

## Evaluation Report for Eastern Bridge Abutment for Bridge F10a

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# **Eastern Abutment, Bridge F10a**

## **Planning Delivery Zone 9**

London Borough of Newham

A report on the evaluation  
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## Summary (non-technical)

*This report presents the results of an archaeological evaluation carried out by the Museum of London Archaeology Service and Pre-Construct Archaeology on the site of the proposed eastern abutment of Bridge F10a, London Borough of Newham. The report was commissioned by Capita Symonds Limited and the Olympic Delivery Authority to MoLAS-PCA.*

*Following the recommendations of the Greater London Archaeology Advisory Service (GLAAS), a single evaluation trench was excavated on the site and the results have helped to refine the initial assessment of its archaeological potential. The trench was excavated to the level of the natural river terrace gravels, which may here represent a late Pleistocene/early Holocene course of the Channelsea River. This deposit was overlain by a thin early Holocene dry soil horizon, in turn overlain by an alluvial sequence approximately 0.50m thick. This may have begun to accumulate during the early medieval period, and its upper reaches were dated by pottery and CBM to the 17<sup>th</sup> to 19<sup>th</sup> centuries. Thus the site appears to have been dry until the early medieval period, when seasonal flooding resulted in the creation of a semi- or fully permanently waterlogged marsh environment. The sequence was sealed by approximately 2.5m of late 19<sup>th</sup> century made ground, deposited to form a track bed for the railway system in the area.*

*An absence of archaeological features, organic remains and palaeoenvironmental evidence suggests that the abutment site has a low significance in understanding the natural and cultural formation and change of the lower Lea Valley.*

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# **1 Introduction**

## **1.1 Site background**

- 1.1.1 The evaluation took place in an area of the Stratford Rail Lands, approximately 0.5km west of Stratford station. This area is located on the southwest edge of Planning Delivery Zone 9 (PDZ9), also called Stratford City, bounded to the north and southwest by railway lines that converge immediately to the west of the subject site. The OS National Grid References for the centre of the area is TQ 3809 8437.
- 1.1.2 The current ground level at the position of the proposed abutment is approximately 5.40m OD. The site code is OL-01307.
- 1.1.3 It is proposed to construct a bridge abutment to carry a footbridge connecting the Stratford City site to the northeast with the main Olympic concourse to the southwest. A desk-based assessment was undertaken for the Stratford City site (ARUP 2003), and should be referred to for information on the natural geology, archaeological and historical background of the site, and the initial interpretation of its archaeological potential. A general Written Scheme of Investigation (WSI) was recently prepared for the PDZ9 (MoLAS-PCA 2007a), followed by an impact-specific Written Scheme of Investigation (WSI) supplement for the bridge abutment (MoLAS-PCA 2007b), which formed the project design for the evaluation.

## **1.2 Planning and legislative framework**

- 1.2.1 A general background to the planning and legislative framework covering all sites included in the Stratford City and Lower Lea Valley Olympic applications was included in the previous *Environmental statements* (ARUP 2003 & Capita Symonds 2004).

## **1.3 Planning background**

- 1.3.1 In accordance with local and national policies, archaeological evaluation of the eastern abutment of Footbridge F10a in advance of its redevelopment was required as part of the planning process. Evaluation is intended to define the archaeological potential and significance of any deposits present on the site, so that the Local Planning Authority can formulate responses appropriate to any identified archaeological resource.

- 1.3.2 The evaluation of the subject site, Bridge F10a will be undertaken in support of a condition required by English Heritage and attached to the consent granted by the Olympic Delivery Authority Planning Decisions Team with respect to Planning Application Number 07/90015/FULODA. The condition states:

*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 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. Significant archaeological remains may survive on site. The planning authority wishes to secure the provision of archaeological investigation and the subsequent recording of the remains prior to development, in accordance with Planning Policy Guidance Note 16, policy EQ43 of the London Borough of Newham's adopted UDP and Policy 4B.14 of the London Plan.*

## **1.4 Origin and scope of the report**

- 1.4.1 This report was commissioned by Capita Symonds and the Olympic Delivery Authority (ODA) to MoLAS-PCA. The report has been prepared within the terms of the relevant Standard specified by the Institute of Field Archaeologists (IFA 2001). Field evaluation, and the *Evaluation report* which comments on the results of that exercise, are defined in the most recent English Heritage guidelines (English Heritage, 1998) as intended to provide information about the archaeological resource in order to contribute to the:
- formulation of a strategy for the preservation or management of those remains; and/or
  - formulation of an appropriate response or mitigation strategy to planning applications or other proposals which may adversely affect such archaeological remains, or enhance them; and/or
  - formulation of a proposal for further archaeological investigations within a programme of research.

## **1.5 Archaeological background**

- 1.5.1 The following summary of the geological and archaeological background to the site is based upon the desk based assessments for the Stratford City site (ARUP 2003), for



PDZ1 (MoLAS-PCA 2007c), which lies immediately southwest of the abutment site, and for PDZ11 (MoLAS-PCA 2007d), which lies to the northeast.

### ***Modern topography***

- 1.5.2 The site is located on the floodplain (valley floor) of the River Lea, c 4km to the north of its confluence with the River Thames. The modern topography and drainage of the area has been much modified by human agency and bears little resemblance to the landscape of the site in historic and prehistoric times. Ground raising prior to industrial development has masked the natural landsurface beneath several metres of 'made ground'. Similarly, very little remains in the modern landscape of the natural course of the Lea, which today flows through a series of mostly man-made canalised and culverted channels, including the Channelsea River to the east of the abutment site.

### ***Geoarchaeology***

- 1.5.3 The abutment site overlies an area of Pleistocene river gravel called the Low Terrace, located immediately east of the main Pleistocene channel of the Lea. There is good potential at the site for evidence of earlier courses and characteristics of the Channelsea River channel, which may have flowed along or across the Low Terrace in some form since the late Pleistocene.

