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# THE RIFLES PUBLIC HOUSE, SWAN AND PIKE ROAD, ENFIELD LOCK, LONDON

## ARCHAEOLOGICAL EVALUATION



Report Number: R1036

October 2013

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**THE RIFLES PUBLIC HOUSE, SWAN AND PIKE ROAD,  
ENFIELD LOCK, LONDON**

**ARCHAEOLOGICAL EVALUATION**

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|----------------------|-----------------|--------------|------------------|
| <b>Site Code</b>     | SWN13           | <b>NGR</b>   | 537189 198364    |
| <b>Planning Ref.</b> | TP/06/2169/REN1 | <b>OASIS</b> | britanni1-161604 |
| <b>Approved By</b>   | Matthew Adams   | <b>Date</b>  | October 2013     |



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## **Abstract**

*A five trial trench evaluation was undertaken by Britannia Archaeology Ltd at The Rifles Public House, Swan and Pike Road, Enfield Lock, London (NGR 537189 198364) in September 2013. The greatest potential for surviving archaeological remains were believed to be buildings associated with the rifle factory of Post-medieval date.*

*The evaluation revealed five phases of activity, the earliest of which is represented by a layer of gravel river bed associated with the River Lea. Evidence of subsequent phases of alluvium deposition followed by stagnation events as the course of the river changed periodically across the site were recorded during the borehole assessment.*

*No archaeological phases earlier than the post-medieval were present on site, and the second phase is represented by Wild Marsh that is named by the 14<sup>th</sup> century, suggesting that the land here was used for pasture.*

*The third phase is demolition and site levelling, these events probably took place at approximately the same time. Both the school and three cottages were demolished and then levelled, forming a variety of layers that were present in all of the trenches.*

*Remains of the construction phase have been recorded and comprise a school constructed in 1846 and an 1830's row of cottages on the north-western corner of the site*

*The most recent phase relates to two modern surface layers starting with an earlier concrete surface and then a car park surface of Tarmacadam which still survives at the top of the stratigraphic sequence today.*



## 1.0 INTRODUCTION

From the 9<sup>th</sup> – 17<sup>th</sup> of September 2013, Britannia Archaeology Ltd (BA) undertook a trial trench evaluation on behalf of Denmark and White Ltd at The Rifles Public House, Swan and Pike Road, Enfield Lock, London (NGR 537189 198364). The evaluation was undertaken as a condition of planning application reference TP/06/2169/REN1, ahead of the construction of 23 residential units (Figure 1).

The evaluation was carried out in accordance with an archaeological brief produced by English Heritage Greater London Archaeology Advisory Service (EHGLASS, Stabler, K. 2010 and renewed by Single, A. in 2013). It also lies within an Archaeological Priority Zone as defined by Enfield Council.

## 2.0 SITE DESCRIPTION (Figure 1)

The site is located on land that had previously been part of the Rifles Public House and its associated car parks. It is present on the floodplain of the River Lea in Enfield lying at a height of approximately 16.5m AOD.

The bedrock geology is Thames Group London Clay and is described as fine sand, silt and clay which is Glauconitic at its base. It dates to the Eocene Epoch of 55.8 to 33.9 million years ago (BGS, 2013).

The superficial geology is described as Alluvium, deposits of clay, silt sand and gravel that is normally soft to firm consolidated, compressible silty clay that can contain layers of silt, sand, peat and basal gravel. A stronger, desiccated surface zone may also be present. These deposits date to the Flandrian Age of c.12000 years before present (BGS, 2013).

## 3.0 PLANNING POLICIES

The archaeological investigation was undertaken on the recommendation of the local planning authority, following guidance laid down by the *National Planning and Policy Framework* (NPPF, DCLD 2012). The relevant local planning policy is the London Plan, Consolidated with changes since 2004 (<http://www.london.gov.uk/thelondonplan/docs/londonplan08.pdf>).

### 3.1 *National Planning Policy Framework (NPPF, DCLG March 2012)*

The NPPF recognises that 'heritage assets' are an irreplaceable resource and planning authorities should conserve them in a manner appropriate to their significance when considering development. It requires developers to record and advance understanding of the significance of any heritage assets to be lost (wholly or in part) in a manner proportionate to their importance and the impact, and to make this evidence (and any archive generated) publicly accessible. The key areas for consideration are:



- The significance of the heritage asset and its setting in relation to the proposed development;
- The level of detail should be proportionate to the assets' importance and no more than is sufficient to understand the potential impact of the proposal on their significance;
- Significance (of the heritage asset) can be harmed or lost through alteration or destruction, or development within its setting. As heritage assets are irreplaceable, any harm or loss should require clear and convincing justification;
- Local planning authorities should not permit loss of the whole or part of a heritage asset without taking all reasonable steps to ensure the new development will proceed after the loss has occurred;
- Non-designated heritage assets of archaeological interest that are demonstrably of equivalent significance to scheduled monuments, should be considered subject to the policies for designated heritage assets.

### 3.2 *The London Plan (with changes since 2004)*

The relevant sections outlined in the London Plan are as follows:

- Policy 4B.15 Archaeology  
The Mayor, in partnership with English Heritage, the Museum of London and boroughs, will support the identification, protection, interpretation and presentation of London's archaeological resources. Boroughs in consultation with English Heritage and other relevant statutory organisations should include appropriate policies in their DPDs for protecting scheduled ancient monuments and archaeological assets within their area;
- 4.125  
...The Mayor wishes to see the sensitive management of London's extraordinary historic assets planned in tandem with the promotion of the very best modern Architecture and urban design. Designation of historic buildings is not enough. Sensitive management requires clear details of what needs to be protected, how and why. The Mayor expects boroughs and others to use appropriate tools to manage the historic environment, including character appraisals and conservation plans.

## 4.0 **ARCHAEOLOGICAL BACKGROUND**

The following archaeological background is a summary of the information contained within the desk-based assessment (Miles. A, 2005) undertaken by MoLAS.



#### 4.1 *Geology*

The site is located on the floodplain of the River Lea in Enfield and lies at a height of approximately 16.5m AOD, this current course of the River Lea was adopted 0.5 million years ago during the Anglian cold stage. Prior to this the route flowed northward as part of the Mole-Wey-Wandle River and drained into the proto-Thames which in turn followed a more northerly route through the Vale of St Albans. Five hundred thousand years ago the ice sheets blocked the valley of the Thames and its tributaries which reversed the drainage pattern causing the Thames to be diverted via the Lower Lea Valley into the Medway system, before adopting its present course. Successive climatic oscillations since the Anglian cold stage have caused alternating down-cutting and aggradational cycles of the river formations, in combination with Tectonic uplifting depositing mainly gravels forming a series of terraces. These represent former floodplains of the River Thames and Lea that have subsequently been scored out and left as the highest surviving deposits.

#### 4.2 *Prehistoric (750000BC – 43AD)*

The site would have been mostly wet and marshy during the prehistoric period with marshy pools of water separated by boggy ground. Mesolithic activity has been recorded within peat layers in the Rammey Marsh to Broxbourne area just up-stream in the Lea Valley.

The Neolithic period saw an increase in riverside occupation, with more permanent settlement, evidence includes structures, pits and waste material. A Bronze Age, Iron Age and Roman site with possible Neolithic origins was evaluated at Rammey Marsh that lies on higher ground on the margins of a tributary to the River Lea.

Within the vicinity of the site, isolated finds have been recorded that include a Late Bronze Age socketed axe head in Enfield Marsh, an Iron Age sword and a Middle Bronze Age spearhead in Rammey Marsh. During excavations in 1909-10 for the King George reservoir un-abraded flint implements, animal bones, a mammoth tooth and three human skulls were exhumed.

There is little or no evidence for early occupation within the Royal Small Arms Factory, however the alluvial deposits present along the River Lea may yield evidence of preserved cultural organic material, or indirectly from plant microfossil (pollen grain) survival.

#### 4.3 *Roman (43AD – c. 410AD)*

The River Lea was an important agricultural trade route throughout this period, with Much Hadham wares also being transported via the River Stort in the later Roman period. Evidence of water management was recorded during excavations by MoLAS in 2005 at the Royal Ordnance Factory where a wooden bank revetment was carbon-dated to the broader Roman period. Roman field ditches and a stockade were also recorded at Rammey Marsh to the north-west.

Little or no evidence for Roman settlements have been found within the sites vicinity.



#### 4.4 *Medieval (1066 AD – 1540 AD)*

Medieval activity was concentrated in the eastern part of the Parish between Enfield Chase and the marshes by the Lea. Common Arable fields are first recorded in the 13<sup>th</sup> century and by 1572 they occupied over half of the cultivated land, the majority present on the low lying areas to the east of the road through Enfield Town to Forty Hill and Bull's Cross. The common marshes immediately adjoined the River Lea and were used for grazing, the most northerly three (Rammey, Wild and Mill) were all named by the 14<sup>th</sup> century with this site being present on Wild Marsh. Lethersay and South Marsh are both mentioned in the 15<sup>th</sup> century and are present to the south. The enclosures of the 16<sup>th</sup> century were mainly located on the fringe of the central common field area, near Enfield Town, west of Baker Street, east of Ponders End and to the north-east near Painters Lane.

The Manor of Elsing or Norris Farm originated in a knight's fee in Enfield and Sawbridgeworth (Hertfordshire), it was held in 1372 by Jordan of Elsing of the Earl of Hereford. An associated timber-framed manor house named Norris Farm in Welches Lane (located behind a moat) is mentioned in 1572 and was demolished in 1786, Welches Lane later became known as Ordnance Road. A plain brick farmhouse was built on this same plot and then was also subsequently demolished. The associated manorial lands lay in the eastern part of the parish near Enfield Lock, at Ponders End and in the common marshes. After enclosure in 1806, the estate became coterminous with Plantation Farm containing 120 acres in 1911.

#### 4.6 *Post-medieval and modern (1540AD – Present)*

Hay was in high demand for feeding the cattle during the winter season and was produced in large quantities in the common marshes alongside the River Lea. In Enfield during 1769 2330 acres were used for growing wheat or corn and 2150 for growing hay; 790 acres were described as 'fed lands' and 1020 acres were left fallow. No buildings were present on the marshland by the Lea (apart from those associated with the navigation, such as the Swan and Pike Inn) until the 19<sup>th</sup> century.

In 1803 at the time of the enclosure the land was owned by Charles Smith and leased to Augustin King George the miller at Ponders End, who in-turn sublet the plot to Thomas Wace. He lived in the old Swan and Pike public house which is situated to the west of the present day Swan and Pike Road. The Pub was reopened when the Royal Factory was established.

In 1812 the Enfield Lock site was acquired to replace the smaller Lewisham factory, with the added advantage of having water power to drive the machinery and the navigation to transport the raw materials and finished weapons. The barrel branch also moved to Enfield in 1816, the factory producing the musket 'Brown Bess' which was the main weapon used by the British Empire. By 1818 a lack of demand for the weapons meant that only 30 people were employed at the factory, the lock and finishing branches were also later moved to Enfield and Lewisham was closed. Sword manufacturing began in 1823 and factory was nearly closed in 1831. The Crimean War increased the demand for small arms and ammunition so the factory was upgraded and reorganised on mass



production lines. By the 1890's 60,000 rifles were produced annually, with 2000 rifle magazines manufactured a week, the Boer War and the two World Wars kept ordnance production in Enfield. In 1987 the Royal Ordnance Factories were sold to British Aerospace and Enfield Lock was immediately closed, small arms manufacture then moving to Nottingham.

During the establishment of the factory buildings were erected on site, a canteen was built in 1816 where the Rifles Pub is now located, and immediately north a school was constructed in 1846. To the north were occupied cottages forming numbers 1-3 Government Row that were built in the 1830's and demolished prior to 1935.

