

**An Archaeological Evaluation  
at Roman Way, Crayford, London Borough of Bexley.**

**NGR: 551430 174670  
(TQ 51430 74670)**

**Planning Ref: 15/01458/FULM**

**ASE Project No: 7977  
Site Code: RNW16**

**ASE Report No: 2016086  
OASIS id: 244003**



**Kristina Krawiec**

**Illustrations by Justin Russell**

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## **Abstract**

*This report presents the results of an archaeological evaluation carried out by Archaeology South-East at Roman Way, Crayford, London borough of Bexley in January 2016. The fieldwork was commissioned by the Harris Partnership on behalf of Aldi Stores Ltd. as part of a planning condition in advance of construction.*

*The proposed trench locations were altered on site to take into account of the presence of demolition spoil, concrete piles and services. A sequence of channel incision and aggradation with peat deposits and organic silts as well as tufa layers was recorded during the evaluation. These deposits represent former courses of the River Cray and changing hydrological conditions over time at the site.*

*In addition to the channel deposits, cut archaeological features and wooden archaeological remains were present. A tufa deposit recorded in Trench 1 was cut by a north-west south-east orientated ditch, from which a radiocarbon age determination of the Late Iron Age to Early Roman period was recovered, and a possible small pit. In the upper part of the sequence, immediately below made ground, the tips of six wooden stakes were recorded which were driven through the organic silts of an upper channel, which dated to the late medieval period. These are desiccated and represent the upper limits of preservation at the site, and are likely to be post-medieval in date.*

*The deposits and archaeological remains recorded have been subject to range-finder radiocarbon dating and the onset of channel infilling appears to have occurred in the early Mesolithic, c. 9200 BC. A radiocarbon date recovered from the upper channel fill brackets the organic accumulation at the site to the mid-15<sup>th</sup> century AD.*

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## **1.0 INTRODUCTION**

### **1.1 Site Background**

1.1.1 Archaeology South-East was commissioned by the Harris Partnership on behalf of Aldi Stores Ltd. to undertake an archaeological evaluation at Roman Way, Crayford, London Borough of Bexley, as part of a planning condition for the proposed development (Figure 1, NGR 551430 174670).

### **1.2 Geology and Topography**

1.2.1 The site is located between Roman Way and Crayford High Street. The River Cray passes through its northern end in a concrete-lined channel. At the time of the evaluation the site was covered by hardstanding comprising concrete and tarmac.

1.2.2 The geology comprises the former floodplain of the River Cray which is characterised by alluvium and Taplow Gravel deposits. These superficial deposits overlie the Seaford and Newhaven Chalk Formations (BGS 2016). A previous geo-environmental survey (BSL 2015) recorded the presence of peat deposits as well as concrete obstructions.

### **1.3 Planning Background**

1.3.1 Planning Consent has been granted (Ref No.:15/01458/FULM) for the regeneration of the site through the construction of a food store unit, together with three additional retail units and associated car parking and landscaping. Condition 19 of the consent relates to archaeology and states:

*19. No development shall take place until the applicant has secured the implementation of a programme of archaeological work in accordance with a written scheme of investigation which has been submitted by the applicant and approved in writing by the local planning authority. The development shall only take place in accordance with the detailed scheme pursuant to this condition. The archaeological works shall be carried out by a suitably qualified investigating body acceptable to the local planning authority.*

*Reason: The development is likely to damage archaeological remains. The applicant should therefore submit detailed proposals in the form of archaeological project design. The design should be in accordance with English Heritage Guidelines.*

1.3.2 A Written Scheme of Investigation was produced (ASE 2016) and was approved by the Greater London Archaeological Advisory Service (GLAAS).

### **1.4 Scope of Report**

1.4.1 The report covers the results of the evaluation carried out in January 2016 by Kristina Krawiec (Senior Archaeologist) and Ian Hogg (Archaeologist). The project was managed by Andy Leonard (fieldwork) and Jim Stevenson (post-excavation).



## **2.0 ARCHAEOLOGICAL BACKGROUND**

### **2.1 Introduction**

2.1.1 The following background information is derived from the WSI with due acknowledgement.

### **2.2 Prehistoric**

2.2.1 An assemblage of Palaeolithic tools was uncovered on Maxim Road, c.230m west of the site (MLO103211, TQ512746). Several Palaeolithic flints, including eight handaxes, seventeen flakes and one lithic implement were discovered 200m to the south of the site (HER no: 070316/00/00 TQ515745). The area has also produced several animal bones (mammoth, musk ox, deer, woolly rhino and lion), retrieved from the Brickearth and considered to be Palaeolithic in date.

2.2.2 The Neolithic period has produced a flint tool from within the site itself (MLO23159), And the Crayford Town Hall site c.240m south-east of the site produced palaeochannels of an Early Mesolithic to Neolithic date (ELO11384, TQ516745).

2.2.3 Work at Iron Mill Lane, c. 700m to the north-east of the site, has uncovered an Iron Age ditch, posthole and pit. The remains of a Middle to Late Iron Age settlement was also recorded during building work at 103-109 Old Road in the 1930s. This was not archaeologically excavated but several pits and ditches were noted, as well as a large quantity of pottery, loomweights and pot-boilers.

### **2.3 Roman**

2.3.1 The main Roman road from London to Dover (Watling Street) is thought to have crossed the River Cray, and forms the modern London Road, which forms the northern and eastern boundary of the site.

2.3.2 The foundations of a Roman building were excavated to the north-east of the site at Swaislands Drive. Roman pottery, brick fragments and beads were recovered from the area around the building, as well as to the north of the River Cray.

2.3.3 Roman burials have also been found in the vicinity of the site; at the River Cray a funerary urn was uncovered in 1915 and an inhumation burial was discovered in 1931 during the construction of New Central School.

## **2.4 Anglo Saxon and medieval**

2.4.1 It is thought that a battle was fought between the Saxons and Britons in the Crayford area in AD457.

2.4.2 Crayford Road and Crayford Station have been the location of various unspecified Saxon objects unearthed in the 19<sup>th</sup> century. A high status Saxon inhumation burial was uncovered on Crayford Road, complete with accompanying horse, buckles and five silver-plated bosses. On areas of Crayford Road Saxon archaeology has been preserved beneath a layer of peat.

2.4.3 Crayford Town Hall site revealed an accumulation of peat which was overlain by medieval and post medieval dumps (ELO11384, TQ516745).

## **2.5 Post-medieval and modern**

2.5.1 Crayford settlement grew throughout the post-medieval period, as demonstrated by the extant post-medieval buildings at its centre.

2.5.2 The site initially housed a print works prior to 1890, then in the late 1890's it was redeveloped as a tannery with two associated gasometers, with channels toward the River Cray and Wansunt and settling beds in the south of the site.

2.5.3 By 1961 the site was once again redeveloped with another industrial unit (BT Motor Transport Works). This apparently housed 3 No. underground storage tanks close to the western boundary of the site. According to the Interpretive Investigation Report by Environ these were apparently filled in with concrete in January 1994 when the fuel bay was removed.

2.5.4 Two further above ground storage tanks were present as part of the Motor Transport Works which were bunded. The report states that heavy staining of new and used engine oil was noted on the tank bunds.

2.5.5 Two vehicle wash down areas were also historically located on site as part of the Motor Transport Works, one located in the southwest of the site and one within the building itself.