### ***Prehistoric***

- 1.5.4 There is potential for archaeological remains of prehistoric date overlying or cut through the terrace gravels, perhaps associated with exploitation of the flood plain immediately to the west. Waterlogged ground conditions may have preserved later prehistoric organic remains of notable significance, such as wooden structures and palaeoenvironmental material such as seeds, pollen and other environmental indicators.

### ***Roman***

- 1.5.5 The Roman road from London to Colchester probably passed to the east of the abutment site, and there is no evidence of Roman activity within the immediate vicinity. However, as with the prehistoric period, there may be evidence for activity associated with wetland exploitation to the west, and significant organic evidence may have been preserved by waterlogged conditions.

### ***Early Medieval***

- 1.5.6 The previously dry (or seasonally dry) area along the Low Terrace may have become much wetter during this period, and thus there is less potential for significant archaeological remains. There is no evidence for early medieval activity in the

immediate vicinity of the abutment site, although waterlogged conditions may have preserved palaeobotanical evidence.

### **Medieval**

- 1.5.7 The abutment site probably remained waterlogged during this period, perhaps exploited as pasture during the dryer months of the year. There is a low potential for drainage or boundary ditches associated with this usage, and the waterlogged conditions may have preserved palaeobotanical evidence.

### **Post-medieval–modern**

- 1.5.8 The abutment site appears to have remained wet and marginal into the 19<sup>th</sup> century, although evidence for efforts to drain and bound it becomes increasingly likely. By the end of the 19<sup>th</sup> century the railway lines that bound the area to the north and southwest had been laid, and the site itself hosted the western end of a set of sidings that extended eastwards. These siding have now been removed.

## **1.6 Aims and objectives**

- 1.6.1 The following research aims and objectives for PDZ9 were established in the Written Scheme of Investigation for the evaluation (MoLAS-PCA 2007b) and are intended to address the research priorities established in the Museum of London's *A research framework for London Archaeology* (2002). Potentially, they are all applicable to the eastern abutment site:

- What evidence is there for the preservation of organic remains?
- What environmental evidence suitable for past landscape reconstruction exists within deposits associated with ancient channels of the River Lea and its tributaries?
- Can episodes of channel activity and abandonment and wetland expansion across previously dry land surfaces on the zone be dated?
- Does evidence of prehistoric and historic occupation survive on the terraces?
- Is there any evidence for the Roman road from London to Dunmow?
- Is there evidence relating to the medieval settlement of Stratford?
- Is there evidence of milling and associated activities along the River Lea from the medieval period onwards?
- Is there any evidence of medieval and post-medieval agricultural activity present on the zone? Is this associated with Chobham manor and its later landholdings?
- What was the pre-modern/pre-Victorian topography of the zone?
- How extensive is modern truncation across the zone? Do made ground deposits bury or truncate the post medieval/modern land surface?

- Is there evidence for past water management, i.e. drainage ditches, mill remains, sluices and revetments associated with earlier courses of the River Lea?

## **2 The evaluation**

### **2.1 Methodology**

- 2.1.1 All archaeological excavation and monitoring during the evaluation was carried out by a joint MoLAS-PCA team in accordance with the Written Scheme of Investigation (MoLAS-PCA 2007b).
- 2.1.2 A single evaluation trench was excavated, located within the position of the proposed bridge abutment (see Figure 2) and measured approximately 7.5m by 3.5m at base. A mechanical excavator using a flat ditching bucket undertook the bulk excavation with an archaeologist acting as a banksman.
- 2.1.3 It was anticipated that the natural gravels would be present at c.3m below ground level, and this ultimately proved correct. The trench was therefore stepped twice on its north, west and south sides, with each step approximately 1.20m deep and 1.20m wide. The first attempt at excavating below the second step was aborted due to an inrush of ground water that appeared to be weakly contaminated with hydrocarbons. The trench was thus extended eastwards beyond the limit of contamination to enable the required exposure of river terrace gravel. The eastern end of the trench was excavated as a slope with a gradient of approximately 45°. At ground level the trench measured approximately 19m east-west by 7.50m north-south.
- 2.1.4 The evaluation trench was located by the MoLAS-PCA surveyor using an EDM. This information was electronically collated and plotted onto the OS grid. Levels were calculated from a benchmark attached to a station point located on the boundary fence of the railway line to the southwest of the trench.
- 2.1.5 A written and drawn record of all archaeological deposits encountered was made in accordance with the principles set out in the MoLAS site recording manual (MoLAS 1994).
- 2.1.6 The site has produced: 1 trench plan at a scale of 1:50; 14 context records; and 3 sections at a scale of 1:20. The site records will be deposited under the site code OL-01307 in the LAARC.

## 2.2 Results of the evaluation

2.2.1 Evaluation Trench 1 was excavated to a maximum depth of approximately 3m below ground level (2.35m OD), where an area c. 2m by 2m was exposed.

**Table 1 Details of depositional sequence in Evaluation Trench 1**

Location		Centred over east abutment, Footbridge F10a	
Dimensions		19m by 7.5m and 3m deep	
Modern ground level		c. 5.40m OD	
Base of modern fill		2.95m OD	
Top of alluvium observed		3.12m OD	
Level of base of deposits observed		2.30m OD	
Thickness of deposits of archaeological interest (ie: alluvium) observed		c. 0.60m	
Context numbers		[1 to 14]	
Samples	Bulk		
	Radiocarbon		

2.2.2 The earliest deposit observed in the base of the trench was pale greenish grey sandy gravel [14], sub-angular in form and between 10 and 20mm in size, and falling gradually from 2.50m OD at the eastern limit of excavation to 2.30m OD at the western limit of excavation. This was identified as river terrace gravel, and due to its small size and sub-angular form, may represent an earlier course of the Channelsea River channel dated to the late Glacial or early Holocene. This was overlain by a layer of clay [13] that faded from greenish mid brown at the top to greenish pale brown at its base. It also sloped gradually, from 2.80m OD in the east to 2.62m OD in the west. This was identified as an alluvial deposit, although later consideration of occasional oxidised iron flecks present towards the base of the deposit suggested that this lower portion might represent an early Holocene dry brickearth horizon. The upper reaches were then deposited above this by seasonal flooding, possibly after the Roman period. The deposit was overlain by greenish mid to dark grey silty clay [12] at a maximum height of 3.12m OD, again representing an accumulation of alluvial flood deposits, but containing considerable manganese staining indicative of waterlogged conditions and biological activity. This staining appeared particularly severe at the top of the layer, possibly representing a turf horizon. The deposit also contained the end of a post-medieval wooden stake, occasional fragments of post medieval red earthenware dated from 1580 to 1900, and a fragment of post medieval roof tile, possibly a pan tile dating from 1640 to 1850. The deposit probably comprises the pre-1850 topsoil.