## 5.0 PROJECT AIMS

English Heritage GLAAS note that the aim of an evaluation is the following:

- Evaluation will seek to define and characterise the archaeological remains on a site. Should significant remains be discovered and the proposed scheme has an impact on those remains, further archaeological work will be necessary, in the form of either a mitigation strategy for preservation in situ, full excavation or a combination of the two.

## 6.0 PROJECT OBJECTIVES

Research objectives for the project are in line with those laid out in English Heritage (GLAAS) *Archaeological Guidance Papers 1-5* (revised 1988) and English Heritage Centre for Archaeology *Guidelines* where appropriate.

Specific research questions are outlined as follows:

- What is the nature and level of natural topography?
- What are the earliest deposits/features identified?
- What is the palaeo-environmental potential of the alluvial deposits on site?
- Can any evidence of prehistoric activity be defined on site and does this contribute to our understanding of the artefacts recovered from the Lea Valley and the surrounding area?
- Can any evidence of Roman activity be defined on the site?
- What direct or indirect evidence is there from the medieval activity on site?
- Can any evidence of the canteen, school and cottages associated with Royal Ordnance Factory be found?
- What are the latest deposits identified?
- What is the nature and extent of the truncation on the site?

## 7.0 FIELDWORK METHODOLOGY

### 7.1 Evaluation Trench Methodology

A 180° back-acting mechanical excavator under the control of a qualified professional archaeologist removed layers of overburden down to the first archaeological horizon, thereafter all excavation work was undertaken by hand.

Trench edges, section locations and archaeological features were recorded on a post-excavation plan and were tied into the Ordnance Survey National Grid. The archaeology was preserved by record using pro-forma sheets, plans and section drawings and appropriate photographic records (Figures 2 to 6), as detailed in the Written Scheme of Investigation (Yendell, V. 2010). All layers were given unique context numbers assigned during the recording phases on site (Figures 3 to 6).

### 7.2 Borehole Methodology

Five augured boreholes were located in the bottom of each trench (DP11) to assess the quality of surviving sediments below that which could be safely reached by mechanical excavation. They were spatially positioned to provide good coverage across the whole site.



DP11; Trench 3, Borehole 3, Auger Assessment

A Van Walt 0.5m narrow-gouge hand corer was initially used to record the layers (Appendix 1 Tables 2, 4, 6, 8, and 10, Figure 6) until the gravel river bed (1022) was encountered. After this initial assessment, one layer (1020) was re-augured using a 0.5m wide-gouge hand corer to remove, clean, package, mark-up and level a sample of peat

soil (Sample 1) and sent to Dr Steve Boreham of Cambridge University (see Appendix 2) for further analysis.



DP12; Trench 1, Borehole 1, Preparing Sample 1

## 8.0 DESCRIPTION OF RESULTS (Figures 2 to 6)

Archaeological features and deposits are described below in trench order. Detailed information on all features and deposits can be found at Appendix 1.

The trench locations have been recorded in Figure 2 and the borehole locations have been planned on Figures 3-5. Trenches 1, 2 and 3 were positioned in the northern half of the site, 4 and 5 were located in the southern half. One further trench (Trench 6) is due to be excavated in one year's time when a building has been demolished providing safe access. Trenches 1 and 3 were targeted in the area of the demolished cottages that fronted Government Row. Trench 2 was positioned outside of the house footprints close to the navigation. Trenches 4 and 5 were targeted to intercept the footprint of the former school. Hydro-carbon contamination was present in Trench 5.

Foundations, brick walls and service runs were present in Trench 1 these are associated with the former cottages. Two modern service trenches were present in Trench 2. Trench 3 contained a post-medieval or early modern construction cut with associated pipe trench and a second service pipe that was also present in Trench 1. A wall from the former school and contemporary oval inspection chamber were present within Trench 4, along with a modern service trench containing a plastic pipe. Trench 5 contained a modern pit, a brick culvert and the western wall of the former school building.



## 8.1 Trench 1 (Figures 2, 3 & 6)

Trench 1 was located most northerly in the former car park of the Rifles Public House. It was targeted to intercept the now demolished cottage at Number 2 Government Row.

Pipe Trench 1014 (orientated north-east to south-west) was located in the eastern third of the trench (Figure 3) and contained Fill 1015. A metal pipe present in the centre appears to have serviced the now demolished cottages located to the west and is probably broadly also similar in date (from the 1830's). Pipe Trench 1014 (also present in Trench 3) was recorded running north-east to south-west. No finds were present in the backfill (1015) suggesting that it was installed when the ground was free of post-medieval cultural material.

Foundation Trench Cuts 1033 and 1031 appear to be square in plan but were probably more linear running north-south underneath the bulk. They were filled with concrete foundations (1034 and 1032) and single courses of brickwork (M1038 and M1037) also orientated north to south. It is believed that these foundations are part of a demolished outbuilding associated with Number 2 Government Row, however no concurring evidence has been reproduced on any of the Ordnance Survey maps.

Lying beneath 1031 was Pipe Trench 1041, orientated north-east to south-west and perpendicular, it contained Fill 1042, no finds were present. A square concrete shaft in the centre of the ceramic pipe was probably connected to a down spout used to drain surface water away from the previous cottage.

The remains of the partly demolished cottage of Number 2 Government Row were present in the western end of Trench 1. Foundation Trench Cut 1028 contained Brick Wall M1027 (orientated north-south) that adjoined Brick Wall M1029 (orientated perpendicular) and was backfilled with 1030 which contained post-medieval ceramic building material (not retained). These walls form part of the now demolished cottage that was built in the 1830's. Internal Demolition Layer 1025 was a light white yellow, friable sand silt and clay containing frequent rubble and ceramic building material. External Demolition Layer 1026 was pale grey brown, compact sand silt and clay containing frequent ceramic building material (CBM). Both layers abutted Walls M1027 and M1029 and contained broken CBM (not retained) from the former cottage. Overlying a portion of M1029 was a broken slab of modern concrete, probably deposited when the building was demolished.

## 8.2 Trench 2 (Figures 2, 3 & 6)

Trench 2 was located to the east of Trench 1 and beyond the former cottage footprints close to the navigation, it ran parallel to the site boundary aligned north to south. Two modern pipe trenches were present.

Modern Pipe Trench 1006 was located in the southern end of Trench 2, orientated north-east to south-west, its Fill 1007 comprised loose small gravel stones, no finds were present. A plastic pipe ran along its centre, it cut Modern Sewer Pipe Trench 1008.



Modern Sewer Pipe Trench 1008 was linear in plan, orientated north-south, running through the centre of the trench. It was excavated to a depth beyond that which could be reached by hand digging and was filled with a re-deposited layer (1009) of mid white brown, loose silt clay and calcareous tufa, no finds were present. Sewer Pipe Trench 1008 was cut by Pipe Trench 1006.

### **8.3 Trench 3 (Figures 2, 4 & 6)**

Trench 3 was located within the grounds of the former cottage at 1 Government Row, just to the south-east of the buildings footprint.

Pipe Trench 1014 that was also present within Trench 1 ran through the centre of Trench 3, orientated north-east to south-west, it had the same fill (1015) and also contained the same type of metal pipework.

Foundation Trench 1011 was sub-rectangular in plan, it was filled with Concrete Foundation 1013 and Trench Backfill 1012 which contained modern CBM (not retained). Pipe Trench 1016 was associated and appears to have been constructed concurrently with Foundation Trench 1011, it was also backfilled with the same fill (1012). These foundations and pipes were probably part of an outbuilding that was erected within the grounds of 1 Government Row. However no structures are recorded in this area on the OS Maps.

### **8.4 Trench 4 (Figures 2, 4 & 6)**

Trench 4 was targeted to investigate the former school buildings in the south-eastern part of the site. A wall relating to the previous school along with a contemporary inspection chamber that was cut by a modern service pipe were present within the trench.

To the south of the trench orientated east to west was Foundation Trench 1053, it contained two courses of brickwork (M1054) that were bonded with concrete mortar and backfilled with 1055. This wall is believed to be the remains of part of the school building, a possible porch extension or lean-to first recorded on the OS Map of 1896. By the time that the 1935 OS Map was produced this wall had been replaced by a surface, possibly a playing area.

To the north of the trench was Modern Pipe Trench 1056, it contained a plastic drain pipe orientated east to west that may drain into the navigation. Its lower backfill (1056), comprised loose gravel stones. Upper Backfill 1057 was dark grey black, compact sand silt and clay. This pipe trench cut through most of the layers, with only Tarmac Layer 1000 lay above. It also cut earlier Inspection Chamber Trench 1059, associated brick work M1061 and backfill 1060.

Below and cut by Modern Pipe Trench 1056 was post-medieval Inspection Chamber Trench 1059. It appears to have been built around the same time as the school, however the bricks (M1061) were a different type to those within M1054. The structure was arched and still held water, but it had been damaged at the top by the modern pipe trench



(1056), it was backfilled by 1060 which was sterile in nature. This inspection chamber may be related to the brick culvert (M1045) that is present within Trench 5.

#### **8.4 Trench 5 ( Figures 2, 5 & 6)**

Trench 5 was the most south-westerly trench excavated it was also targeted to investigate the area that contained the school. A modern pit containing fragments of metal telegraph pole parts, a culvert and a wall were present within the trench. Trench 5 was the only trench that had hydro-carbon contamination.

In the centre of the trench was Culvert Trench 1043, it was linear in plan and orientated north to south. The basal fill comprised a concrete base (1046), on which arched Brick Culvert M1045 was constructed and bonded together with concrete mortar. The bricks were the same size and type as those present in the inspection chamber (M1061, Trench 4) and therefore are considered contemporary and potentially related. The trench was backfilled with a mid grey brown, compact sand silt and clay that contained fragments of CBM (not retained). It is possible that this small sewer serviced the school and hotel that were present nearby.

Foundation Trench 1047 was linear in plan orientated north to south and lay to the east of Culvert Trench 1043. It contained eight courses of brickwork (M1049) that were bonded with concrete mortar. The trench was backfilled with 1048, a mid grey brown, compact sand silt and clay that contained CBM fragments (not retained). This is believed to be the remains of the western wall of the school that was later demolished.

#### **9.0 DEPOSIT MODEL (Figures 3-6, Appendix 1 Tables 1- 10)**

The deposit model (Appendix 1 Tables 1 – 10) did vary across the site due to a high degree of ground disturbance present within the trenches, they have therefore been discussed by trench under the headings below. A sediment depth of between 3-4m was expected to lie above gravel, and therefore boreholes were required to investigate the to the depth required to reach this gravel river bed (see Appendix 1 and Figure 6).

At the top of the stratigraphic sequence in all trenches was Car Park Surface Layer 1000. It comprised a dark black compact Tarmac road and associated car parking surface for the patrons of The Rifles Public House. It ranged in depth from 0.18m in Trench 1 to 0.06m in Trenches 4 and 5.

##### **Trench 1**

Below 1000 was Concrete Surface Layer 1023, it was 0.17m thick and comprised pale white grey compact concrete. It appears to have been an area of hard standing that extended in to Trench 3, but not as far as Trench 2. It is also similar to and could be the same as Concrete Surface Layer 1052 which is present in Trenches 4 and 5.



The stratigraphic profiles then differ in the eastern and western portions of the trench. To the west lay the remains of the previous cottage, below 1023 lay Made Ground Layer 1010, comprising light orange brown, friable clay and sand containing charcoal flecks that was 0.12m thick.

Below 1010 to the west was Demolition Layer 1024, a light grey black, loose sand silt and clay with rubble and ash, this material relates to the demolition and levelling phase of the former cottage at 2 Government Row.