## **2.6 Project Aims and Objectives**

2.6.1 The main aims of the evaluation were to;

- To establish the presence or absence of archaeological remains and deposits with palaeoenvironmental potential within the footprint of the proposed development
- To determine the nature and significance of any archaeological remains

- To establish the potential for the peat sequence to contain waterlogged archaeological and palaeoenvironmental remains
- To enable the archaeological advisor at GLAAS to make an informed decision as to the requirement for any further archaeological work at the site

2.6.2 The following research objectives were suggested;

- To ascertain the extent, depth, depth of deposit, character, date, significance and condition of any archaeological and palaeoenvironmental remains at the site
- To establish the extent to which previous development and/or other processes have affected archaeological and palaeoenvironmental deposits at the sit
- To record and understand the evidence for the past environmental conditions of the site and to create an interpretation of the vegetation and aquatic conditions and their development through time
- To record and understand the evidence for human activity at the site.
- To collect samples for off-site analysis/assessment
- To establish the likely impact on archaeological and palaeoenvironmental deposits of the proposed development

2.6.3 More generally the research framework for London archaeology (MoL, 2002) identifies the following areas that this site could contribute to:

*“(L2) Understanding London’s hydrology and river systems and tributaries... in shaping London’s history and the relationships between rivers and floodplains.*

*“(L1) Conducting baseline surveys and the use these to develop models for understanding the significance of geomorphology, ecology, ecosystems and climate, hydrology and vegetational and faunal development on human lives.*



### 3.0 ARCHAEOLOGICAL METHODOLOGY

#### 3.1 Fieldwork Methodology

- 3.1.1 A Risk Assessment and Method Statement (RAMS) was produced and a site code, RNW16, was given by the London Archaeological Archive and Records Centre (LAARC). The initial trench plan was unable to be adhered to due to the presence of demolition rubble and concrete piles present at the proposed locations. Due to the changes in trench location as well as the restricted nature of the site the test pitting was reduced to a single pit at the northern end of the site. All of these alteration were agreed by the GLAAS archaeological advisor.
- 3.1.2 Three trenches were excavated using a tracked excavator fitted with a toothless ditching bucket. All trenches were scanned using a CAT cable avoidance tool prior to excavation and the trench locations were further modified due to the presence of further concrete piles. Excavation was undertaken in spits of no more than 0.10m to the top of the underlying natural substrate, or to the top of archaeological deposits, whichever was higher. Trenches were stepped for safety reasons and Trench 2 was excavated so as to the removal of the concrete piles.
- 3.1.3 The trenches were located using an RTK GPS in order to tie the valuation to the Ordnance Survey. Archaeological features were cleaned and excavated by hand and recorded in plan and section. Trenches were backfilled as dug with nor formal reinstatement.

#### 3.3 Archive

- 3.3.1 The site archive is currently held at the offices of ASE and will be deposited at the LAARC in due course. The contents of the archive are tabulated below (Table 1).

Context sheets	30
Section sheets	2
Plans sheets	0
Colour photographs	0
B&W photos	0
Digital photos	60
Context register	1
Drawing register	1
Watching brief forms	0
Trench Record forms	3
Test pit record	1

Table 1: Quantification of site paper archive

Bulk finds (quantity e.g. 1 bag, 1 box, 0.5 box 0.5 of a box )	1 bag
Registered finds (number of)	0
Bulk and grab samples	16
Palaeoenvironmental specialists sample samples (e.g. columns, prepared slides)	4 kubiena tins
Waterlogged wood	3 stake tips
Wet sieved environmental remains from bulk samples	0

Table 2: Quantification of artefact and environmental samples

## 4.0 RESULTS

### 4.1 Trench 1

Context	Type	Interpretation	Finds	Length m	Width m	Depth m	Height m AOD
1/001	CUT	Cut of ditch		-	2.50m	0.70m	3.60m
1/002	FILL	Middle fill of ditch		1.80m		0.35m	
1/003	LAYER	Alluvium in 2 <sup>nd</sup> channel		13.00m	1.80m	0.45m	3.23m
1/004	LAYER	Alluvium/organic mud		10m	1.80m	0.25-0.45m	3.35m
1/005	LAYER	Tufa layer		30m	1.80m	0.25-0.40m	3.35-3.15
1/006	LAYER	Peat infill of channel		30m	1.80m	0.15-0.50m	3.61m
1/007	CUT	Cut of pit			1.75m	0.30m	3.39m
1/008	FILL	Fill of pit			1.75m	0.30m	
1/009	FILL	Lower fill of ditch	Animal bone		0.70m	0.20m	3.55m
1/010	LAYER	Alluvium		15m	1.80m	0.40m	3.78m
1/011	LAYER	Fluvial sand		2.50m	1.80m	0.50m	3.58m
1/012	LAYER	Disturbed upper alluvium		30m	1.80m	0.30m	3.88m
1/013	LAYER	Unoxidised alluvium		20m	1.80m	0.25m	3.63m
1/014	LAYER	Taplow Gravel		30m	1.80m		3.54m
1/015	LAYER	Made Ground		30m		1.50m	6.29-4.79m
1/016	FILL	Upper fill of ditch		1.80m	2.50m	0.25m	
1/017	LAYER	Made Ground		30m		0.66m	6.95-6.29m
<b>WOOD</b>							
W1	Stake	Tip of Roundwood stake		60mm	45x38mm		4.73m
W2	Stake	Tip of Roundwood stake		101mm	40mm		4.73m
W3	Stake	Tip of Roundwood stake		73mm	24mm		4.72m

Table 3: Trench 1 list of recorded contexts

4.1.1 The underlying geology of the Taplow Gravel, an orange brown loose sandy gravel, was encountered at 3.54m OD within Trench 1 (Figure 3). The trench was orientated north north-west to south south-east at the western end of the site and was 30m in length with two steps making the trench 8.50m wide at the top and 1.80m wide at the base.

4.1.2 The underlying Taplow gravels were incised by a possible channel which was infilled by a poorly humified peat deposit [1/006] which thinned out at the northern end of the trench (Figure 3, Section 1). This was overlain by a tufa

deposit, [1/005], which contained several thin, mollusc rich, olive green organic lenses. The tufa became coarser towards the top of the deposit with onchoidal structures and visible rooting throughout. These deposits were sampled using kubiena tins <1> and a combination of bulk waterlogged samples and targeted smaller grab samples <4-14>. A full lithological description of sample <1> is available in Appendix 1.

- 4.1.3 The tufa deposit was cut by a small pit [1/007] which was only seen in section (Figure 3, Section 1). This was infilled by a calcareous brown silt-clay [1/008] which is likely to be reworked from [1/005].
- 4.1.4 This pit was overlain by an organic mud deposit [1/004] which was mollusc-rich in places and contained woody fragments and rootlets throughout. This deposit was cut in the centre of the trench by an east west orientated ditch [1/001]. The ditch was infilled by a basal calcareous organic silt [1/009] from which a single piece of animal bone was recovered, which dated to the Late Iron Age (BETA-431768; 430±30 BP, 40 Cal BC to AD 85). This was overlain by a coarser deposit [1/002] which was likely to be derived from [1/005]. This in turn was overlain by a mixed organic brown silt clay [1/016].
- 4.1.5 At the northern end of the trench the tufa deposit [1/005] was overlain by a complex alluvial sequence [1/010-13] which may represent overbank deposition of sandy and silty deposits. These deposits display varying degrees of oxidation and demonstrate a sharp lower boundary with [1/005].
- 4.1.6 These alluvial deposits are also cut by the ditch [1/001]. A possible second phase of channel incision was recorded as truncating the upper fill of the ditch and (physically) truncating the organic mud [1/004] at the southern end of the trench. This is denoted by a very thin, c. <1cm, band of sandy mollusc rich material at the base of an organic silt clay [1/003].
- 4.1.7 This organic deposit is overlain by a disturbed silt clay alluvium [1/012] into which the made ground deposits [1/015] directly overlay. These organic deposits were soft and the overlying made ground was in placed slumped into the softer sediment. At the northern end of the trench the remains of several upright stakes W1-6 were recorded (Figure 3). These comprised the worked tips of the stakes and were in very poor condition. A total of three examples (W1-3) were recovered which demonstrated flat clean tool facets which suggest working with an iron tool. It was unclear as to whether these stakes were driven through [1/012] or if the deposit has formed around them (Figure 3, Section 1).
- 4.1.8 These deposits were sealed beneath 2m of made ground deposits [1/015] and [1/017] which contained modern material such as rubble and concrete (not illustrated on Section 1, Figure 3). The trench also encountered large concrete slab at 1.00m below ground level as well as several concrete piles reinforced with rebar.