2.2.3 These deposits were overlain by a series of 19<sup>th</sup> century made ground deposits occupying the middle and upper sections of the trench. The lowest of these, a layer of mid greyish brown sandy silt [8], sloped from a maximum height of 3.55m OD in the southwest corner of the trench to northern and eastern limits within the trench at a

minimum of 2.97m OD. This was overlain by pale greenish grey sandy silt [11] in the southwest corner of the trench at a maximum height of 3.75m OD, and by mid brownish yellow silty clay [7] further to the east, at a maximum height of 3.57m OD. As with deposit [8], this latter deposit also sloped down toward the north and east, and both deposits contained many fragments of red and yellow brick. Deposits [7] and [11] were overlain by a layer of mid yellowish orange sandy silty clay [9] in the southwest portion of the trench, at a maximum height of 3.93m OD. This was overlain in the southwest corner of the trench by pale to mid greyish brown sandy silt [10] at a maximum height of 3.97m OD, and was sealed across the remainder of the trench by a layer of mid yellowish brown silty clay [6] at a maximum height of 3.93m OD.

2.2.4 The made ground deposits described above all appear to have been dumped from an area in the vicinity of the southwest corner of the trench, as they were either situated here or sloped downwards from here. However, above this level the deposits all sloped down to the north and west, and appear to have been dumped from an area in the vicinity of the southwest end of the trench. The lowest and most south-westerly of these was a mix of dark brown sand, silt and gravel [4] at a maximum height of 4.47m OD and sloping down to 3.92m OD. Overlying this to the north and west was a layer of pale brownish yellow silty clay [3] at a maximum height of 4.45m OD sloping to a minimum of 3.93m OD. This was overlain, again to the north and west, by a layer of dark brown sandy silt [2] containing coal fragments, at a maximum height of 4.73m OD and sloping down to 3.97m OD. This underlay a deposit of pale greyish yellow clayey silt [1] in the southwest corner of the trench at a maximum height of 4.73m OD. The trench was sealed by a recently laid piling mat comprising crushed CBM and forming a ground surface at approximately 5.40m OD.

## **2.3 Geoarchaeology**

### **Introduction**

2.3.1 A single visit was made by a MoLAS-PCA geoarchaeologist to examine the natural sequence exposed within the evaluation trench. The deposit sequence is described below from the base upwards.

#### **Deposit Sequence**

2.3.2 The basal deposit within the trench [14] consisted of a moderately coarse pale greenish grey gravel, with angular, sub-angular, rounded and sub-rounded gravel clasts. These

gravels are likely to be of a Late Glacial/Early Holocene date (c 15,000 to 10,000 BP), rather than the coarser iron-stained gravels which occur during the Pleistocene. The gravels may be associated with a former course of the Channelsea river which flows in the vicinity of the site, or possibly deposited by the main channel of the Lea before it downcut to its deeper position further to the west.

2.3.3 The site itself is positioned within the floodplain, but on a low terrace which stretches across the eastern side of the floodplain. It is probable that the gravels within this low terrace were deposited within a braided river system of multiple channels migrating and changing course across the landscape.

2.3.4 The floodplain gravels were overlain by a firm mixed mottled mid brown/ mid grey silty clay displaying evidence of iron-stained root channels and occasional small gravel clasts. Fine sand was also present within the soil matrix towards the base of the deposit. Due to water within the trench it was not possible to accurately record this deposit. See 2.2.1 above for levels and thickness.

2.3.5 The apparent oxidised nature of this deposit with iron stained root channels suggests that this deposit formed a dry soil horizon. The origin of the deposit is probably fluvial, or alluvial being deposited by a sluggishly flowing stream, or by flood events in the vicinity of an adjacent channel. Once channel migration occurred the deposit was left high and dry. The presence of gravel clasts and sand within the matrix probably results from bioturbation whereby root action has blurred the interface between this fine minerogenic deposit and the underlying coarser material. A similar deposit was recorded recently during excavations on Site 26 (site code OL-00305, Halsey *et al*, 2007), and was found to be cut by features of Late Bronze Age/Iron Age date.

2.3.6 Above this deposit occurred a c 0.2m thick mid grey clay with occasional manganese staining. The deposit represents seasonal inundation by overbank flooding, forming a wet grass sedge fen environment. This deposit is found extensively across this part of the Lea Valley, and appears to represent an increase in river levels and subsequent flooding sometime during the Post Roman period. This inundation continued into the Post-Medieval periods, with the clays accreting slowly over time eventually creating a grass or hay meadow environment. These alluvial deposits were found to be overlain by post-medieval dump deposits.

## Conclusion

2.3.7 The sequence recorded on the site is identical to the sequence recorded at Warton Road (site code OL-00305), although of substantially less thickness. The lower fine

grained minerogenic unit would have formed a dry soil horizon throughout most of the Holocene period, and any archaeological features of a Prehistoric to Roman date would be expected to be found cutting through this horizon. Such features would be sealed by the upper gleyed alluvial clay thought to be of a post-Roman date.

- 2.3.8 These deposits are unlikely to hold any palaeoenvironmental potential. Although a pollen assessment from Warton Road demonstrated that these deposits do preserve pollen, a large degree of post depositional disturbance has blurred the pollen profile. The deposit would also have poor chronological resolution due to thin profile which exists.

