 34 N 000 00 50 W Polygon
Height OD / Depth	Min: 0.35m Max: 1.40m

Project creators

Name of Organisation	Compass Archaeology
Project brief originator	English Heritage/Department of Environment
Project design originator	Compass Archaeology
Project director/manager	Compass Archaeology
Project supervisor	James Aaronson
Type of sponsor/funding body	Contractor
Name of sponsor/funding body	Optimise

Project archives

Physical Archive Exists?	No
Digital Archive recipient	Museum of London archive
Digital Contents	"other"
Digital Media available	"Images raster / digital photography","Spreadsheets","Text"
Paper Archive recipient	Museum of London Archive
Paper Contents	"other"
Paper Media available	"Correspondence","Map","Notebook - Excavation"," Research"," General Notes","Plan","Unpublished Text"

Project bibliography 1

Publication type	Grey literature (unpublished document/manuscript)
Title	VICTORIAN MAINS REPLACEMENT WORKS in the vicinity of Leyton/ Leyton Green and Walthamstow, (DMA Woodford 94) London Borough of Waltham Forest An Archaeological Watching Brief
Author(s)/Editor(s)	Aaronson, J
Date	2012
Issuer or publisher	Compass Archaeology
Place of issue or publication	5-7 Southwark Street, SE1 1RQ
Description	Short report of the results of the watching brief. Includes historical, archaeological, geological and topographical background of the site, details of the methodology used, photographs and descriptions of all trenches monitored, and brief conclusions reached.

Appendix II: London Archaeologist summary

Site address:	Thames Water District Metering Area Woodford 94 in the vicinity of Leyton / Leyton Green and Walthamstow
Type of project:	Watching brief
Dates of fieldwork:	June 2011-September 2012
Site code:	TXK11
Site Supervisor:	James Aaronson
NGR:	TQ 3779 8815 (SW corner)
	TQ 3826 8856 (NE corner)
	TQ 3760 8829 (NW corner)
Funding body:	Optimise

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