Demolition Layers 1025 and 1026 were present on the inside and outside of the former cottage walls, they were levelled during the demolition phase on site.

To the east of the trench below Concrete Surface Layer 1023 in Trench 1 was Demolition Layer 1040 that comprised a 0.65m thick mid white brown, loose sand, silt and clay with frequent rubble and CBM demolition material belonging to the demolished cottage.

At the base of the machine excavated sequence in Trench 1 was Alluvial Layer 1004, it comprised a light yellow brown, very compact sterile silty clay, the auger recorded the depth to 2.37m below the ground level. This layer is derived from water borne particles deposited by the River Lea.

Below Alluvial Layer 1004 was Silty Peat Layer 1020, comprising dark grey black, compact humic silty peat that was investigated by auger. Sample 1 was taken from this layer for further analysis by Steve Boreham at Cambridge University (see Appendix 2).

Silty Tufa Layer 1021 was present below 1020 to a depth below ground level of 3.40m, it comprised a pale grey black, loose silty tufa which was a water borne material derived from deposits laid down by the River Lea.

At the base of the stratigraphic sequence at 3.40m in Trench1 was River Gravel Bed 1022, comprising dark grey brown, very loose and wet gravel sand and silt.

## **Trench 2**

To a depth below ground of 0.24m below Car Park Surface Layer 1000, lay Levelling Layer 1001 that comprised light grey black, loose sand silt and clay with hardcore rubble.

Below 1001 to a depth of 0.51m below ground level was Ash Layer 1002, a dark grey black, very loose ash, coke, sand, silt and clay derived from material discarded from the cottages' cookers and open fires.

Demolition Layer 1003 was next in the sequence, and was present to a depth of 0.92m below ground level, it comprised light brown grey, very loose hardcore rubble, CBM, sand, silt and clay material from the demolition of the former cottages.

Below 1003 was Alluvial Layer 1004, it comprised a light yellow brown, very compact sterile silty clay and was present to 1.25m below ground level. This layer is derived from water borne particles deposited by the River Lea.



Calcareous Tufa Layer 1005 was present below 1004, it comprised light white yellow, compact calcareous tufa and silty clay, it was augered to a depth of 1.70m below ground level. This layer was constitutes water borne particles deposited by the River Lea.

Next in the sequence was another Calcareous Tufa Layer (1018), it was pale white grey, moderately loose calcareous tufa and was recorded by auger to a depth of 3.16m below the ground surface, and was also deposited by the River Lea.

At the base of the stratigraphic sequence at 3.16m in Trench 2 was River Gravel Bed 1022, comprising dark grey brown, very loose and wet gravel sand and silt.

### **Trench 3**

Below 1000 was Concrete Surface Layer 1023 to a depth of 0.22m below ground level, it comprised pale white grey compact concrete and appears to have been an area of hard standing that extended through to Trench 3 but not as far as Trench 2. It is also similar to and could be the same as Concrete Surface Layer 1052 which is also present in Trench 4 and 5.

Next in the sequence was Levelling Layer 1001 that survived to a depth of 0.49m below the ground level and comprised light grey black, loose sand silt and clay with hardcore rubble.

Below 1001 to a depth of 0.89m below ground level was Ash Layer 1002, it was a dark grey black, very loose ash, coke, sand, silt and clay probably deriving from materials discarded from the cottages' cookers and open fires.

Demolition Layer 1003 was next in the sequence and present to a depth of 1.06m below ground level, it comprised light brown grey, very loose hardcore rubble, CBM, sand, silt and clay material, the probable remains of Number 1 Government Row.

In the western end of Trench 3 below 1002 was Layer 1010, it comprised a light orange brown friable clay sand with occasional charcoal flecks. This may have been used as a levelling layer for a floor or could be part of the demolition phase that took place on site.

Below 1003 was Alluvial Layer 1004, it comprised a light yellow brown, very compact sterile silty clay and was present to 1.47m below ground level.

Next in the sequence was Alluvial Layer 1017, comprising a mid grey brown, compact sterile clay that was present here to a depth of 1.88m below the ground.

Calcareous Tufa Layer 1018 lay below 1017, it was pale white grey, moderately loose calcareous tufa and was recorded by auger to a depth of 3.27m below the ground surface, and constitutes another layer deposited by the River Lea.

Peat and Calcareous Tufa Layer 1019 lay to a depth of 3.55m below ground level. It comprised dark grey brown loose saturated peat and pale white grey loose saturated



calcareous tufa. The peat will have formed during periods of stagnation after a flood event that deposited the calcareous tufa material.

At the base of the stratigraphic sequence and starting at 3.55m was River Gravel Bed 1022, comprising dark grey brown, very loose and wet gravel sand and silt. This layer was recorded by auger at its deepest in Trench 3, with the northern half of site being generally deeper than the deposits recorded to the south.

#### **Trench 4**

Below Car Park Surface 1000 was Concrete Surface Layer 1052, comprising pale white grey, compact concrete that was present to a depth of 0.55m below ground level. This was similar and may be the same as Concrete Surface Layer 1023 that was present in Trenches 1 and 3.

Demolition Layer 1050 was present below 1052 and comprised mid orange brown, loose hardcore rubble and CBM with sand, silt and clay. This material was probably formed of building materials from the demolition of the former school and was present to a depth of 0.65m.

Silty Tufa Layer 1051 was next in the sequence and comprised mid grey brown, compact silty tufa with occasional flint gravel stones present to a depth of 0.90m below the surface. It was similar to layers of tufa that were present in all of the trenches excavated, borne and deposited by the River Lea.

Below 1051 was Alluvial Layer 1004 comprising a light yellow brown, very compact sterile silty clay and was present to 1.68m below ground level, it derived from water borne particles deposited by the River Lea.

Silty Tufa Layer 1021 was present below 1051 to a depth below ground level of 1.96m, it comprised a pale grey black, loose silty tufa that had also been water borne deposits laid down by the River Lea.

At the base of the stratigraphic sequence at 1.96m below ground level was River Gravel Bed 1022, comprising dark grey brown, very loose and wet gravel sand and silt. Layer 1022 was approximately 1.50m higher here than in any of the other trenches and is probably located on a gravel terrace bank.

#### **Trench 5**

Trench 5 had a different stratigraphic sequence at either end, due to the location of the school building present to the east. In the western half below 1001 to a depth of 0.40m below ground level was Ash Layer 1002, it was a dark grey black, very loose ash, coke, sand, silt and clay derived from material discarded from the schools' open fires. This layer is not present to the east where Concrete Surface Layer 1052 was laid after the school had been demolished.



Silty Tufa Layer 1051 was next in the sequence and comprised mid grey brown, compact silty tufa with occasional flint gravel stones present to a depth of 0.97m below the surface, this layer was more complete in the western half of the trench. It was similar to layers of tufa that were present in all of the trenches excavated, borne and then deposited by the River Lea. To the east of the trench lay Demolition Layer 1050, a mid orange brown, loose sand silt and clay with CBM and rubble hardcore material that derives from the levelling of the former school. Silty Tufa Layer was present to the east but had been disturbed by the demolition activity associated with the school.

Below 1051 was Alluvial Layer 1004, it comprised a light yellow brown, very compact sterile silty clay and was present to 1.92m below ground level. This layer is derived from water borne particles deposited by the River Lea.

Next in the sequence and starting at a depth of 2.27m was Silty Peat Layer 1020 which was only present within Trench 5. It comprised dark grey black, compact humic silty peat with wood fibres and would have been a good sample to take for further analysis at Cambridge University, but like the majority of layers in Trench 5 unfortunately had been contaminated with hydrocarbons.

Silty Tufa Layer 1021 was present below 1020 to a depth below ground level of 2.74m, it comprised a pale grey black, loose silty tufa that had also been water borne and deriving from materials deposited by the River Lea.

At the base of the stratigraphic sequence (2.74m below ground level) was River Gravel Bed 1022, comprising dark grey brown, very loose and wet gravel sand and silt. Like Trench 4 this layer was also found at a shallower depth than in the trenches located in the northern half of the site.

## **10.0 DISCUSSION AND CONCLUSION**

The evaluation revealed five phases of site activity. The earliest of which is represented by River Gravel Bed Layer 1022, when the local environment was dominated by the River Lea carving channels and depositing sediments across the site. This provided an environment of marshland and bog, evidence of which was recorded during the auger survey. A sample of peat (Sample 1, 1020) taken for further analysis (Appendix 2) revealed that the pollen and spores were relatively poorly preserved. Which suggests that the organic sediments had been subjected to a prolonged and fluctuating water table causing aerobic microbial degradation of organic material to have reached an advanced state. Therefore it is unlikely that useful palaeo-environmental data can be retrieved from samples taken within this area.

No archaeological phases earlier than the post-medieval were present, the site being located in an area that was named Wild Marsh by the 14<sup>th</sup> century, which suggests the land here was only suitable for pasture.



The third phase is demolition and site levelling, these events probably took place at approximately the same time. Both the school and three cottages were demolished and then levelled, forming a variety of layers that were present in all of the trenches.

The construction phase on site began when the factory and associated buildings were constructed from 1816 onwards. A canteen was built where the Rifles Public House now stands, directly to its north a school and associated services were constructed in 1846. The remains of the school building were located within Trenches 4 and 5 and found to be in a relatively poor condition, with only the footings and lower courses of brickwork surviving. Further to the north a row of cottages (1-3 Government Row) were built on the north-western corner of the site and date to the 1830's. These were later demolished, but a few courses of brickwork, and structural remains of 2 Government Row and an associated outbuilding in Trench 1 and an outbuilding related to 1 Government Row in Trench 3 were recorded.

The most recent phase relates to two separate surface layers, the earliest of which (1023 and 1052) were concrete surfaces laid after the school and the cottages were demolished. Concrete Surface 1023 was present in the three northern trenches (1-3) with a similar concrete layer (1052) also recorded in trenches 4 and 5. At the top of the stratigraphic sequence was surviving Car Park Surface 1000, constructed for the patrons of The Rifles Public House.

## 11.0 PROJECT ARCHIVE AND DEPOSITION

A full archive will be prepared for all work undertaken in accordance with guidance from the *Selection, Retention and Dispersion of Archaeological Collections*, Archaeological Society for Museum Archaeologists, 1993. The archive will be deposited within the Museum of London, London Archaeological Archive and Research Centre (LAARC).

The archive will be quantified, ordered, indexed, cross-referenced and checked for internal consistency. The material will be catalogued, labelled and packaged for transfer and storage in accordance with the guidelines set out in the United Kingdom Institute for Conservation's *Conservation Guidelines No.2* and the Archaeological Archives Forum's *Archaeological Archives, A guide to best practice, compilation, transfer and curation* (Brown, 2007).