## **2.4 Stratigraphic discussion of the site**

### ***Buried topography***

- 2.4.1 The river terrace gravels recorded at the bottom of the sequence may represent a late Glacial/early Holocene course of the Channelsea River. They slope gradually from 2.50m OD in the east to 2.30m OD in the west, which may represent a broad topographical trend. Further information from locations outside the abutment site would be necessary to confirm this. The gravel was overlain by a possible dry soil horizon, represented by the base of deposit [13] of the overlying alluvial sequence, which contained several oxidised iron stains. This might represent an early Holocene formation, and would have formed part of the Low Terrace to the east of the main Lea Channel. The derivation of the underlying gravels suggests that the Channelsea River, in whatever form it might have taken at this time, may not have been too far away, and this might account for the small thickness of the dry soil deposit. However, there were no alluvial deposits present in the trench that could be dated to this period to confirm this.

### ***Alluvial Deposits***

- 2.4.2 The deposits described above were overlain by an alluvial sequence that appeared to represent a continuous sequence of accumulation of sediment over several centuries through seasonal flooding. The lower alluvial layer [13] was devoid of any inclusions other than a few small grits, whilst the upper layer [12] contained frequent manganese staining suggesting semi-or fully permanent waterlogging during the later stages of alluvium formation. Pottery in this upper layer suggests that the alluvium continued to accumulate throughout the 17<sup>th</sup> to 19<sup>th</sup> centuries. Particularly dark manganese staining at the top of the layer was indicative of an old turf horizon, suggesting that this represented ground level before the creation of the railways during the second half of the 19<sup>th</sup> century. The deposit was fairly level, with a maximum height of 3.12m OD.



### **19<sup>th</sup> Century Made Ground**

- 2.4.3 The trench was sealed by approximately 2.5m of made ground, which probably derives from ground raising events during the second half of the 19<sup>th</sup> century, intended to create a track bed for the railway lines to the north and southwest and for the sidings that existed on the site until fairly recently.

## **2.5 Assessment of the evaluation**

- 2.5.1 GLAAS guidelines (English Heritage, 1998) require an assessment of the success of the evaluation “in order to illustrate what level of confidence can be placed on the information which will provide the basis of the mitigation strategy”.
- 2.5.2 In this case, beneath 19<sup>th</sup> century made ground, the evaluation trench exposed a post-medieval alluvial sequence overlying a possible early Holocene dry soil horizon in turn overlying late Pleistocene/early Holocene terrace gravels. This latter deposit represents a horizon beneath which no deposits of archaeological significance are likely to be found. Furthermore, it was exposed across an area of approximately 26m<sup>2</sup>, representing 5% of the bridge abutment area. The trench thus satisfies the original requirements of the evaluation as stated in the Written Scheme of Investigation (MoLAS-PCA 2007b).

### 3 Archaeological potential

#### 3.1 Realisation of original research aims

- 3.1.1 The extent to which the evaluation has been able to address the research objectives established in the *Method Statement* for the evaluation is discussed below:

*What evidence is there for the preservation of organic remains?*

The end of a post-medieval wooden stake was recovered from the upper reaches of the alluvial sequence. There were no organic remains lower down the sequence, nor any associated with the possible early Holocene dry soil horizon beneath it.

*What environmental evidence suitable for past landscape reconstruction exists within deposits associated with ancient channels of the River Lea and its tributaries?*

It is possible that the terrace gravels recorded at the base of the trench relate to an earlier course of the Channelsea River. However, there were no alluvial sequences associated with this deposit, which may instead have been overlain by a thin dry soil horizon.

*Can episodes of channel activity and abandonment and wetland expansion across previously dry land surfaces on the zone be dated?*

The only dating evidence recovered came from the upper reaches of the alluvial sequence. This comprised post-medieval pottery and CBM dated from the 17<sup>th</sup> to 19<sup>th</sup> centuries. The alluvium beneath this, whilst not substantial, had probably been accumulating for some time from seasonal flooding and waterlogging. It might therefore be suggested that the area became wetter during the medieval period, and possibly during the earlier post-Roman period.

*Does evidence of prehistoric and historic occupation survive on the terraces?*

No evidence of prehistoric or historic occupation was found overlying or cutting into the terrace gravel or possible overlying dry soil horizon.

*Is there any evidence for the Roman road from London to Dunmow?*

No evidence of the Roman road was found, and present evidence suggests that its course ran to the east of the abutment site.

*Is there evidence relating to the medieval settlement of Stratford?*

No evidence relating to the medieval settlement of Stratford was found. The abutment site probably lay within a semi- or permanently waterlogged marsh environment during this period.

*Is there evidence of milling and associated activities along the River Lea from the medieval period onwards?*

No evidence of milling was found.

*Is there any evidence of medieval and post-medieval agricultural activity present on the zone? Is this associated with Chobham manor and its later landholdings?*

The alluvial sequence appears to have continued to accumulate throughout the medieval and post-medieval period, suggesting that the abutment site was never effectively drained and made suitable for agriculture. The end of a small post-medieval stake at the top of the alluvial sequence might suggest a primitive or small-scale form of enclosure, possibly associated with summer pasturage.

*What was the pre-modern/pre-Victorian topography of the zone?*

The abutment site appears to have remained semi- or permanently waterlogged into the second half of the 19<sup>th</sup> century, at which time the ground surface was artificially raised to provide a track bed for railway lines.

*How extensive is modern truncation across the zone? Do made ground deposits bury or truncate the post medieval/modern land surface?*

The post-medieval land surface was probably located at the top of the alluvial sequence where a possible turf line was observed. This was buried beneath approximately 2.5m of made ground.

*Is there evidence for past water management, i.e. drainage ditches, mill remains, sluices and revetments associated with earlier courses of the River Lea?*

No evidence for past water management was recorded.