## 4.2 Trench 2

Context	Type	Interpretation	Finds	Length m	Width m	Depth m	Height m AOD
2/001	LAYER	Rubbly made ground			2.00m	1.30-2.05m	6.22-4.78m
2/002	LAYER	Disturbed alluvial silt clay				0.12-0.25m	4.78m OD
2/003	LAYER	Tufa deposit				0.29m	4.53m OD
2/004	LAYER	Silty peat				0.27m	4.24m OD
2/005	LAYER	Taplow gravel					3.97m OD

Table 4: Trench 2 list of recorded contexts

4.2.1 Initially Trench 2 was located along a south west north east axis but due to the presence of demolition spoil and frequent concrete piles it was excavated as a series of three pits between the piles (Figure 2). Each pit measured 3.00m by 2.00m at the base with a second step in place for safety reasons.

4.2.2 The underlying gravel [2/005] was sealed by a thin layer of humified peat [2/004]. This was similar to the peat recorded in Trench 1 ([1/006]) and represents a floodplain or channel edge deposit (Figure 4). This was overlain by a thin layer of tufa [2/003] which in turn was sealed by a layer of disturbed alluvium [2/003]. The deposits in this trench were encountered at a higher level than in Trench 1 suggesting local variations in the subsurface topography of the gravel. The gravel in Trench 2 being reached at 3.97m OD whereas the gravels were reached at 3.54m in Trench 1.

4.2.3 These natural deposits were sealed by 2.10m of made ground deposits [2/001] which comprised loose rubble and concrete. The piles were closely spaced in this area and a large brick-built drain was also encountered.

## 4.3 Trench 3

Context	Type	Interpretation	Finds	Length m	Width m	Depth m	Height m AOD
3/001	LAYER	Made ground		30m		1.60m	6.06-5.06m
3/002	FILL	Fill of modern pit		15m		1.00m	5.06-3.61m
3/003	CUT	Cut of modern pit		15m		1.00m	5.06-3.61m
3/004	LAYER	Dark grey made ground		30m		0.68m	4.54m
3/005	LAYER	Fine yellow grey sand		4m		0.36m	3.86
3/006	LAYER	Tufa		10m		0.22m	4.36m
3/007	LAYER	Silty peat		10m		0.37m	4.14m
3/008	LAYER	Taplow Gravel		30m			3.77m

Table 5: Trench 3 list of recorded contexts

4.3.1 Trench 3 was also located in the southern half of the site and orientated north east to south west (Figure 2). The trench was 30m in length and was stepped once. The underlying geology was encountered at 3.77m OD.

4.3.2 The Taplow gravel was overlain by a thin layer of desiccated silty peat [3/007] at the southern end of the trench (Figure 5). At the northern end of the trench the gravel was overlain by a soft yellow grey sand [3/005] which may represent a high spot within the floodplain deposits.

4.3.3 This sand deposit was severely truncated by a large modern pit [3/003] which dominated the trench (Figure 5, plan). This pit was infilled by wooden planks, rope, rubble and ash [3/002] and was overlain by the made ground deposit [3/001].

#### **4.4 Test Pit 3**

4.4.1 Due to the restricted nature of the site only Test Pit 3 was excavated to the north of Trench 1 (Figure 2). The underlying gravels were reached at 4.41m OD, 2.70m below ground level. These were overlain by a poorly humified peat deposit similar which demonstrated compressed twigs and reed fragments throughout. This deposit became more silt rich towards the top of the deposit and the organics more humified.

4.4.2 This peat unit was overlain by a black brown mixed silt clay which contained rubble and concrete. This is likely to represent a disturbed alluvial deposit which was overlain by a gravelly chalky made ground deposit.

## **5.0 THE FINDS**

### **5.1 Animal bone** by Gemma Ayton

- 5.1.1 A single fragment of animal bone was recovered from the basal fill of ditch [1/001] recorded in Trench 1. This was identified as the distal end of a right, pig humerus. The bone fragment was in a good condition and did not display any signs of pathology, butchery or gnawing.

## 6.0 THE ENVIRONMENTAL SAMPLES *by Kristina Krawiec*

### 6.1 Methodology and statement of potential for palaeoenvironmental assessment

6.1.1 The majority of the deposits encountered during the evaluation were natural in origin and required specialist palaeoenvironmental sampling. The deposits were also waterlogged including those infilling the anthropogenic ditch [1/001]. The samples were recovered using a combination of kubiena tins, bulk sample buckets and targeted grab samples (Table 6). In addition samples of the upright wooden stakes were also recovered which will be discussed here.

6.1.2 The deposits recorded in Trench 1 offer the potential to preserve palaeoenvironmental remains. The organic deposits have visible plant and insect remains and molluscs were also recorded throughout the sequence. The table below provides a potential list of environmental proxies that may be present within the sediment recovered during the sampling. The deposits are highly likely to contain micro and macrofossil remains that would allow environmental reconstruction of landscape change over time. These samples have been retained and are stored at the ASE facility should a programme of palaeoenvironmental assessment be required.

Sample number	Context	Context	Type	Depth	Proxy
1	1/005-006	1/005-006	Kubiena 2 tins	0-1.20m 4.72m OD	Pollen, Diatoms, C14
2	1/005-006	1/005-006	Kubiena 1 tin	0.70-0.95m 4.36m OD	Pollen, c14, diatoms
3	1/009, 1/016	1/009, 1/016	Kubiena 1 tin	0.55-0.80m 4.47m OD	Pollen, c14, diatoms
4	1/003	1/003	Bulk	0-0.10m	Insects, waterlogged plants
5	1/004	1/004	Bulk	0.20-0.30m	Insects, waterlogged plant
6	1/005	1/005	Grab	0.30-0.40m	Molluscs
7	1/003	1/003	Grab		Mollusc, organics
8	1/005	1/005	Grab	0.40-0.50m	Molluscs
9	1/005	1/005	Grab	0.50-0.60m	Molluscs
10	1/005	1/005	Grab	0.60-0.64m	Molluscs, organics, c14
11	1/005	1/005	Grab	0.64-0.72m	Molluscs
12	1/006	1/006	Bulk	0.72-0.82m	Insects, waterlogged plants
13	1/006	1/006	Grab	0.82-0.86m	Molluscs
14	1/006	1/006	Bulk waterlogged	0.86-0.96m	Insects, waterlogged plants
15	VOID	VOID			
16	1/006	1/006	Bulk waterlogged	0.96-1.06m	Insects, waterlogged plants
17	1/006	1/006	Bulk waterlogged	1.06-1.16m	Insects, waterlogged plants
18	1/002	1/002	Bulk		Insects,



Sample number	Context	Context	Type	Depth	Proxy
					waterlogged plant, finds
19	1/009	1/009	Bulk		Insects, waterlogged plant
20	1/002, 1/009	1/002, 1/009	Block	1.08-1.34m 4.02m OD	Pollen, diatoms, c14

Table 6: Samples recovered during the evaluation

- 6.1.3 The remains of six wooden stakes were recorded in Trench 1 and a total of three were recovered (Table 7). The stakes displayed post depositional damage in the form of radial drying cracks and damage to the upper portion of the items. It was not clear as to the function of these stakes although they may relate to a waterfront structure such as a fish weir or a revetment. The flat clean facets indicate working with an iron tool but closer dating would require scientific methods.