## 12.0 ACKNOWLEDGEMENTS

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## APPENDIX 1 DEPOSIT TABLES & BOREHOLE LOGS, FEATURE DESCRIPTIONS

### Deposit Tables & Borehole Logs

Table 1

| Trench No<br>1         |              | Orientation<br>E-W  | Height AOD<br>0.00 = 16.53m | Shot No<br>DP1 + 2 |
|------------------------|--------------|---|-----------------------------|--------------------|
| Sample Section No<br>1 |              | Location<br>S Side  | Facing<br>N Facing          |                    |
| Context No             | Depth        | Deposit Description   |                             |                    |
| 1000                   | 0.00 – 0.18m | Car Park Surface. Dark grey black, compact Tarmacadam   |                             |                    |
| 1023                   | 0.18 – 0.35m | Concrete Surface Layer. Pale white grey, compact concrete                                       |                             |                    |
| 1040                   | 0.35 – 1.00m | Demolition Layer. Mid white brown, loose sand, silt and clay containing CBM and hardcore rubble |                             |                    |
| 1004                   | 1.00m+       | Alluvial Layer. Light yellow brown, sterile compact silty clay                                  |                             |                    |

Deposit Model, Trench 1

Table 2

| Borehole No<br>1 |              | Location<br>TT1, E End  | Height AOD<br>0.00 = 16.53m | Shot No<br>BH1 |
|------------------|--------------|---|-----------------------------|----------------|
| Context No       | Depth        | Deposit Description   |                             |                |
| 1004             | 1.00 – 2.37m | Alluvial Layer. Light yellow brown, sterile compact silty clay                    |                             |                |
| 1020             | 2.37 – 2.57m | Silty Peat Layer. Dark grey black, compact humic silty peat with wood fibres      |                             |                |
| 1021             | 2.57 – 3.40m | Silty Tufa Layer. Pale grey black, friable tufa and silt                          |                             |                |
| 1022             | 3.40m+       | Gravel River Bed. Dark grey brown, very loose and saturated gravel and sandy silt |                             |                |

Borehole Log, Trench 1

Table 3

| Trench No<br>2         |              | Orientation<br>N-S   | Height AOD<br>0.00 = 16.55m | Shot No<br>DP3 + 4 |
|------------------------|--------------|--|-----------------------------|--------------------|
| Sample Section No<br>2 |              | Location<br>E Side   | Facing<br>W Facing          |                    |
| Context No             | Depth        | Deposit Description  |                             |                    |
| 1000                   | 0.00 – 0.10m | Car Park Surface. Dark grey black, compact Tarmacadam                                    |                             |                    |
| 1001                   | 0.10 – 0.24m | Levelling Layer. Light grey black, loose sand silt and clay with hardcore rubble         |                             |                    |
| 1002                   | 0.24 – 0.51m | Ash Layer. Dark grey black, very loose ash, coke, sand, silt and clay                    |                             |                    |
| 1003                   | 0.51 – 0.92m | Demolition Layer. Light brown grey, very loose hardcore rubble, CBM, sand, silt and clay |                             |                    |
| 1004                   | 0.92 – 1.25m | Alluvial Layer. Light yellow brown, very compact sterile silty clay                      |                             |                    |
| 1005                   | 1.25m+       | Calcareous Tufa Layer. Light white yellow, compact calcareous tufa and silty clay        |                             |                    |

Deposit Model, Trench 2

Table 4

| Borehole No<br>2 |              | Location<br>Centre of TT2   | Height AOD<br>0.00 = 16.55m | Shot No<br>BH2 |
|------------------|--------------|---|-----------------------------|----------------|
| Context No       | Depth        | Deposit Description   |                             |                |
| 1005             | 1.25 – 1.70m | Calcareous Tufa Layer. Light white yellow, compact calcareous tufa and silty clay |                             |                |
| 1018             | 1.70 – 3.16m | Calcareous Tufa Layer. Pale white grey, moderately loose calcareous tufa          |                             |                |
| 1022             | 3.16m+       | Gravel River Bed. Dark grey brown, very loose and saturated gravel and sandy silt |                             |                |

Borehole Log, Trench 2



Table 5

| Trench No         |               | Orientation  | Height AOD    | Shot No |
|-------------------|---------------|--|---------------|---------|
| 3                 |               | E-W  | 0.00 = 16.64m | DP5 + 6 |
| Sample Section No |               | Location   | Facing        |         |
| 3                 |               | S Side   | N Facing      |         |
| Context No        | Depth         | Deposit Description  |               |         |
| 1000              | 0.00 – 0.10m  | Car Park Surface. Dark grey black, compact Tarmacadam                                    |               |         |
| 1023              | 0.10 – 0.22m  | Concrete Surface Layer. Pale white grey, compact concrete                                |               |         |
| 1001              | 0.22 – 0.49m  | Levelling Layer. Light grey black, loose sand silt and clay with hardcore rubble         |               |         |
| 1002              | 0.49 – 0.89 m | Ash Layer. Dark grey black, very loose ash, coke, sand, silt and clay                    |               |         |
| 1003              | 0.89 – 1.06m  | Demolition Layer. Light brown grey, very loose hardcore rubble, CBM, sand, silt and clay |               |         |
| 1004              | 1.06m+        | Alluvial Layer. Light yellow brown, very compact sterile silty clay                      |               |         |

Deposit Model, Trench 3

Table 6

| Borehole No |              | Location  | Height AOD    | Shot No |
|-------------|--------------|---|---------------|---------|
| 3           |              | TT3, W end  | 0.00 = 16.64m | BH3     |
| Context No  | Depth        | Deposit Description   |               |         |
| 1004        | 1.06 – 1.47m | Alluvial Layer. Light yellow brown, very compact sterile silty clay   |               |         |
| 1017        | 1.47 – 1.88m | Alluvial Layer. Mid grey brown, compact sterile silty clay  |               |         |
| 1018        | 1.88 – 3.27m | Calcareous Tufa Layer. Pale white grey, moderately loose calcareous tufa  |               |         |
| 1019        | 3.27 – 3.55m | Peat and Calcareous Tufa Layer. Dark grey brown loose saturated peat with pale white grey loose saturated calcareous tufa |               |         |
| 1022        | 3.55m+       | Gravel River Bed. Dark grey brown, very loose and saturated gravel and sandy silt   |               |         |

Borehole Log, Trench 3

Table 7

| Trench No         |              | Orientation  | Height AOD    | Shot No |
|-------------------|--------------|--|---------------|---------|
| 4                 |              | N-S  | 0.00 = 16.47m | DP7 + 8 |
| Sample Section No |              | Location   | Facing        |         |
| 4                 |              | W Side   | E Facing      |         |
| Context No        | Depth        | Deposit Description  |               |         |
| 1000              | 0.00 – 0.06m | Car Park Surface. Dark grey black, compact Tarmacadam                                      |               |         |
| 1052              | 0.06 – 0.55m | Concrete Surface Layer. Pale white grey, compact concrete                                  |               |         |
| 1050              | 0.55 – 0.65m | Demolition Layer. Mid orange brown, loose hardcore rubble and CBM with sand, silt and clay |               |         |
| 1051              | 0.65 – 0.90m | Silty Tufa Layer. Mid grey brown, compact silty tufa with occasional flint gravel stones   |               |         |
| 1004              | 0.90m+       | Alluvial Layer. Light yellow brown, sterile compact silty clay                             |               |         |

Deposit Model, Trench 4

Table 8

| Borehole No |              | Location  | Height AOD    | Shot No |
|-------------|--------------|---|---------------|---------|
| 4           |              | TT4, S end  | 0.00 = 16.47m | BH4     |
| Context No  | Depth        | Deposit Description   |               |         |
| 1004        | 0.90 – 1.68m | Alluvial Layer. Light yellow brown, very compact sterile silty clay               |               |         |
| 1021        | 1.68 – 1.84m | Silty Tufa Layer. Pale grey black, friable tufa and silt                          |               |         |
| 1018        | 1.84 – 1.96m | Calcareous Tufa Layer. Pale white grey, moderately loose calcareous tufa          |               |         |
| 1022        | 1.96m+       | Gravel River Bed. Dark grey brown, very loose and saturated gravel and sandy silt |               |         |

Borehole Log, Trench 4



Table 9

| Trench No         |               | Orientation   | Height AOD    | Shot No  |
|-------------------|---------------|---|---------------|----------|
| 5                 |               | E-W   | 0.00 = 16.49m | DP9 + 10 |
| Sample Section No |               | Location  | Facing        |          |
| 5                 |               | N Side  | S Facing      |          |
| Context No        | Depth         | Deposit Description   |               |          |
| 1000              | 0.00 – 0.06m  | Car Park Surface. Dark grey black, compact Tarmacadam   |               |          |
| 1002              | 0.06 – 0.40 m | Ash Layer. Dark grey black, very loose ash, coke, sand, silt and clay, hydrocarbon contamination                    |               |          |
| 1051              | 0.40 – 0.97m  | Silty Tufa Layer. Mid grey brown, compact silty tufa with occasional flint gravel stones, hydrocarbon contamination |               |          |
| 1004              | 0.97m+        | Alluvial Layer. Light yellow brown, sterile compact silty clay, hydrocarbon contamination                           |               |          |

Deposit Model, Trench 5

Table 10

| Borehole No |              | Location   | Height AOD    | Shot No |
|-------------|--------------|--|---------------|---------|
| 5           |              | TT5, W end   | 0.00 = 16.49m | BH5     |
| Context No  | Depth        | Deposit Description  |               |         |
| 1004        | 0.97 – 1.92m | Alluvial Layer. Light yellow brown, very compact sterile silty clay, hydrocarbon contamination               |               |         |
| 1020        | 1.92 – 2.27m | Silty Peat Layer. Dark grey black, compact humic silty peat with wood fibres, hydrocarbon contamination      |               |         |
| 1021        | 2.27 – 2.74m | Silty Tufa Layer. Pale grey black, friable tufa and silt, hydrocarbon contamination                          |               |         |
| 1022        | 2.74m+       | Gravel River Bed. Dark grey brown, very loose and saturated gravel and sandy silt, hydrocarbon contamination |               |         |

Borehole Log, Trench 5

## Context Description Table

Table 11

| Feature Context | Feature Type & Description (L x W x D)   | Layer/Fill Context | Layer/Fill Description   | Spot Date | Findings                 | Trench Number |
|-----------------|--|--------------------|--|-----------|--------------------------|---------------|
| 1006            | Pipe Trench, (1.80+ x 1.00+ x 0.90m), linear in plan, orientated north-east to south-west, vertical sides, flat base       | 1007               | Loose gravel stones  | Modern    | -                        | TT2           |
| 1008            | Sewer Pipe Trench, (10.00+ x 1.00 x 1.00m+), linear in plan, orientated north to south, vertical sides, flat base          | 1009               | Mid white brown, very loose silt clay and calcareous tufa                            | Modern    | -                        | TT2           |
| 1011            | Foundation Trench, (2.00+ x 1.80+ x 1.20m+) sub-rectangular in plan, vertical sides, base not reached                      | 1012               | Trench Backfill, pale yellow white, sand, silt, clay with friable mortar and CBM     | Modern    | Modern CBM, not retained | TT3           |
|                 |  | 1013               | Concrete Foundation, light white grey compact concrete                               | Modern    | -                        | TT3           |
| 1014            | Pipe Trench, (1.80+ x 0.50 x 0.40m+) linear in plan, orientated north-east to south-west, vertical sides, base not reached | 1015               | Light brown orange, moderately friable, silty sand with frequent pea grit inclusions | Modern    | -                        | TT1 & TT3     |
| 1016            | Pipe Trench, (1.80+ x 0.30 x 0.50m) linear in plan, vertical sides, flat base, associated with 1011                        | 1012               | Trench Backfill, pale yellow white, sand, silt, clay with friable mortar and CBM     | Modern    | -                        | TT3           |