## **3.2 General discussion of potential**

3.2.1 The evaluation has shown that earlier deposits survive intact beneath late 19<sup>th</sup> century made ground. These comprise approximately 0.50m of medieval and post-medieval alluvium, indicative of semi- or permanently waterlogged marsh, overlying a possible thin dry soil horizon in turn overlying river terrace gravels. No evidence was found for prehistoric or Roman activity upon or cutting through the dry soil horizon and terrace gravels, and the increasingly waterlogged condition of the abutment site after this time

appears to have precluded any archaeologically visible activity. Overall, the abutment site has a very low potential for remains of archaeological significance.

- 3.2.2 The possibility that the terrace gravels relate to an earlier course of the Channelsea River is interesting, but cannot be effectively tested by further excavation within the footprint of the abutment. Furthermore, the abutment site has no potential for answering palaeoenvironmental questions, as no alluvial deposits or organic remains associated with this earlier river activity were found.

### **3.3 Significance**

- 3.3.1 Very little is yet known about the evolving environment of the Lower Lea and its relationship to the changing landscape and river regime of the Thames and to the archaeology of the river terraces on either side of the valley floor.
- 3.3.2 If subsequent work was able to produce records and samples from an alluvial sequence surviving on the site, this could contribute to our current understanding of the past environment of the site and its surroundings and would undoubtedly be of local significance. However, there is nothing to suggest that it would be of regional or national importance.
- 3.3.3 Any evidence of prehistoric, Roman, Saxon and medieval activity would similarly aid in our understanding of the past land use of the site and of the area in general.
- 3.3.4 Unfortunately, the evaluation of the bridge abutment site adds only negative evidence to the archaeological picture, and merely confirms the alluvial sequence found elsewhere in the region. The possibility that the terrace gravels represent an earlier course of the Channelsea River is an interesting hypothesis that would, however, require considerable testing through further excavation at other locations within the vicinity.

## **4 Proposed development impact and recommendations**

- 4.1 It is proposed to construct a bridge abutment on the site of the evaluation to support the superstructure of Bridge F10a, connecting Stratford City to the Olympic and Paralympic Games. No detailed plans for its construction are available, but it will involve piling to a depth of up to 45m. This will disturb and partially destroy all archaeological deposits within the footprint of the abutment.
- 4.2 The evaluation has shown that, whilst earlier deposits survive beneath late 19<sup>th</sup> century made ground, they are of little archaeological or palaeoenvironmental significance. The evaluation should suffice as a record of their existence, and it is recommended that no further work is needed on the abutment site.
- 4.3 The decision on the appropriate archaeological response to the deposits existing on the site rests with the Local Planning Authority and their designated archaeological advisor.

## **5 Acknowledgements**

- 5.1 MoLAS-PCA would like to thank the Olympic Delivery Authority for commissioning this report, and David Divers (English Heritage GLAAS) for monitoring the project on behalf of the London Borough of Newham.
- 5.2 The author would like to thank Jo Taylor for her on-site assistance, and Gary Brown (PCA) for project management and editing. In addition, thanks are due to Skanska for their cooperation and assistance during the project, and to Dave Harris for producing the illustrations.

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## 7 OASIS archaeological report form

**OASIS ID: preconst1-26643**

### Project details

Project name  
Eastern Abutment, Bridge F10a, Newham

#### Short description of the project

An evaluation trench was excavated to the level of the natural river terrace gravels, which may here represent a late Pleistocene/early Holocene course of the Channelsea River. This deposit was overlain by a thin early Holocene dry soil horizon, in turn overlain by an alluvial sequence approximately 0.50m thick. This may have begun to accumulate during the early medieval period, and its upper reaches were dated by pottery and CBM to the 17th to 19th centuries. Thus the site appears to have been dry until the early medieval period, when seasonal flooding resulted in the creation of a semi- or fully permanently waterlogged marsh environment. The sequence was sealed by approximately 2.5m of late 19th century made ground, deposited to form a track bed for the railway system in the area.

Project dates  
Start: 03-04-2007 End: 05-04-2007

Previous/future work  
No / No

Any associated project reference codes  
OL-01307 - Sitecode

Type of project  
Field evaluation

Site status  
Local Authority Designated Archaeological Area

Current Land use  
Transport and Utilities 2 - Other transport infrastructure

### Project location

Country  
England  
Site location  
GREATER LONDON NEWHAM STRATFORD Eastern Abutment, Bridge F10a

Postcode



E15

Site coordinates

TQ 3809 8437 51.5408156190 -0.00853359971667 51 32 26 N 000 00 30 W Point

Height OD

Min: 2.30m Max: 5.40m

**Project creators**

Name of Organisation

MoLAS/PCA Ltd

Project brief originator

English Heritage

Project design originator

Gary Brown

Project director/manager

Gary Brown

Project supervisor

Andrew Sargent

Type of sponsor/funding body

Olympic Delivery Authority

**Project bibliography 1**

Publication type

Grey literature (unpublished document/manuscript)

Title

Eastern Abutment, Bridge F10a, Planning Delivery Zone 9

Author(s)/Editor(s)

Sargent, A.

Date

2007

Issuer or publisher

MoLAS/PCA

Place of issue or publication

London

Description  
A4 Bound Report

Entered by  
Archivist ([archive@pre-construct.com](mailto:archive@pre-construct.com))

Entered on  
3 May 2007

## Appendix 1: Glossary

**Alluvium.** Sediment laid down by a river, and usually well-sorted. Can range from sands and gravels deposited by fast flowing water and clays that settle out of suspension during overbank flooding. Other deposits found on a valley floor are usually included in the term alluvium. Peat develops when there is little mineral sediment deposition and impeded drainage, which limits biological decay; and tufa accumulates when springs rich in calcium carbonate discharge in damp well-vegetated situations.

**Arctic Beds.** Cold climate deposits, pre-dating the Last Glacial Maximum and sometimes found within the gravels of the Lower Lea. They may survive within parts of the floodplain not reworked by the river during the Late Glacial.

**Ecotone.** A zone that lies between areas of contrasting environment, such as on the wetland/dryland margins.

**Holocene.** The most recent epoch (part) of the Quaternary, covering the past 10,000 years during which time a warm interglacial climate has existed. Also referred to as the 'Postglacial' and (in Britain) as the 'Flandrian'.