Wood number	Type	Measurements	Details
W1	Roundwood	60mm, 45 x 38mm	Tip of pencil point stake, worked 2 sides 1 direction, faint tool signatures, facets flat and clean, bark present
W2	Roundwood	101mm, 40mm diameter	Tip of worked stake, poor condition, chisel-point, flat facet
W3	Roundwood	73mm, 24mm diameter	Tip of pencil point stake, radial drying cracks, worked 2 sides, one direction

Table 7: Worked wood recovered

## 6.2 Radiocarbon dating

- 6.2.1 In order to better understand the significance of the deposits recorded above a series of range-finder radiocarbon dates were submitted to Beta Analytic Ltd Laboratories (Table 8).
- 6.2.2 The onset of peat accumulation within the channel occurred in the early Mesolithic period, (BETA-431770; 9290-9235 Cal BC). The second dated episode of channel incision, recorded at the top of the sequence occurred in the late medieval period (BETA-431769; 1430-1485 Cal AD). The date for the onset of accumulation is earlier than that recorded at the nearby Town Hall site, recorded at c 8700 BC, although the samples recovered from Crayford are at a lower elevation (R.Batchelor pers comm.). The date recovered from the pig humerus recovered from the base of the ditch [1/001], which truncates the tufa layer [1/005], places the anthropogenic activity at the site in the late Iron Age-Early Roman period (BETA-431768; 40 Cal BC to AD 85).
- 6.2.3 The age determinations recovered are stratigraphically consistent and are considered reliable indicators of the sequence of activity represented in Trench 1.

Sample	Context number	Sample number	Material	Depth	d13C 0/00	Conventional Radiocarbon Age BP	2 sigma Calibrated Date BC/AD
<1>	1/006	ASE_DS_381 BETA-431770	Bulk sediment humin	1.13-1.14m	-27.7	9780 <sub>+30</sub>	9290-9235 Cal BC
<1>	1/003	ASE_DS_380 BETA-431769	Alnus sp.	0.28m	-28.0	430 <sub>+30</sub>	1430-1485 Cal AD
-	1/009	ASE_DS_379 BETA-431768	Pig humerus	-	-20.5	1890 <sub>+30</sub>	40 Cal BC to AD 85

Table 8: Range finder C14 samples

## **7.0 DISCUSSION AND CONCLUSIONS**

### **7.1 Overview of stratigraphic sequence**

7.1.1 The evaluation carried out at Roman Way, Crayford demonstrated the presence of both cut archaeological features and waterlogged wooden remains. In addition, a complex alluvial sequence was recorded which has the potential to preserve palaeoenvironmental evidence.

7.1.2 The deposits recorded in Trench 1 accumulated between the early Mesolithic and the late medieval period. In addition the archaeological remains indicate human activity on the floodplain in the late Iron Age-Early Roman and the post medieval periods. This activity was sealed by up to 2.60m of made ground deposits.

### **7.2 Deposit survival and existing impacts**

7.2.1 The site demonstrates good survival of deposits despite extensive modern made ground and piling. The trenches remained dry, although the peat deposit [1/006] still retained some moisture when compressed. The area investigated by Trench 1 delimits the edge of the most intensive piling that has previously occurred at the site. This area has the potential to preserve further archaeological remains.

7.2.2 In addition to possible post-medieval wooden structures, cut archaeological features dating from the late Iron Age to the Early Roman period were also recorded, demonstrating the complex history of the site. The sequence of natural peat and tufa layers also demonstrates changing homological conditions relating to river migration, the effects of Holocene sea level rise and possibly human management of the floodplain.

7.2.3 A series of concrete piles were recorded truncating the central part of the site and relating to the BT Motor Transport Works that existed here in the 1960's. The deposits in Trench 1 appear to be relatively unaffected by this as the trench is located outside the footprint of this building. The archaeological remains and the palaeoenvironmental sequence demonstrate good survival although further work is required to better understand the level of micro and macrofossil evidence preserved in these features.

### **7.3 Discussion of archaeological remains by period**

7.3.1 The sequence recorded in Trench 1 suggests at least two episodes of channel incision and complex hydrological development. The initial channel was infilled by a poorly humified peat deposit which began to aggrade in the early Mesolithic period. This was overlain by a tufa deposit which was interleaved with organic lenses.

7.3.2 These alternating deposits demonstrate periods of channel incision followed by aggradation, indicating the migration of the river to and from the sample site over time. The tufa rich sediment indicates flowing water, the formation of onchoidal structures recorded within the sediment suggests an active flow setting and the presence of braided channels. The formation of tufa is also

associated with high water tables and spring fed channels, the Cray is fed at its source by the Orpington pond which itself is formed by rainwater permeating the chalk bedrock. In addition the larger the onchoidal structures within the tufa the higher the energy required to deposit the sediment.

- 7.3.3 The presence of peat both below and sealing the tufa indicates periods of terrestrialisation and stability within the floodplain. These periods of stability may be occurring in the earlier Iron Age with the tufa deposits perhaps drying out and allowing the ditch and pit features [1/001] and [1/007] recorded in Trench 1 to be excavated in the Late Iron Age-Early Romano British period, as suggested by the radiocarbon age determination recorded for the ditch (BETA-431768; 40 Cal BC to AD 85).
- 7.3.4 The deposits infilling the ditch comprised reworked tufa within an organic rich silt suggesting that the period of stability was short-lived and that high water tables persisted at the site. This led to a second peat accumulation layer which occurred at some point after the ditch had been completely infilled. The pit, which was recorded in section, did not contain any datable artefacts and requires further work to understand the function and relationship to ditch [1/001].
- 7.3.5 The last recorded fluvial change occurred at some point in the late medieval period where a second channel incision is recorded. The age determination from the base of this channel suggests aggradation had begun by the late 15<sup>th</sup> century AD (BETA-431769; 1430-1485 Cal AD). Driven through these sediments were several wooden stakes, of which only the worked ends were recovered and are considered to be post-medieval in date, although further scientific dating is required to confirm this. These wooden stakes may be the remains of a waterfront structure such as a revetment or fish weir.

#### **7.4 Potential impact on archaeological remains**

- 7.4.1 The archaeological remains are sealed by between 1.60m and 2.30m of made ground material, which if removed wholesale, may disturb the lower deposits. The extensive amount of piling across the site, which if requires removal prior to construction, may also affect the archaeological deposits. In order to better understand the nature of the features recorded and the associated natural sequence of deposits a larger investigation area would be required around the known archaeological deposits.
- 7.4.2 The archaeological deposits exist broadly on three levels; the top of the organic sediments infilling the late medieval channel containing the wooden stakes; the top of the tufa deposits truncated by pit and ditch features; and the top of the gravel with the channel feature dating to the Mesolithic.
- 7.4.3 The presence of waterlogged deposits at the site also indicated the potential of the site to preserve wooden archaeological remains which should be considered if any of the proposed works intend to remove the organic deposits

## **7.5 Consideration of research aims**

- 7.5.1 The evaluation has addressed the aims of the project in that the presence of archaeological remains has been confirmed. The environmental sequence recorded at the site also has the potential to preserve palaeoenvironmental remains and material for radiocarbon dating. These deposits have the potential to elucidate both the nature of the fluvial evolution of the site and the human interaction and management of this landscape from the Mesolithic to the late medieval period.
- 7.5.2 In addition this also addresses L1 and L2 of the research framework for London (MoL 2002) in contributing towards understanding the evolution of London's tributaries and their relation to human activity.

## **7.6 Conclusions**

- 7.6.1 The evaluation has demonstrated that the archaeological and palaeoenvironmental deposits have the potential to enhance the understanding of the natural landscape as well as the human interaction with that landscape over a long period of time.

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## **ACKNOWLEDGEMENTS**

ASE would like to thank Harris Partnership and Aldi for commissioning the work and for their assistance throughout the project, and Mark Stevenson and Sylvia Warman (GLAAS) for their guidance and monitoring.