|      |  |       |  |                        |  |     |
|------|--|-------|--|------------------------|--|-----|
| 1028 | Foundation Trench, (1.50+ x 1.50+ x 0.65m) linear in plan, orientated north-south and perpendicular, vertical sides, base not reached  | 1030  | Foundation Trench Backfill, dark grey brown, compact clay sand and silt with occasional CBM flecks | Post-medieval (1830's) | Post-medieval CBM (not retained)                                   | TT1 |
|      |  | M1027 | Brick Wall Foundation, one course of bricks bonded with concrete mortar, orientated north to south | Post-medieval (1830's) | CBM, bricks (l x w x d) 0.26 x 0.14 x 0.08m (not retained)         | TT1 |
|      |  | M1029 | Brick Wall Foundation, 1 course of bricks bonded with concrete mortar, orientated east to west     | Post-medieval (1830's) | CBM, bricks measure (l x w x d) 0.26 x 0.14 x 0.08m (not retained) | TT1 |
| 1031 | Foundation Trench, (0.95+ x 1.05 x 0.50m) linear in plan, orientated north to south, vertical sides, flat base, associated with M1027, M1029, 1033, and M1038                          | M1037 | Brickwork, single course, concrete mortar bond, orientated north-south                             | Post-medieval (1830's) | CBM, bricks measure (l x w x d) 0.26 x 0.14 x 0.06m (not retained) | TT1 |
|      |  | 1032  | Concrete Foundation, pale grey white compact concrete.   | Post-medieval (1830's) | -  | TT1 |
| 1033 | Foundation Trench, (0.85+ x 0.95 x 0.50m) linear in plan, orientated north to south, vertical sides, flat base, associated with M1027, M1029, 1031, M1037 and M1038                    | M1038 | Brick Floor, single course, concrete mortar bond, orientated north-south                           | Post-medieval (1830's) | CBM, bricks measure (l x w x d) 0.26 x 0.14 x 0.06m (not retained) | TT1 |
|      |  | 1034  | Concrete Foundation, pale grey white compact concrete.   | Post-medieval (1830's) | -  | TT1 |
| 1041 | Pipe Trench, (1.70+ x 0.90+ x 1.15m+) linear in plan, orientated north-east to south-west, vertical sides, base not reached, associated with M1027, M1029, 1031, 1033, M1037 and M1038 | 1042  | Dark grey brown compact silty clay with occasional fragments of CBM                                | Post-medieval (1830's) | -  | TT1 |
| 1043 | Culvert Trench, (1.80+ x 0.66 x 0.58m) linear in plan, orientated north-south, vertical sides, flat base, associated with M1049, M1061 and M1054                                       | 1044  | Culvert Backfill, mid grey brown, compact sand silt and clay with fragments of CBM                 | Post-medieval (1830's) | CBM fragments (not retained)                                       | TT5 |
|      |  | M1045 | Brick Culvert, single brick course with concrete mortar, arched construction to form culvert shape | Post-medieval (1830's) | Bricks (l x w x d) 0.22 x 0.10 x 0.06m (not retained)              | TT5 |
|      |  | 1046  | Concrete Foundation Base, mid yellow white, compact concrete                                       | Post-medieval (1830's) | -  | TT5 |
| 1047 | Foundation Trench, (1.80+ x 0.73 x 0.82m) linear in plan, orientated north-south, vertical sides, flat base  | 1048  | Wall Backfill, mid grey brown, compact sand silt and clay  | Post-medieval (1830's) | CBM fragments (not retained)                                       | TT5 |
|      |  | M1049 | Brick Wall Foundation, eight courses, concrete mortar bond, orientated N-S                         | Post-medieval (1830's) | Bricks (l x w x d) 0.24 x 0.14 x 0.06m (not retained)              | TT5 |



|      |   |       |  |                        |   |     |
|------|---|-------|--|------------------------|---|-----|
| 1053 | Foundation Trench, (1.80+ x 0.37 x 0.57m) linear in plan, orientated east to west, vertical sides, flat base  | 1055  | Wall Backfill, mid orange brown, compact silty clay with frequent rounded flint gravel stones  | Post-medieval (1830's) | -   | TT4 |
|      |   | M1054 | Brick Wall Foundation, two courses, concrete mortar bond, orientated east to west              | Post-medieval (1830's) | Bricks (l x w x d) 0.24 x 0.14 x 0.06m (not retained) | TT4 |
| 1056 | Pipe Trench, (1.80+ x 1.18 x 0.76m) linear in plan, orientated east to west, vertical sides, flat base, cuts Manhole Trench 1059                              | 1057  | Upper Backfill, dark grey black, compact sand silt and clay                                    | Modern                 | Plastic bag   | TT4 |
|      |   | 1058  | Light yellow brown, loose gravel stones  | Modern                 | -   | TT4 |
| 1059 | Inspection Chamber Trench, (1.80+ x 1.10+ x 0.60m+) linear in plan, orientated east to west, vertical sides, base not reached, cut by modern Pipe Trench 1056 | 1060  | Inspection Chamber Trench Backfill, mid yellow brown, sterile silty clay                       | Post-medieval (1830's) | -   | TT4 |
|      |   | M1061 | Brick Inspection Chamber, seven courses, regular bond, concrete mortar, conical shaped manhole | Post-medieval (1830's) | Bricks (l x w x d) 0.22 x 0.10 x 0.06m (not retained) | TT4 |

*Context Description Table*

## Pollen Analysis of Sediments from Enfield, London (SWN13)

Steve Boreham BSc. PhD.

### Introduction

This report presents the results of assessment pollen analyses of two sub-samples of organic sediment from a 50cm long core taken from beneath an archaeological trench (SWN13) at Enfield, London. Pollen sub-samples were taken at 5cm and 45cm from the base of the 50cm long core (see DP13 below).



DP13; Trench 1, Borehole 1, Wide-Gouge Augered Sample 1

The two pollen sub-samples were prepared using the standard hydrofluoric acid technique, and the stained residues were mounted on glass slides for pollen assessment. Pollen assessment was undertaken at x400 magnification with a high-power stereo microscope.

### Pollen Analyses

Both pollen sub-samples showed signs that the peat had undergone a large amount of post-depositional oxidation. Preservation was very poor indeed and very few pollen grains had survived the microbial attack so that the only palynomorphs seen were heavily armoured types like Asteraceae and undifferentiated monolet fern spores, often in an advanced state of decay. These amounted to little more than ten identifiable palynomorphs per slide. These



resistant types preferentially survive oxidative processes and do not represent a meaningful aspect of the vegetation in original environment of deposition. The pollen concentration in both samples was very low (<1000 grains per ml) and the pollen sub-samples were effectively barren. It is worth noting that the sample from 45cm contained abundant micro-charcoal.

### **Discussion**

The poor preservation of pollen and spores in these sub-samples strongly suggests that the organic sediments had experienced prolonged exposure to fluctuating water tables, and that aerobic microbial degradation of organic material has reached an advanced state. It seems very likely that the entire peat band exhibits the same poor preservation potential, not just for pollen, but for other organic remains too. The apparently modest oxidation observed in the peat is most likely due the reversible nature of redox reactions. This means that in the past water tables have been lower and oxidation has proceeded apace, but with higher water tables the signs of oxidation visible to the naked eye have been reversed by the reduction of iron oxide in anaerobic conditions. Unfortunately, once the organic material has been destroyed, a return to reduced conditions cannot resurrect it. Local water table changes can wreak havoc on the preservation potential of archaeological sediments.

Dr Steve Boreham 05-10-2013



## APPENDIX 3 OASIS SHEET

OASIS ID: [britanni1-161604](#)

### Project details

**Project name**  
**Short description of the project**

The Rifles Public House, Swan and Pike Road, Enfield Lock, London  
A five trial trench evaluation was undertaken by Britannia Archaeology Ltd at The Rifles Public House, Swan and Pike Road, Enfield Lock, London (NGR 537189 198364) in September 2013. The greatest potential for surviving archaeological remains were believed to be buildings associated with the rifle factory of Post-medieval date. The evaluation revealed five phases of activity, the earliest of which is represented by a layer of gravel river bed associated with the River Lea. No archaeological phases earlier than the post-medieval were present on site, and the second phase is represented by Wild Marsh that is named by the 14th century, suggesting that the land here was used for pasture. The third phase is demolition and site levelling, these events probably took place at approximately the same time. Both the school and three cottages were demolished and then levelled, forming a variety of layers that were present in all of the trenches. Remains of the construction phase have been recorded and comprise a school constructed in 1846 and an 1830's row of cottages on the north-western corner of the site. The most recent phase relates to two modern surface layers starting with an earlier concrete surface and then a car park surface of Tarmacadam which still survives at the top of the stratigraphic sequence today.

**Project dates**

**Start:** 09-09-2013 **End:** 22-09-2013

**Previous/future work**

Yes / Yes

**Any associated project reference codes**

P1031 - Contracting Unit No  
SWN13 - Sitecode  
R1036- Contracting Unit No

**Type of project**

Field evaluation

**Site status**

(other) Archaeological Priority Zone

**Current Land use**

Other 13 - Waste ground

**Monument type**

COTTAGES Post Medieval

**Monument type**

SCHOOL Post Medieval

**Significant Finds**

NONE None

**Methods & techniques**

"Targeted Trenches"

**Development type**

Housing estate

**Prompt**

Planning condition

**Position in the planning process**

After full determination (eg. As a condition)

### Project location

**Country**

England

**Site location**

GREATER LONDON ENFIELD ENFIELD The Rifles Public House, Swan and Pike Road, Enfield Lock, London

**Study area**

0.45 Hectares

**Site coordinates**

TQ 3718 9836 51.6667654766 -0.0161751152852 51 40 00 N 000 00 58 W Point

**Height OD / Depth**

**Min:** 16.50m **Max:** 16.50m

### Project creators

**Name of Organisation**

Britannia Archaeology Ltd

**Project brief originator**

City/Nat. Park/District/Borough archaeologist

**Project design originator**

Timothy Schofield

**Project director/manager**

Timothy Schofield

**Project supervisor**

Timothy Schofield

**Type of sponsor/funding body**

Developer

**Name of sponsor/funding body**

Denmark & White Ltd

### Project archives

**Physical Archive Exists?**

No

**Digital Archive recipient**

LAARC

**Digital Contents**

"Environmental", "Stratigraphic", "Survey"

**Digital Media available**

"GIS", "Images raster / digital photography", "Images vector", "Survey", "Text"

**Paper Archive recipient**

LAARC

**Paper Contents**

"Environmental", "Stratigraphic", "Survey"



**Paper Media available**

"Context sheet", "Drawing", "Map", "Matrices", "Microfilm", "Photograph", "Plan",  
"Report", "Section", "Survey", "Unpublished Text"

**Project bibliography 1**

**Publication type**

Grey literature (unpublished document/manuscript)

**Title**

The Rifles Public House, Swan and Pike Road, Enfield Lock, London;  
Archaeological Evaluation.