**Knickpoint.** A fall in base level (such as the low sea level at the end of the Pleistocene) gives rise to a discontinuity in the longitudinal profile of a river ie: steepening of the downstream channel gradient. The river tends to adjust to such a change by increased flow, which leads to increased erosion in the steepened section of the river and this results in the steepened section (knickpoint) cutting back in an upstream direction.

**Last Glacial Maximum.** The height of the glaciation that took place at the end of the last cold stage, around 18,000 years ago.

**Late Glacial.** The period following the Last Glacial Maximum and lasting until the climatic warming at the start of the Holocene. In Britain this period is subdivided into a warm 'interstadial' episode the Windermere Interstadial, followed by a renewed cold ('stadial') episode, in which local ice advances occurred (the Loch Lomond Stadial).

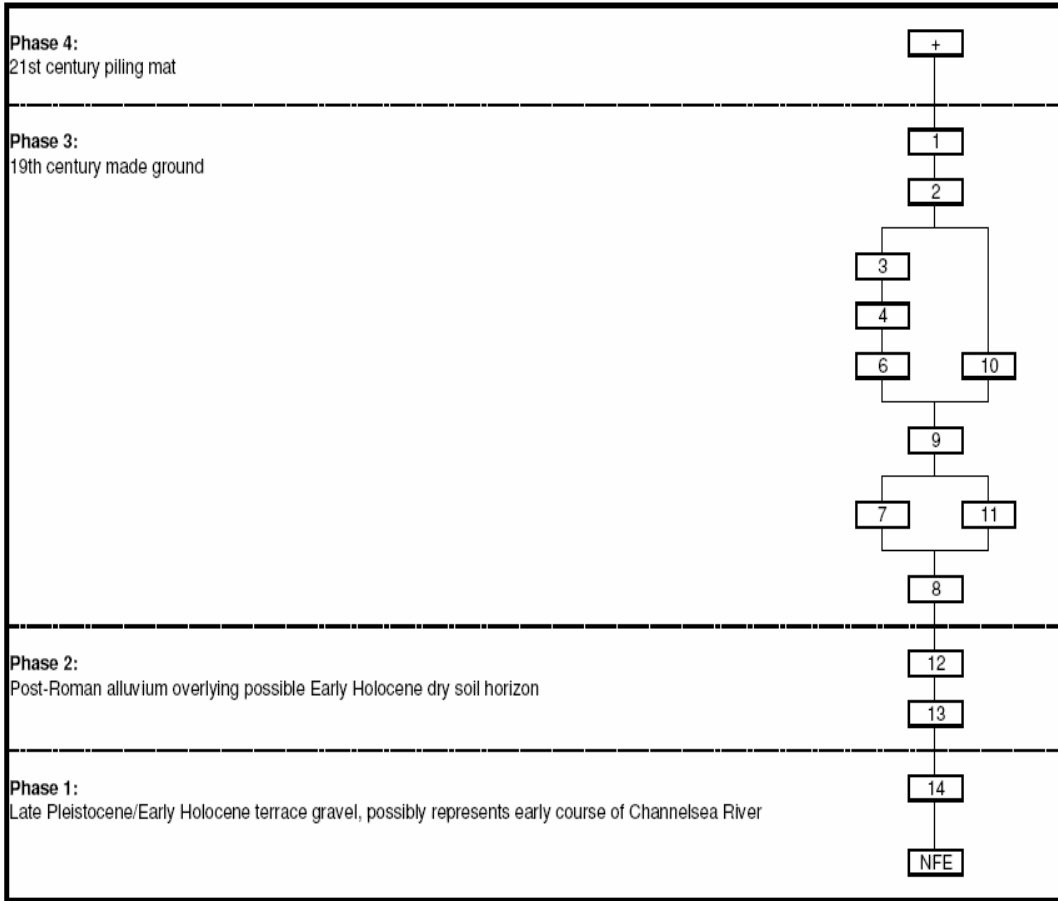
**Pleistocene.** Used in this report to refer to the earliest part of the Quaternary, the period of time until the start of the Holocene, about 10,000 years ago. However, since the present Holocene epoch is almost certainly only a warm interglacial episode within the oscillating climate of the Quaternary, it is often seen as being part of the Pleistocene epoch, in which case the terms Pleistocene and Quaternary are interchangeable. As it is necessary, in this report, to differentiate between the events that took place at various times during the last cold stage and earlier in the Quaternary and those that took place during the Holocene, the Pleistocene is used to refer to the parts of the Quaternary pre-dating the climatic amelioration that took place at the start of the Holocene.