HER Summary

HER enquiry no.						
Site code	RNW16					
Project code	7977					
Planning reference	15/01458/FULM					
Site address	1 Roman Way Crayford					
District/Borough	London Borough of Bexley					
NGR (12 figures)	551430 174670					
Geology	Taplow gravels, Alluvium					
Fieldwork type	Eval	Excav	WB	HBR	Survey	Other
Date of fieldwork	January 2016					
Sponsor/client	Harris Partnership					
Project manager	Andy Leonard					
Project supervisor	Kristina Krawiec Ian Hogg					
Period summary	Palaeolithic	Mesolithic	Neolithic	Bronze Age	Iron Age	
	Roman	Anglo-Saxon	<b>Medieval</b>	<b>Post-Medieval</b>	Other	
Project summary (100 word max)	<p><i>This report presents the results of an archaeological evaluation carried out by Archaeology South-East at Roman Way, Crayford, London borough of Bexley in January 2016. The fieldwork was commissioned by the Harris Partnership on behalf of Aldi Stores Ltd. as part of a planning condition in advance of construction.</i></p> <p><i>A sequence of channel incision and aggradation with peat deposits and organic silts as well as tufa layers was recorded during the evaluation. These deposits represent former courses of the River Cray and changing hydrological conditions over time at the site.</i></p> <p><i>In addition to the channel deposits, cut archaeological features and wooden archaeological remains were present. A tufa deposit recorded in Trench 1 was cut by a north-west south-east orientated ditch, from which a radiocarbon age determination of the Late Iron Age to Early Roman period was recovered. In the upper part of the sequence, immediately below made ground, the tips of six wooden stakes were recorded which were driven through the organic silts of an</i></p>					

	<p><i>upper channel, which dated to the late medieval period. These are desiccated and represent the upper limits of preservation at the site, and are likely to be post-medieval in date.</i></p> <p><i>The deposits and archaeological remains recorded have been subject to range-finder radiocarbon dating and the onset of channel infilling appears to have occurred in the early Mesolithic, c. 9200 BC. A radiocarbon date recovered from the upper channel fill brackets the organic accumulation at the site to the mid-15<sup>th</sup> century AD.</i></p>
<b>Museum/Accession No.</b>	



**OASIS ID: archaeol6-244003**

**Project details**

Project name	Evaluation at Roman Way Crayford
Short description of the project	AN archaeological evaluation at Roman Way, Crayford which recorded a sequence of fluvial deposits from the Mesolithic to late medieval period. A series of Late Iron Age features and post medieval worked wooden remains were also recorded.
Project dates	Start: 15-01-2016 End: 17-01-2016
Any associated project reference codes	7977 - Contracting Unit No.
Type of project	Field evaluation
Current Land use	Industry and Commerce 3 - Retailing
Methods & techniques	"Sample Trenches"
Development type	Urban commercial (e.g. offices, shops, banks, etc.)
Prompt	National Planning Policy Framework - NPPF

**Project location**

Country	England
Site location	GREATER LONDON BEXLEY CRAYFORD Roman Way Crayford
Site coordinates	TQ 5143 7467 51.450221689207 0.179543057486 51 27 00 N 000 10 46 E Point

**Project creators**

Name of Organisation	Archaeology South East
----------------------	------------------------

Project brief originator	Archaeology South East
Project director/manager	Andy Leonard
Project supervisor	Ian Hogg
Project supervisor	Kristina Krawiec
Type of sponsor/funding body	Harris partnership
<b>Project archives</b>	
Physical Archive recipient	LAARC
Physical Contents	"Animal Bones","Environmental","Wood"
Digital Media available	"Images raster / digital photography","Survey","Text"
<b>Project bibliography 1</b>	
Publication type	Grey literature (unpublished document/manuscript)
Title	an archaeological evaluation at Roman Way Crayford, London borough of Bexley
Author(s)/Editor(s)	K.Krawiec
Date	2016
Entered by	k krawiec (k.krawiec@ucl.ac.uk)
Entered on	25 February 2016

## Appendix 1

### Sample <1> Lithology

In this instance ptm is used to denote tufa as well as molluscan remains

0-0.24m	DA 4	ST 0	EL 0	SICC 3	UB 4	Ag2 Sh2 Gmin TI+ ptm Brown organic silt, well humified, rooting at 0.10-0.15m. occ sandy, molluscs/chalk fragments at 0.13m
0.24-0.30m	DA 4	ST 0	EL 1	SICC 4	UB 4	Ag1 Sh3 Gmaj ptm As above but more organic, well humified, occasional small gravel and chalk
0.30-0.34m	DA 2	ST 0	EL 0	SICC 4	UB 3	Ag1 Sh1 TI ptm2 Brown organic silt tufa deposits, occ molluscs, woody roots, oncoids c 2mm
0.34-0.62m	DA 1	ST 0	EL 0	SICC 4	UB 2	Ag1TI+ ptm3 Th Tufa with large oncoids, thin organic lenses at 0.40-0.41, 0.50-0.55m, dark rootlets
0.62-0.67m	DA 4	ST 0	EL 1	SICC 3	UB 4	Ag1 Sh3 ptm++ Th Well humified dark organic silt, small oncoids c <1mm, rootlets, molluscs
0.67-0.73m	DA 2	ST 1	EL 0	SICC 4	UB 3	Ag1 Sh1 TI ptm2 Well humified pale brown organic silt with tufa, weakly laminated with fine tufa laminations, v small oncoids
0.73-0.86m	DA 4	ST 3	EL 0	SICC 4	UB 4	Ag1 Sh2 ptm1 Black well humified silty peat with laminations of tufa-silt, very fine, small molluscs
0.86-1.15m	DA 4	ST 0	EL 2	SICC 3	UB 3	Sh2 Dh1 Ag1 TI Humified silty peat, reedy and woody at top, compressed and base