**Author(s)/Editor(s)**

Schofield, T.P

**Other bibliographic details**

R1036

**Date**

2013

**Issuer or publisher**

Britannia Archaeology Ltd

**Place of issue or publication**

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**Description**

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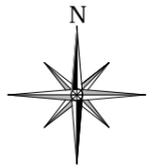
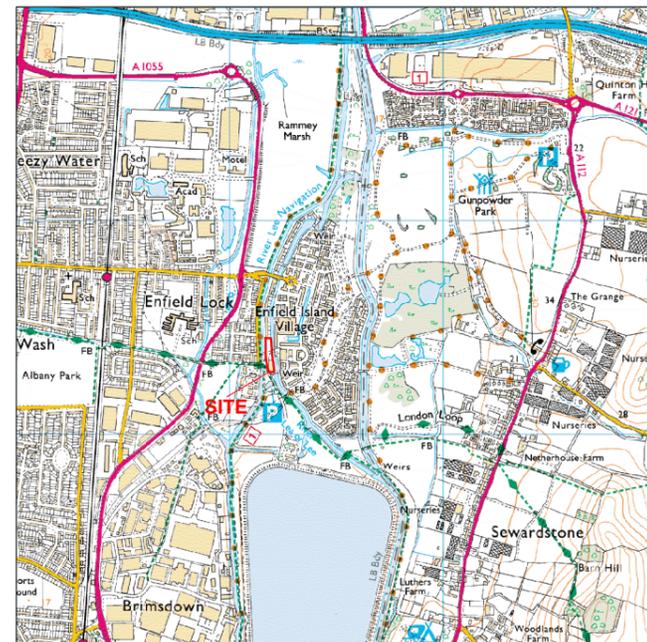
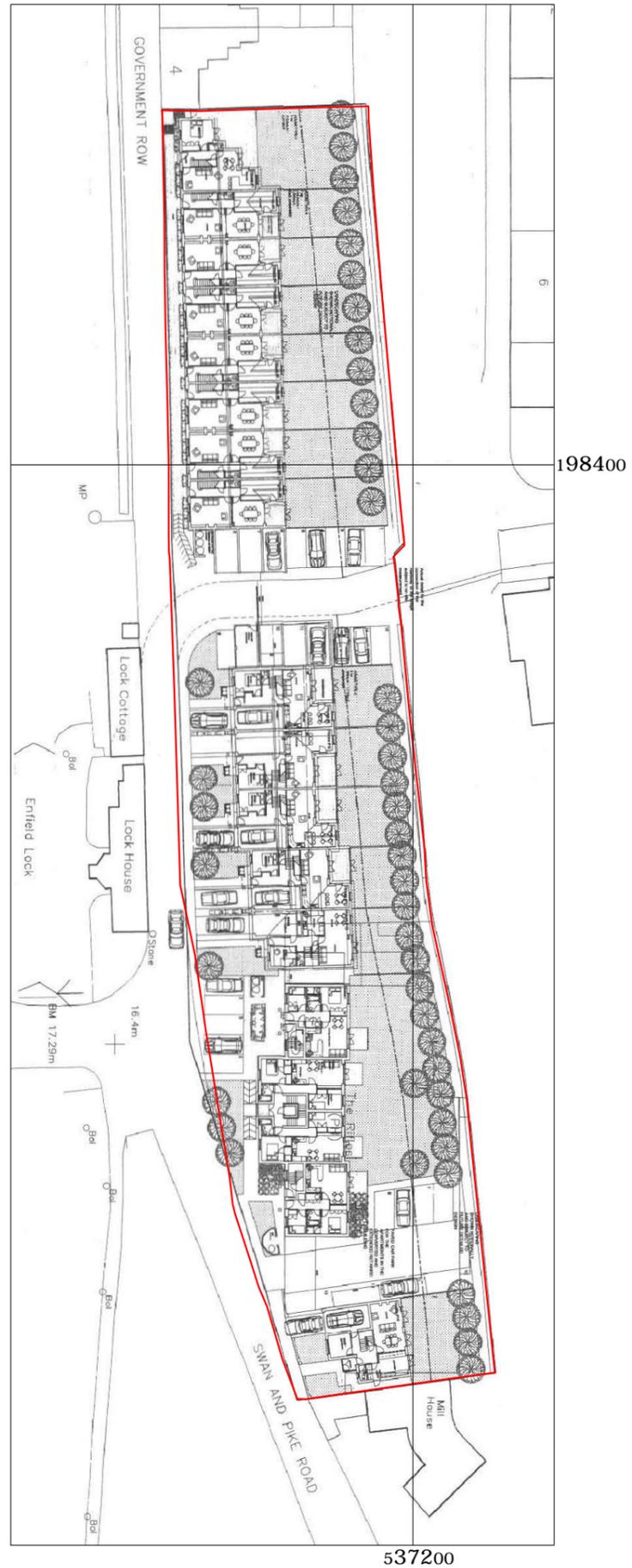
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**Entered by**

Tim Schofield (tim@britannia-archaeology.com)

**Entered on**

6 June 2014



Site Boundary

NGR: 537189 198364      REPORT NUMBER: 1036

PROJECT:  
THE RIFLES PUBLIC HOUSE, SWAN AND PIKE ROAD, ENFIELD LOCK, LONDON

CLIENT:  
denmark&white LTD.

DESCRIPTION:  
SITE LOCATION & PROPOSED DEVELOPMENT PLAN

**BRITANNIA ARCHAEOLOGY LTD**



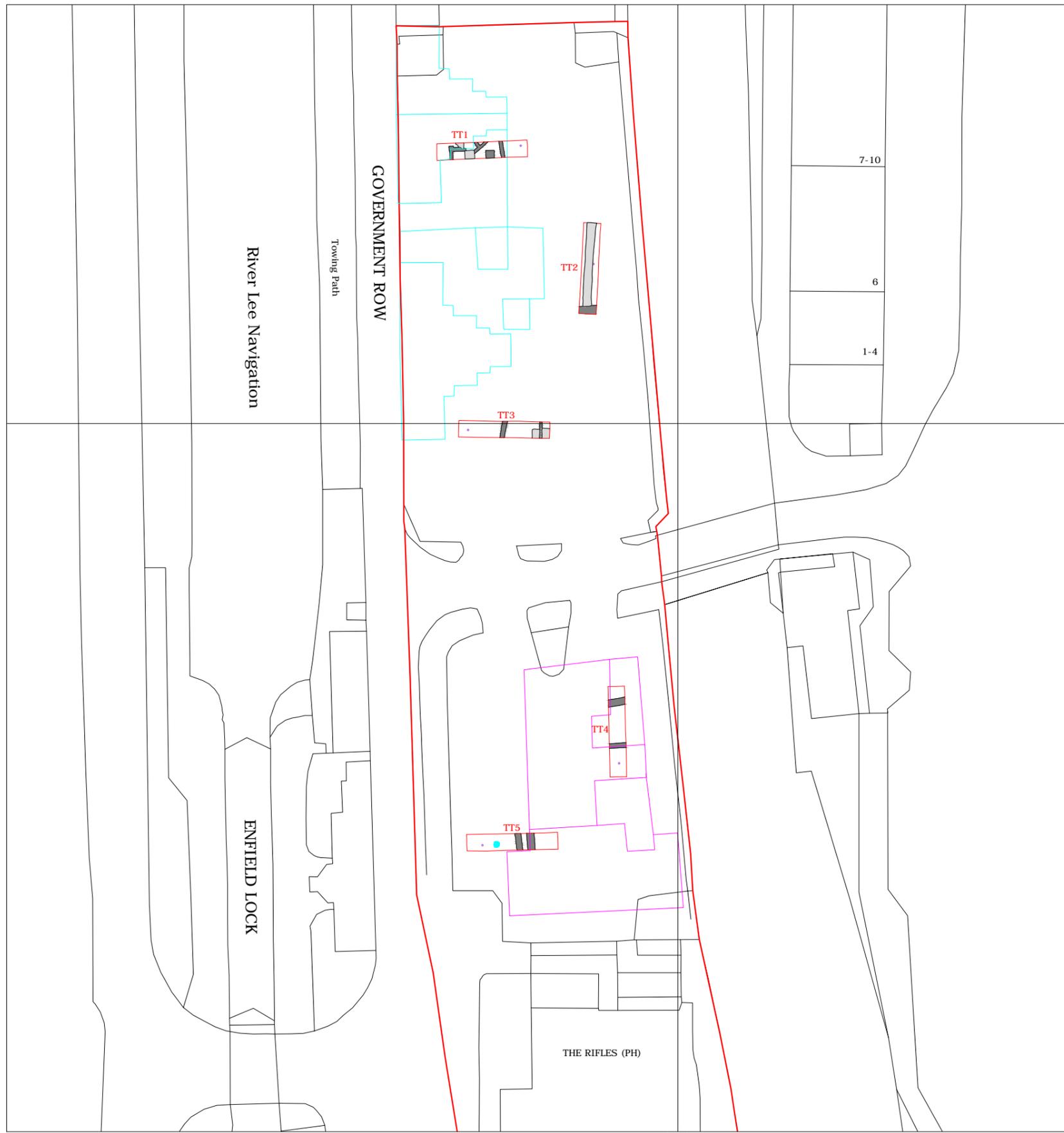
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SCALE: 1:750     

PLOT: A3      APPROVED: MCA      VERSION: 01

DATE: OCT 2013      AUTHOR: TPS      FIGURE: 01

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|  |                                  |
|--|----------------------------------|
|  | Recorded Archaeological Features |
|  | Projected 1913 OS Map Features   |
|  | Projected 1896 OS Map Features   |
|  | Trench Location                  |
|  | Site Boundary                    |

|                       |                        |
|-----------------------|------------------------|
| NGR:<br>537189 198364 | REPORT NUMBER:<br>1036 |
|-----------------------|------------------------|

PROJECT:  
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DESCRIPTION:  
TRENCH LOCATION PLAN

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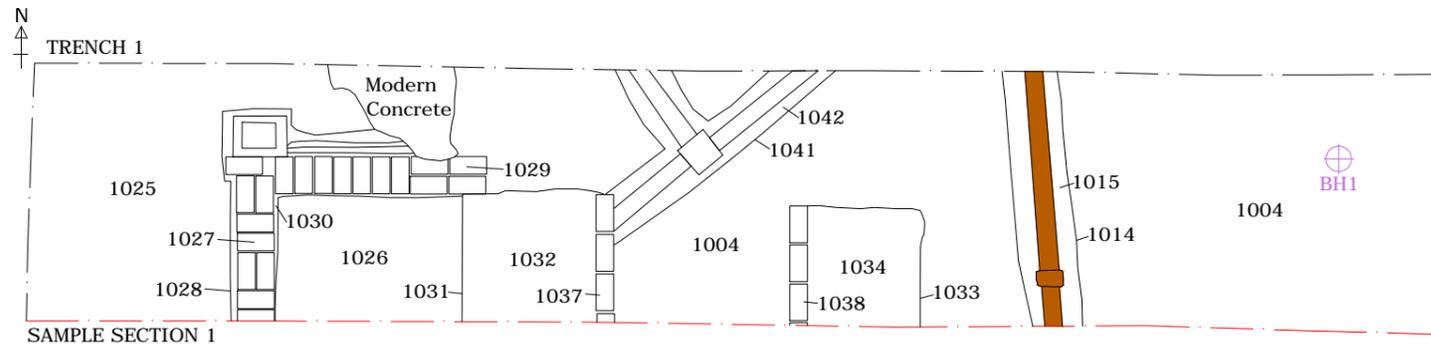
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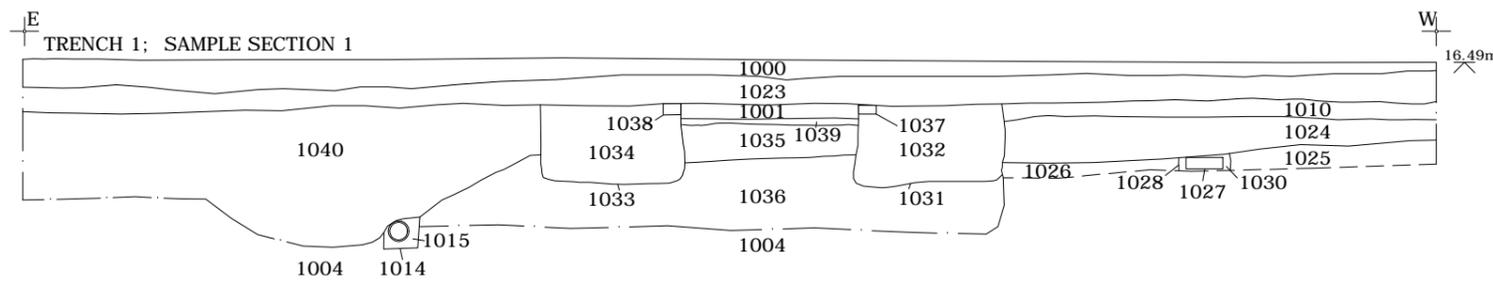
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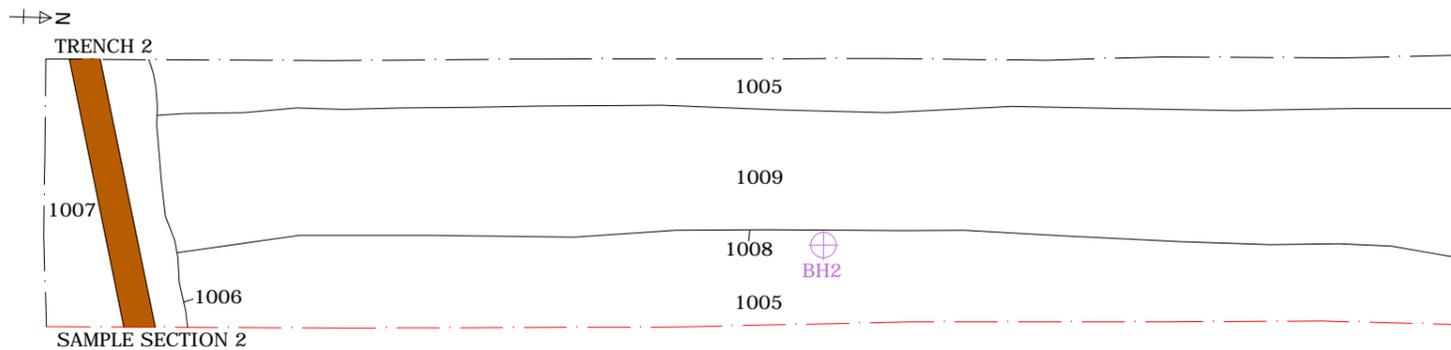
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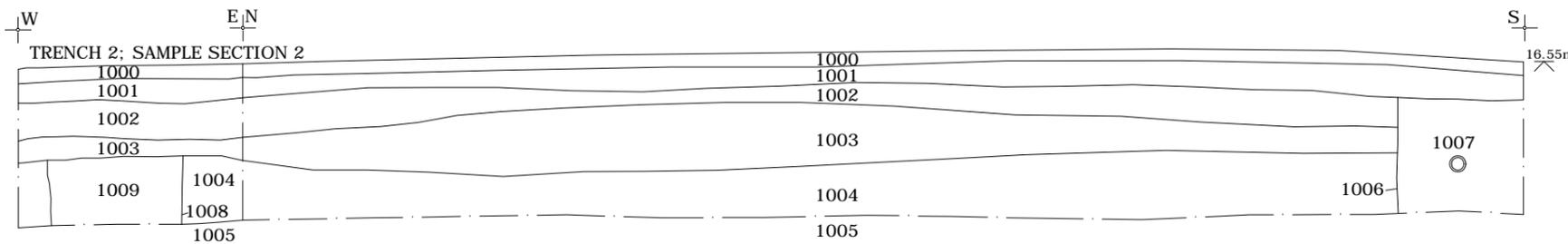
SAMPLE SECTION 1