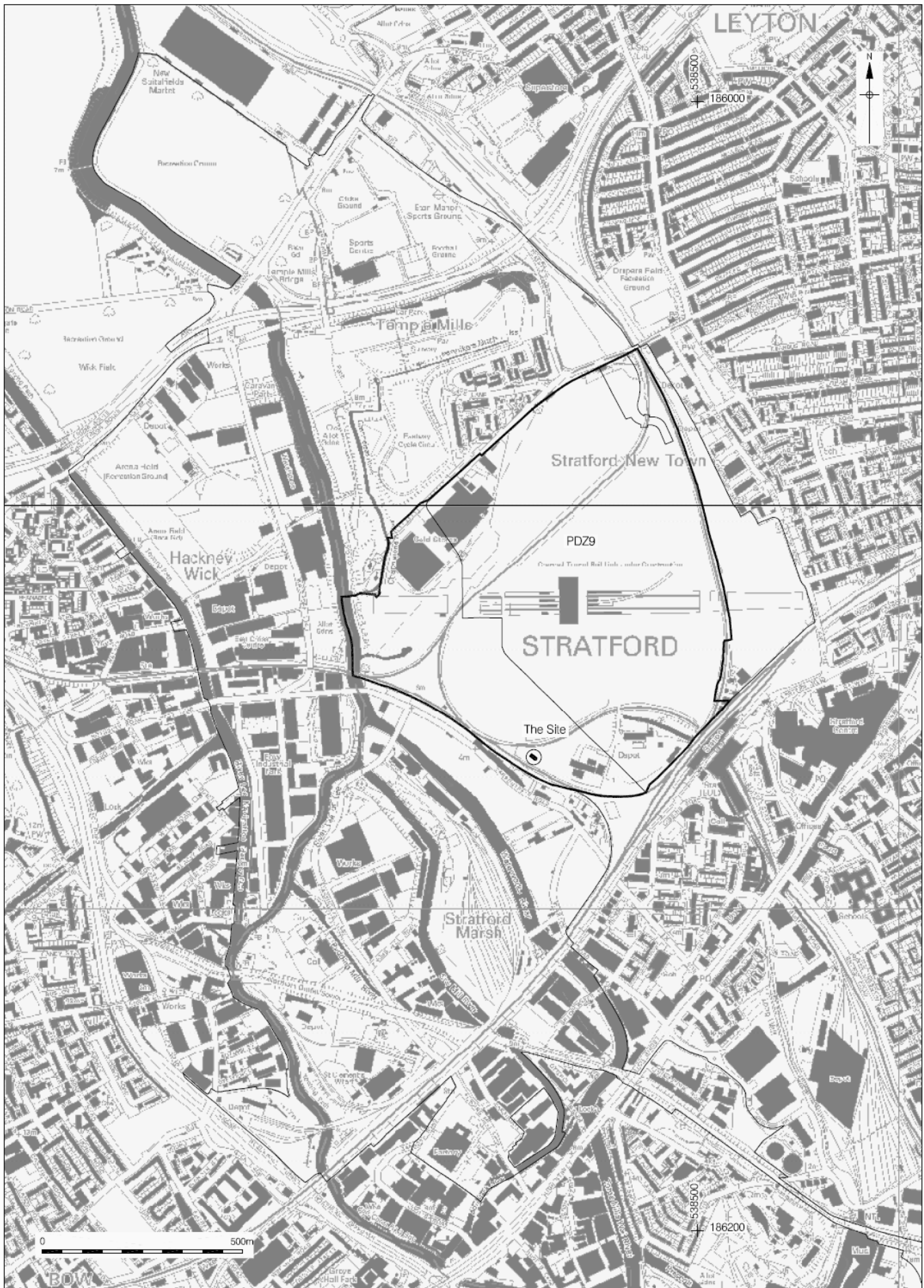
**Quaternary.** The most recent major sub-division (period) of the geological record, extending from around 2 million years ago to the present day and characterised by climatic oscillations from full glacial to warm episodes, when the temperature was as warm as if not warmer than today. To a large extent human evolution has taken place within the Quaternary period.

**APPENDIX 2: CONTEXT INDEX**

Site Code	Context No.	Plan	Section / Elevation	Type	Description	Date	Phase
OL-01307	1	None	1a & 1b	Layer	Made ground	19th century	3
OL-01307	2	None	1a & 1b	Layer	Made ground	19th century	3
OL-01307	3	None	1a & 1b	Layer	Made ground	19th century	3
OL-01307	4	None	1a & 1b	Layer	Made ground	19th century	3
OL-01307	5	VOID	VOID	VOID	VOID	VOID	VOID
OL-01307	6	None	1b	Layer	Made ground	19th century	3
OL-01307	7	None	1b	Layer	Made ground	19th century	3
OL-01307	8	None	1b	Layer	Made ground	19th century	3
OL-01307	9	None	1b	Layer	Made ground	19th century	3
OL-01307	10	None	1b	Layer	Made ground	19th century	3
OL-01307	11	None	1b	Layer	Made ground	19th century	3
OL-01307	12	None	1c	Layer	Alluvial deposit	Post-Roman	2
OL-01307	13	None	1c	Layer	Alluvial deposit (with possible dry soil horizon at base)	Post-Roman (Early Holocene)	2
OL-01307	14	Tr 1	1c	Layer	Natural river terrace gravel	Late Pleistocene/ Early Holocene	1