and less well humified, oxidised root channels at top

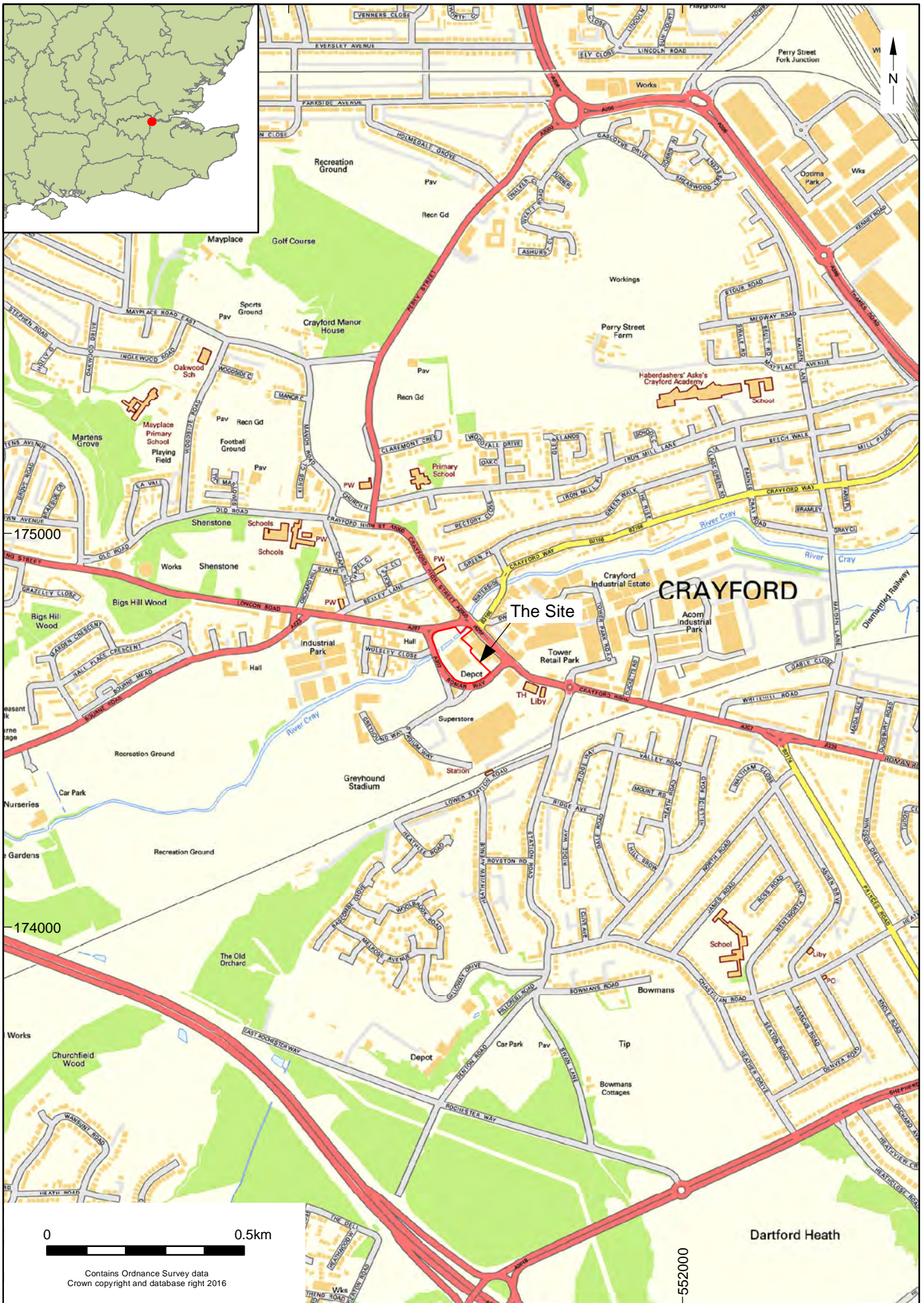
1.15-1.22m      Black coarse sand and gravel, rounded large flint cobbles

Darkness	Degree of Stratification	Degree of Elasticity	Degree of Dryness
nig.4      black	strf.4    well stratified	elas.4    very elastic	sicc.4    very dry
nig.3	strf.3	elas.3	sicc.3
nig.2	strf.2	elas.2	sicc.2
nig.1	strf.1	elas.1	sicc.1
nig.0      white	strf.0    no stratification	elas.0    no elasticity	sicc.0    water

	Sharpness of Upper Boundary
lim.4	< 0.5mm
lim.3	< 1.0 & > 0.5mm
lim.2	< 2.0 & > 1.0mm
lim.1	< 10.0 & > 2.0mm
lim.0	> 10.0mm

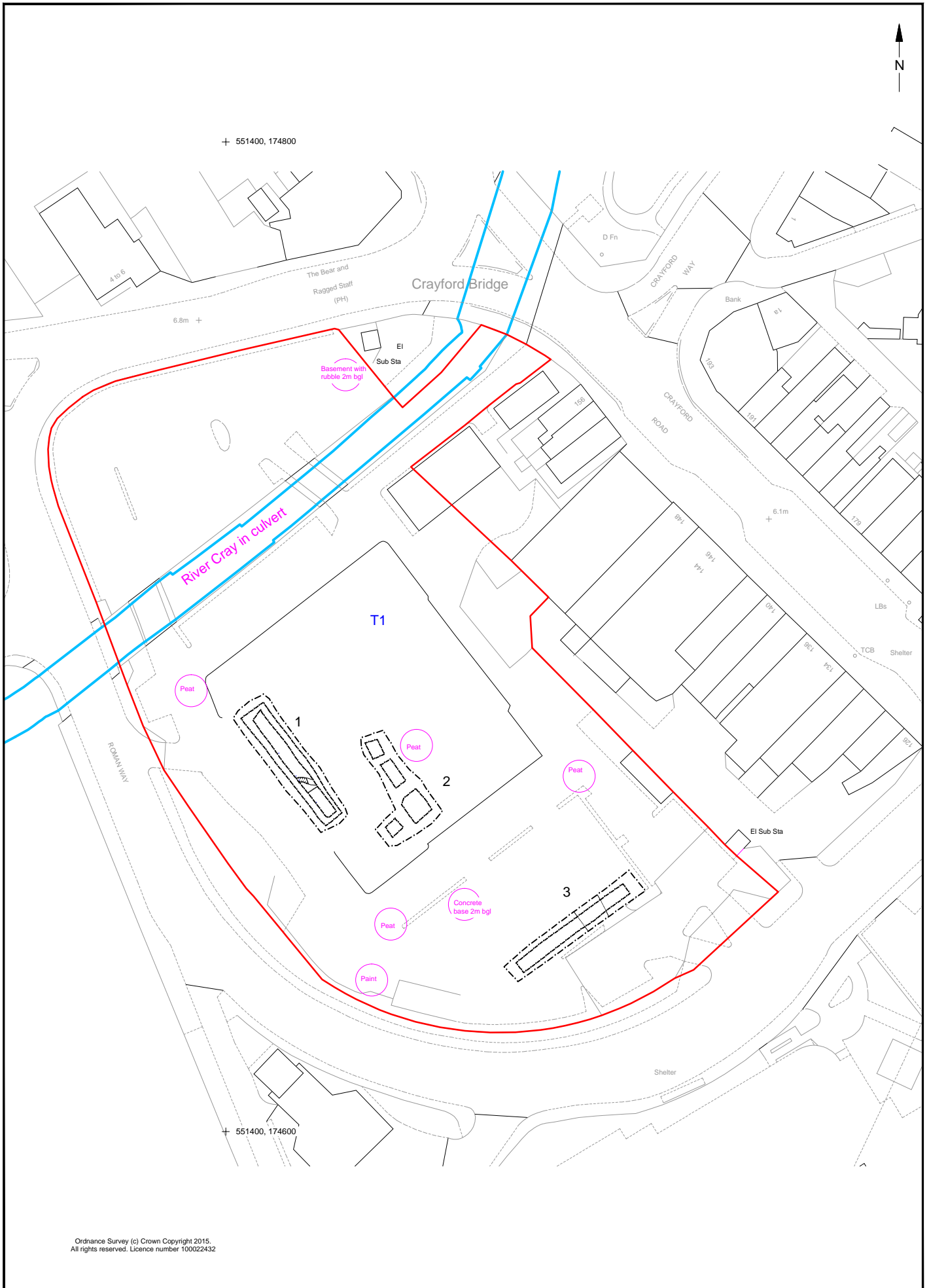
	<i>Sh</i>	<i>Substantia humosa</i>	Humous substance, homogeneous microscopic structure
<i>I Turfa</i>	<i>Tb</i>	<i>T. bryophytica</i>	Mosses +/- humous substance
	<i>Tl</i>	<i>T. lignosa</i>	Stumps, roots, intertwined rootlets, of ligneous plants
	<i>Th</i>	<i>T. herbacea</i>	Roots, intertwined rootlets, rhizomes of herbaceous plants
<i>II Detritus</i>	<i>DI</i>	<i>D. lignosus</i>	Fragments of ligneous plants >2mm
	<i>Dh</i>	<i>D. herbosus</i>	Fragments of herbaceous plants >2mm
	<i>Dg</i>	<i>D. granosus</i>	Fragments of ligneous and herbaceous plants <2mm >0.1mm
<i>III Limus</i>	<i>Lf</i>	<i>L. ferrugineus</i>	Rust, non-hardened. Particles <0.1mm
	<i>Lc</i>	<i>l. calcareus</i>	Marl, not hardened like calcareous tufa; lime etc particles <c.0.1mm
	<i>Lso</i>	<i>L. siliceus organogenes</i>	Diatoms, needles of spongi, siliceous skeletons of organic origins, particles <0.1mm
	<i>Ld</i>	<i>L. detrituosus</i>	Plants and animals or fragments of these; particles <0.1mm +/- humus substance
<i>IV Argilla</i>	<i>As</i>	<i>A. steatodes</i>	Particles of clay
	<i>Ag</i>	<i>A. granosa</i>	Particles of silt
<i>V Grana</i>	<i>Ga</i>	<i>G. arenosa</i>	Mineral particles 0.6 to 0.2mm
	<i>Gs</i>	<i>G. saburralia</i>	Mineral particles 2.0 to 0.6mm
	<i>Gg(min)</i>	<i>G. glareosa minora</i>	Mineral particles 6.0 to 2.0mm
	<i>Gg(maj)</i>	<i>G. glareosa majora</i>	Mineral particles 20.0 to 6.0mm
	<i>Ptm</i>	<i>Particulae testae molloscorum</i>	Fragments of calcareous shells