TRENCH 1; SAMPLE SECTION 1



SAMPLE SECTION 2



TRENCH 2; SAMPLE SECTION 2



DP1; Trench 1, Post-excavation, Looking East



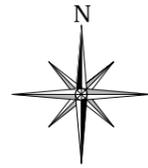
DP2; Trench 1, Sample Section 1, Looking SW



DP3; Trench 2, Post-excavation, Looking North



DP4; Trench 2, Sample Section 2, Looking NE



|   |                         |
|---|-------------------------|
|    | Sample Section Location |
|   | Modern Pipe             |
|  | Borehole Location       |

|                       |                        |
|-----------------------|------------------------|
| NGR:<br>537189 198364 | REPORT NUMBER:<br>1036 |
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PROJECT:  
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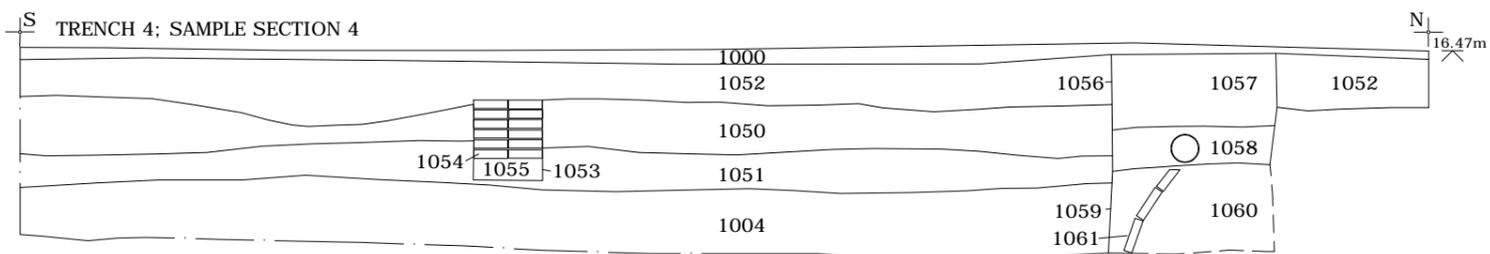
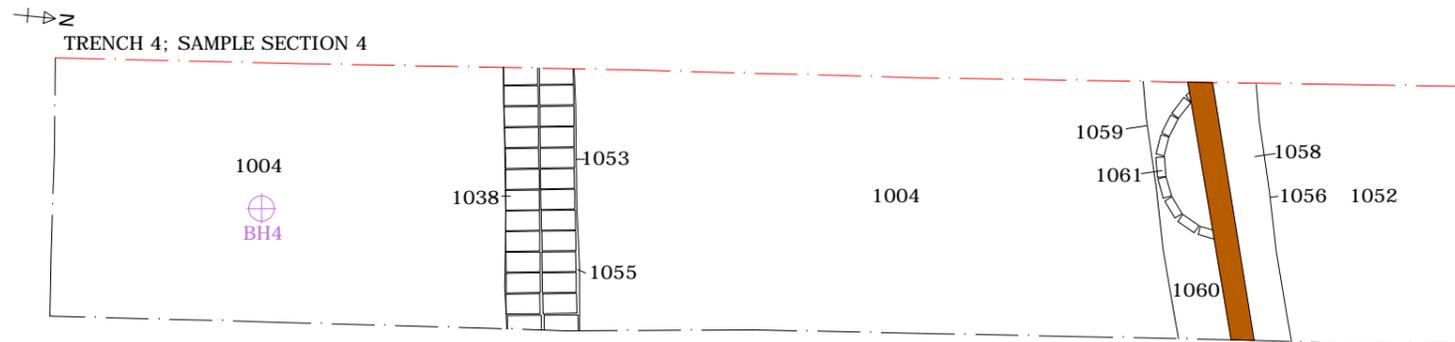
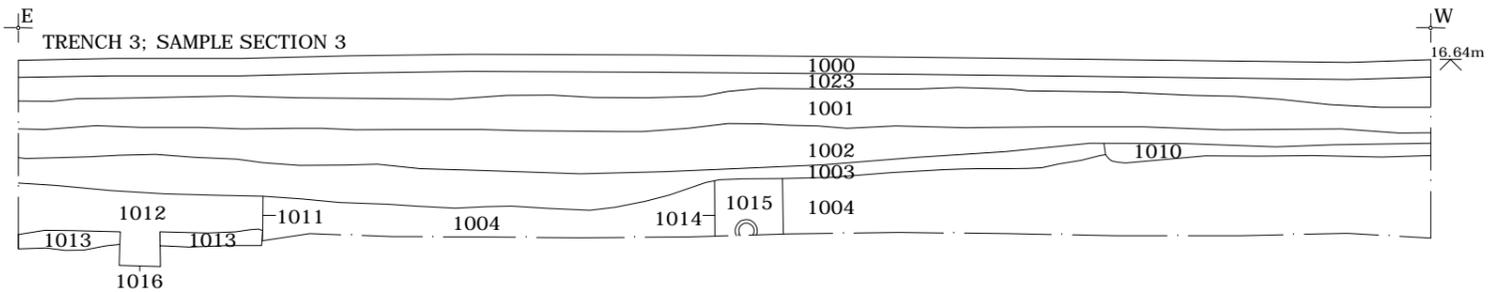
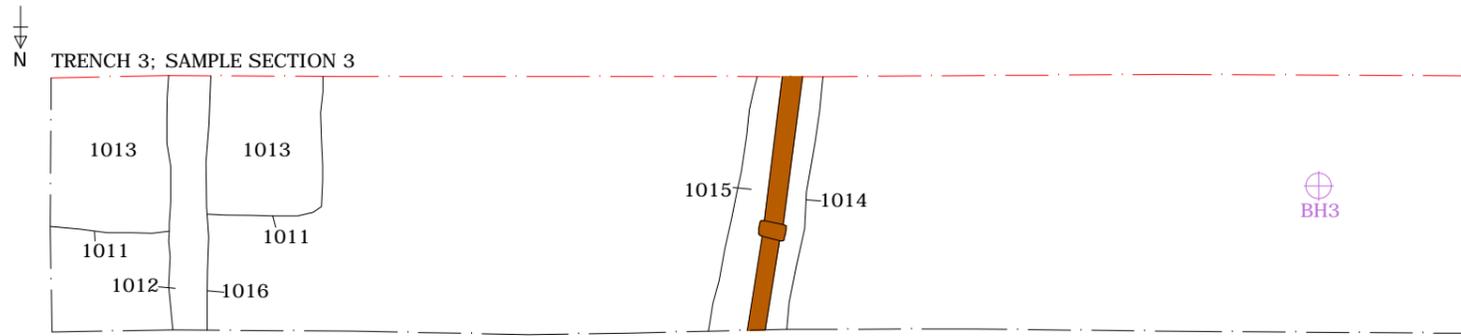
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| DATE:<br>OCT 2013 | AUTHOR:<br>TPS | FIGURE:<br>03 |
|-------------------|----------------|---------------|

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DP5; Trench 3, Post-excavation, Looking West



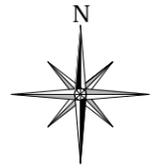
DP6; Trench 3, Sample Section 3, Looking SW



DP7; Trench 4, Post-excavation, Looking North



DP8; Trench 4, Sample Section 4, Looking NW



|  |                         |
|--|-------------------------|
|  | Masonry                 |
|  | Sample Section Location |
|  | Modern Pipe             |
|  | Borehole Location       |

|                       |                        |
|-----------------------|------------------------|
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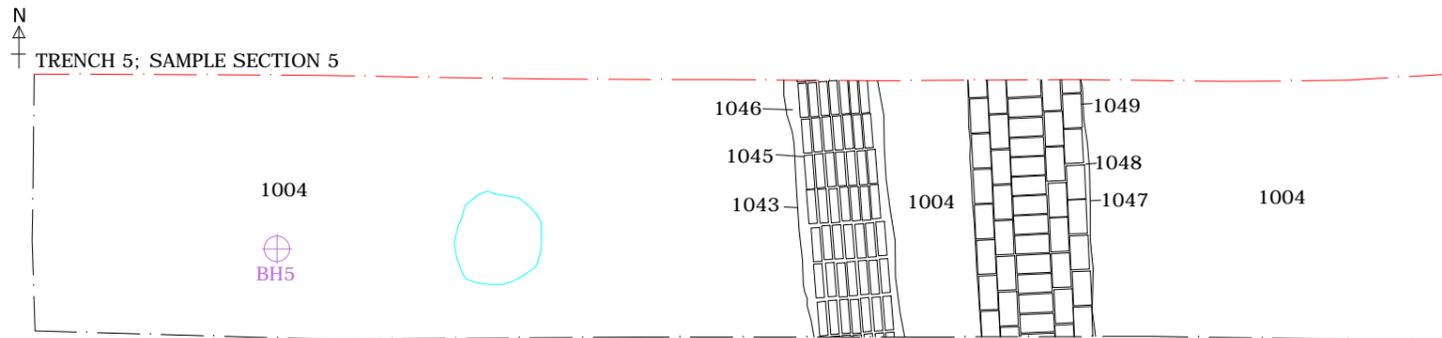