### APPENDIX 3: SITE MATRIX

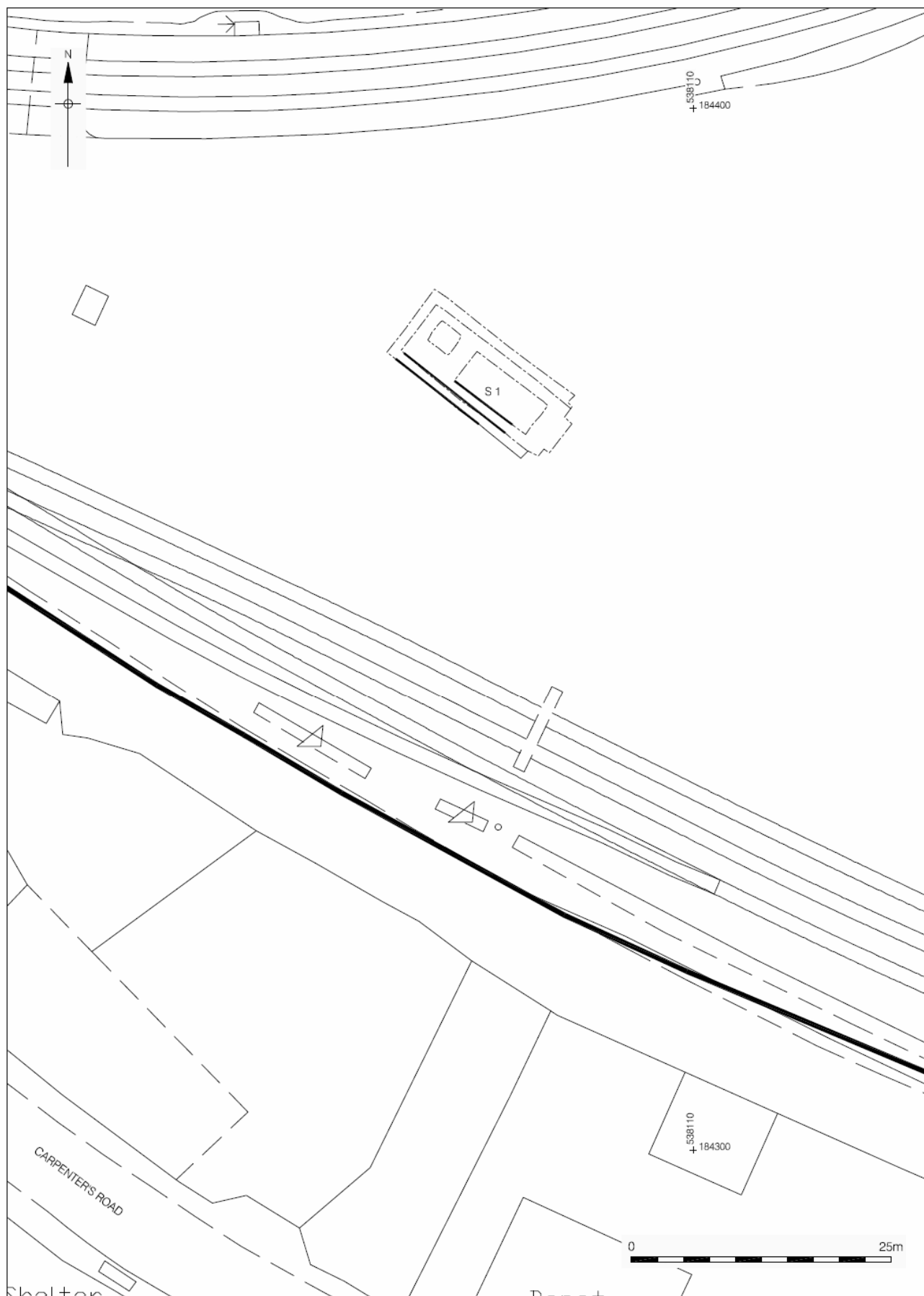




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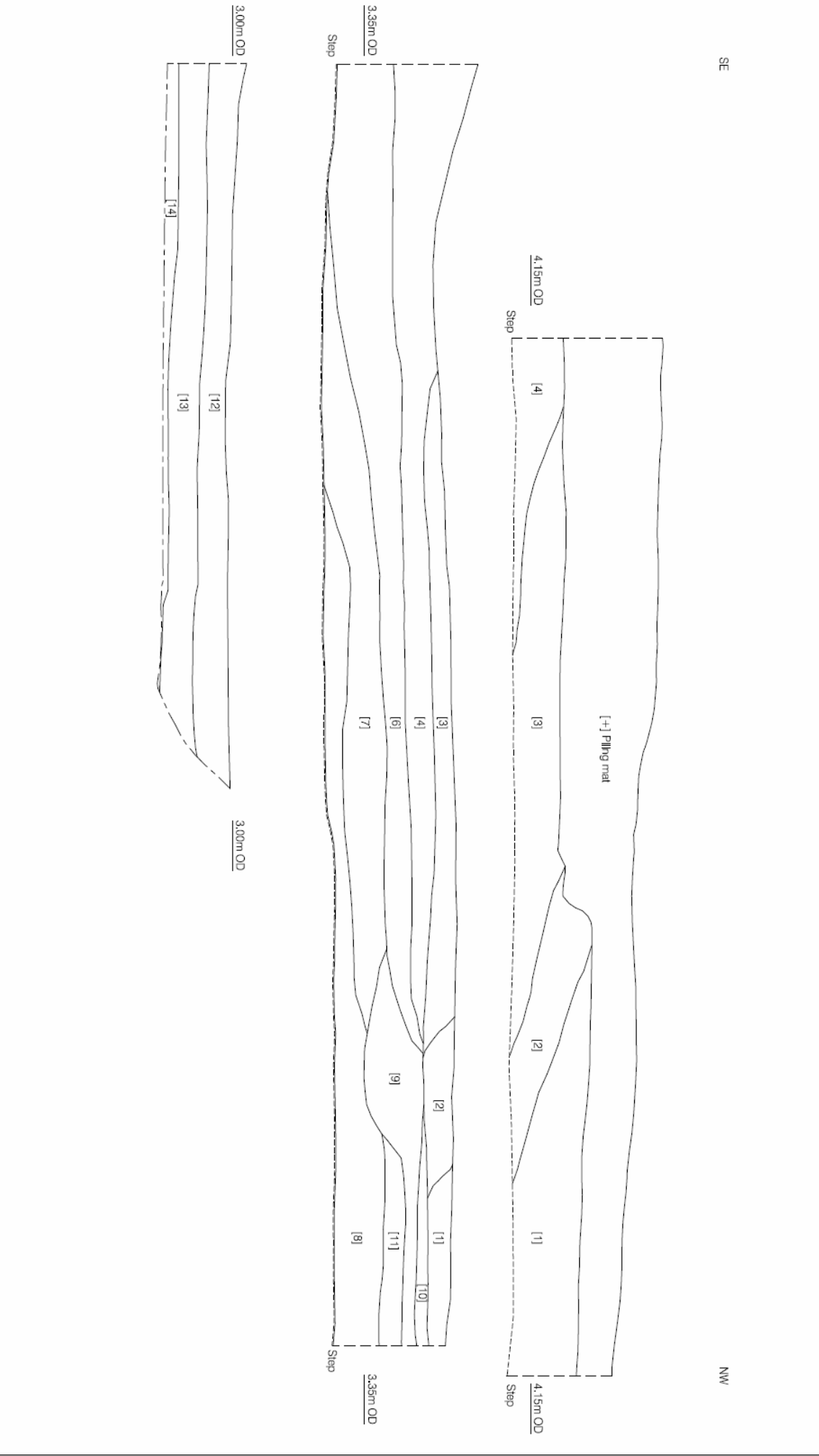
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Figure 1  
Site Location  
1:12,500 at A4



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Figure 2  
Trench Location  
1:500 at A4



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Figure 3  
Section 1, Northeast facing  
1:50 at A4