Physical and sedimentary properties of deposits according to Troels-Smith (1955)



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© Archaeology South-East		Roman Way, Crayford	Fig. 1
Project Ref: 7977	Feb 2016	Site location	
Report Ref:	Drawn by: JLR		



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Project Ref: 7977	Feb 2016	Trench location	
Report Ref: 1016	Drawn by: JLR		





Trench 1 looking west



1/001 looking south-east



Column sample 1



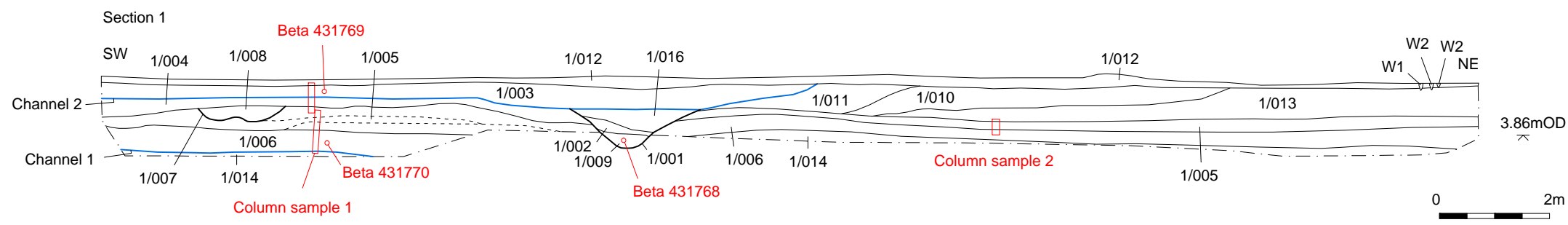
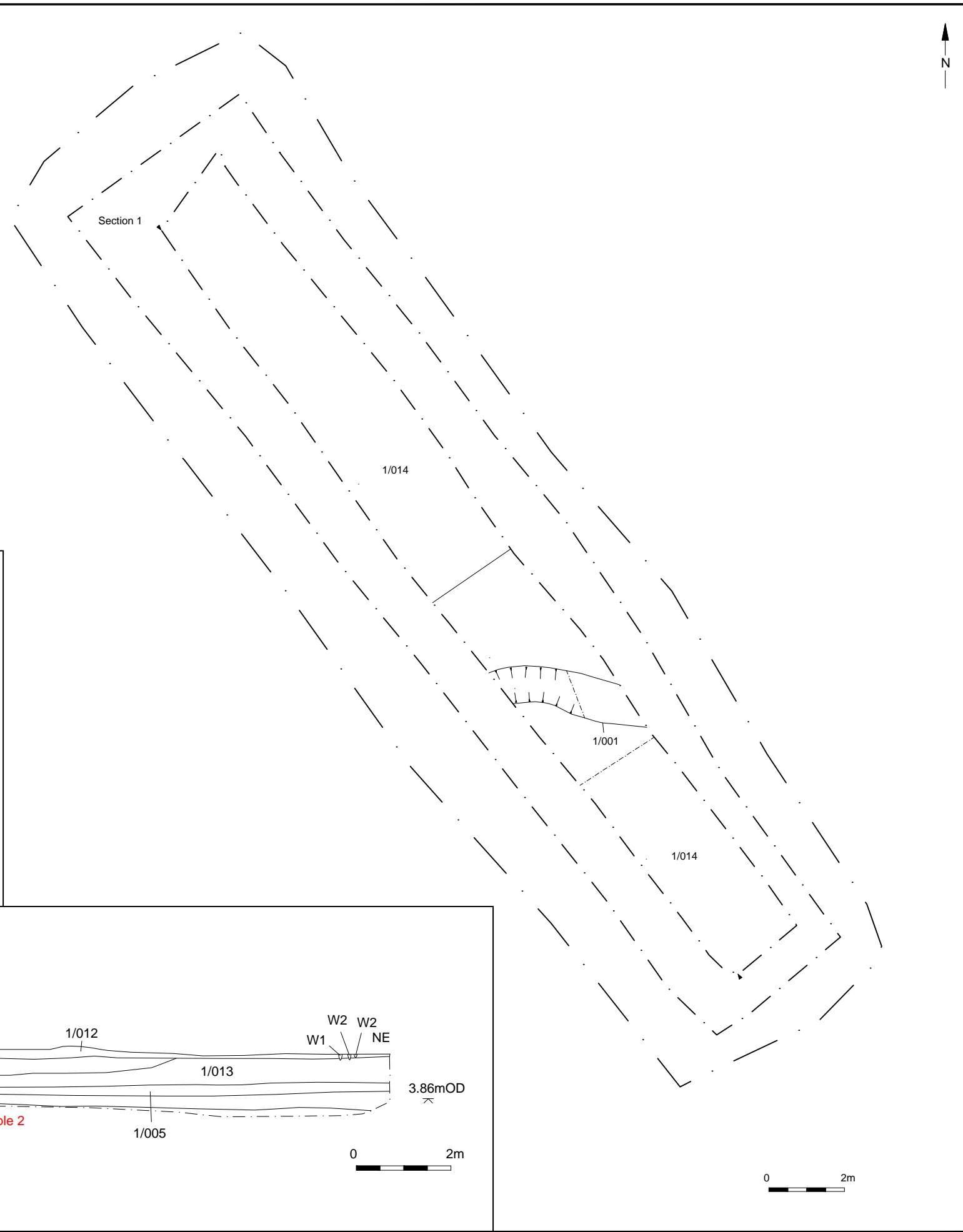
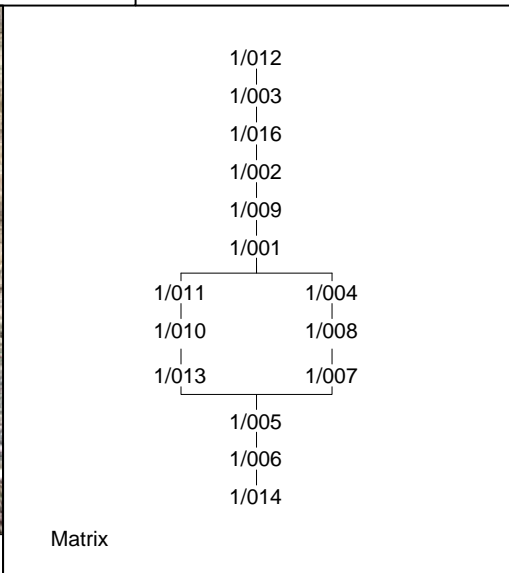
Column sample 2