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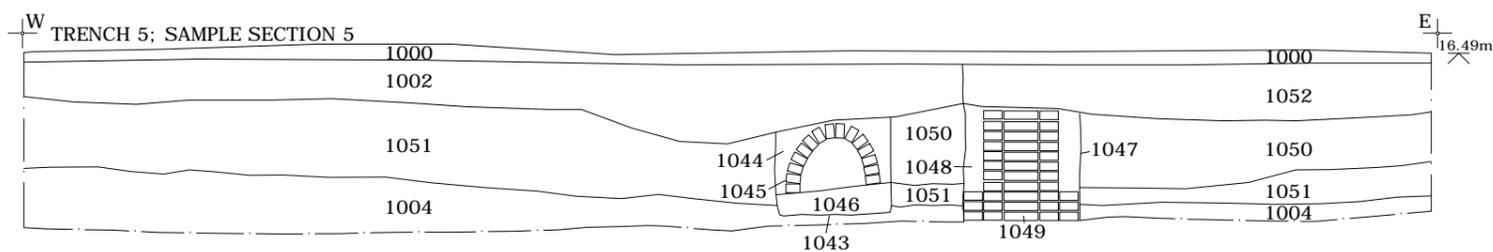
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| DATE:<br>OCT 2013 | AUTHOR:<br>TPS   | FIGURE:<br>04  |

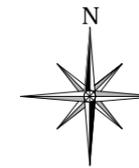
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DP9; Trench 5, Post-excavation, Looking West



DP10; Trench 5, Sample Section 5, Looking SW



|   |                         |
|---|-------------------------|
|    | Masonry                 |
|    | Sample Section Location |
|   | Modern Rubbish Pit      |
|  | Borehole Location       |

NGR: 537189 198364 REPORT NUMBER: 1036

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DESCRIPTION:  
TRENCH 5, PLAN, SECTION AND  
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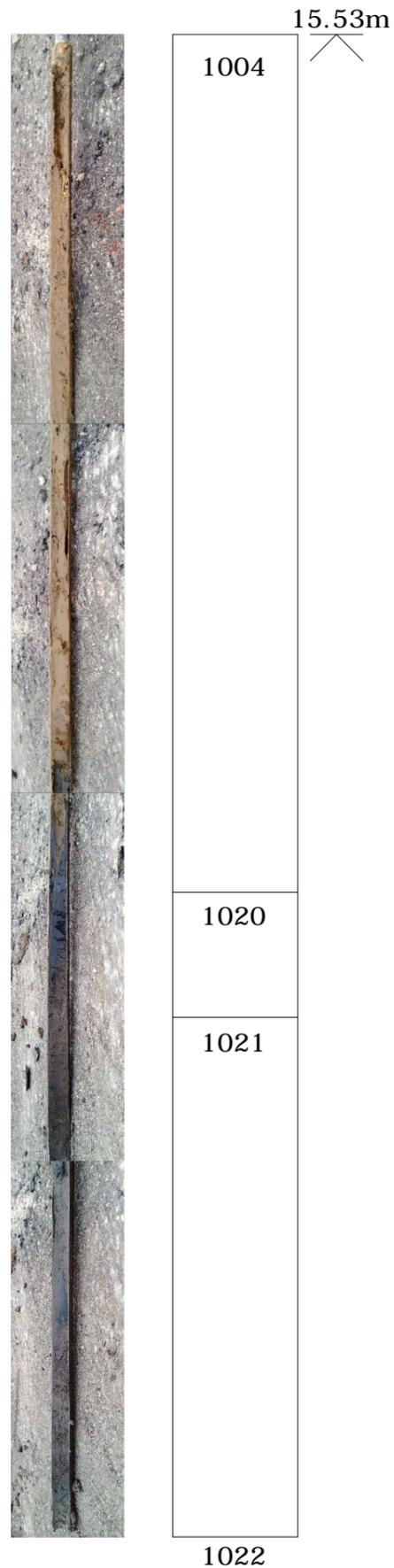


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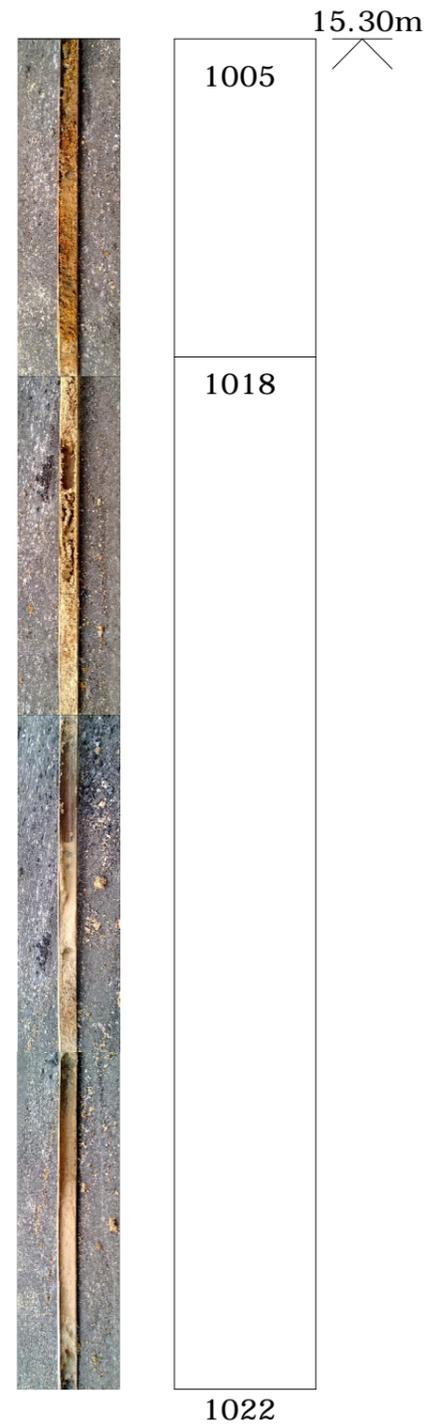
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| DATE:<br>OCT 2013 | AUTHOR:<br>TPS   | FIGURE:<br>05  |

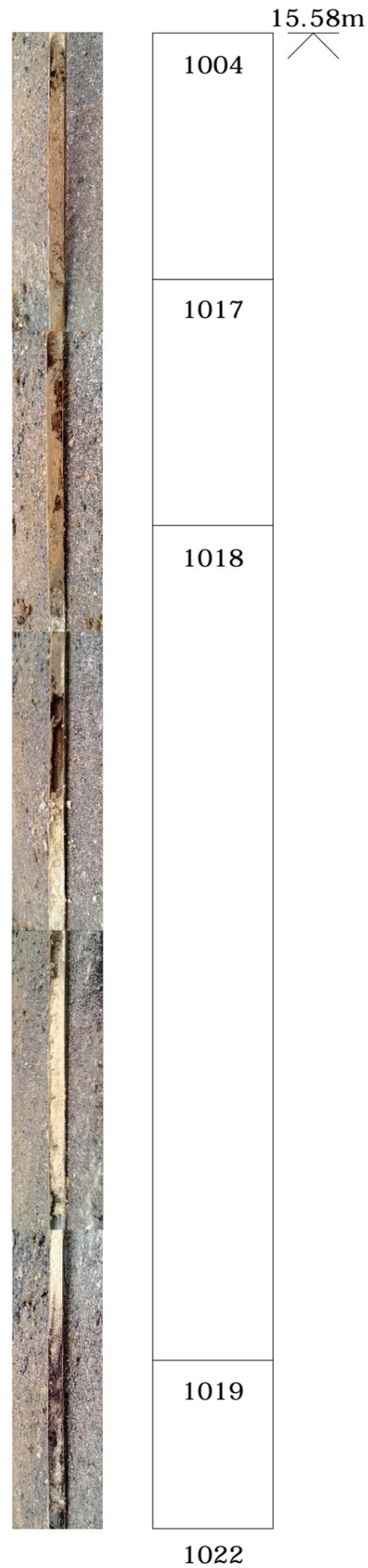
BH1; Trench 1



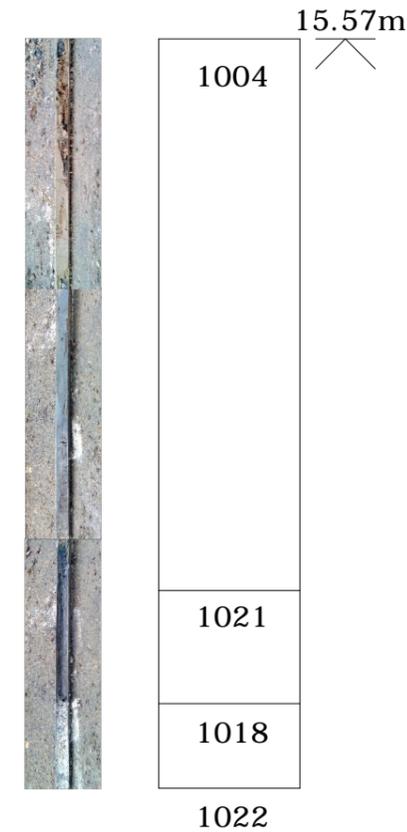
BH2; Trench 2



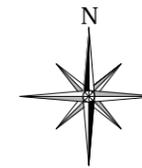
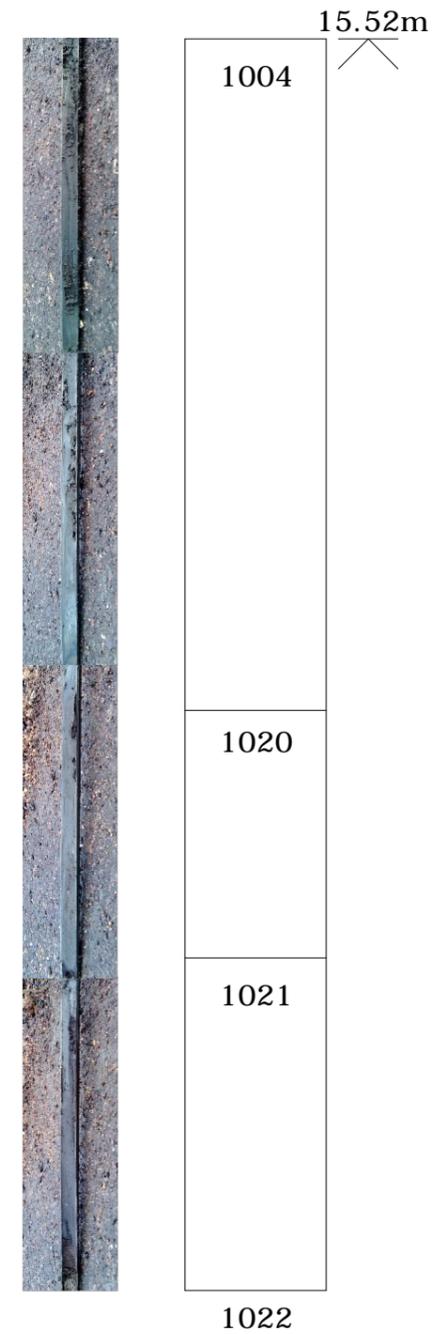
BH3; Trench 3



BH4; Trench 4



BH5; Trench 5



NGR: 537189 198364 REPORT NUMBER: 1036

PROJECT: THE RIFLES PUBLIC HOUSE, SWAN AND PIKE ROAD, ENFIELD LOCK, LONDON

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DESCRIPTION: BOREHOLE SECTIONS AND DIGITAL PHOTOS

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PLOT: A3 APPROVED: MCA VERSION: 01

DATE: OCT 2013 AUTHOR: TPS FIGURE: 06

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