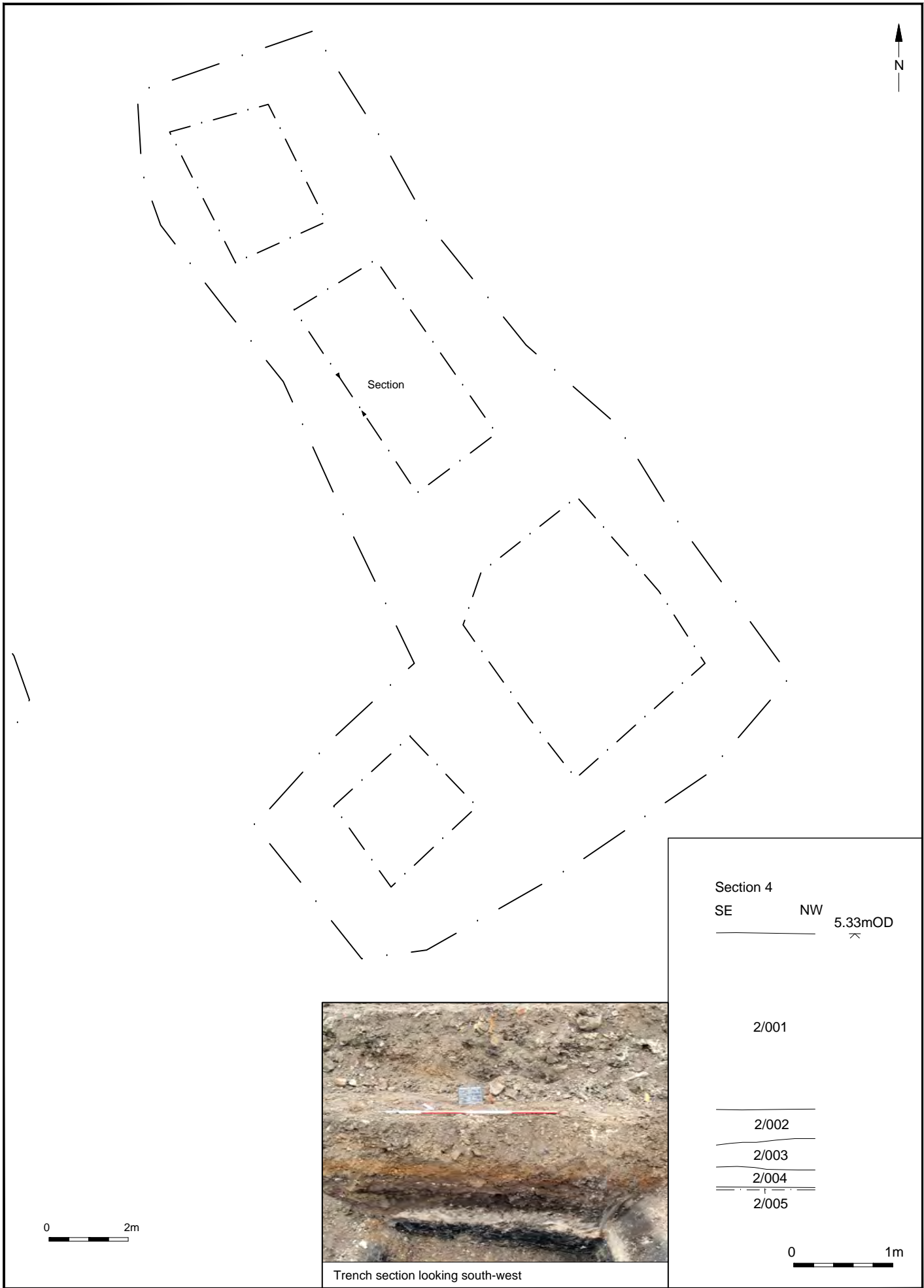


W1-3

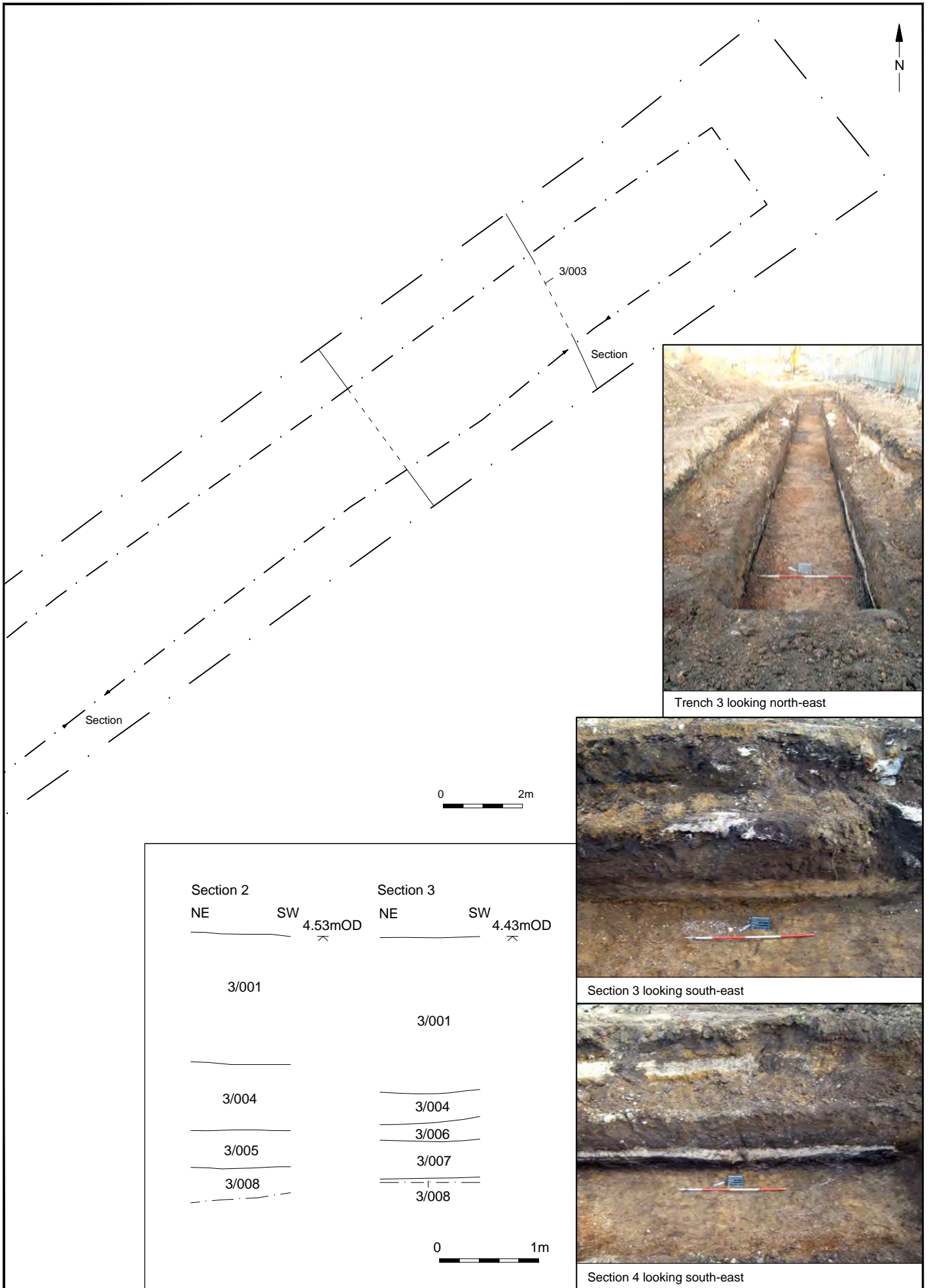


Trench 1 looking north-west





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Project Ref: 7977	Feb 2016	Trench 2: plan, section and photograph	
Report Ref: 1016	Drawn by: JLR		



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Project Ref: 7977	Feb 2016	Trench 3: plan, sections and photographs	
Report Ref: 1016	Drawn by: JLR		

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