Archaeology South-East

ASE

Palaeoenvironmental Assessment Report
Bridge Lane, Bursledon
Hampshire

NGR: 449088 110167

ASE Project No: 7475
Site Code: BUB15

ASE Report No: 2015285
OASIS id: 220074

By Kristina Krawiec

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Prepared by:	Kristina Krawiec	Senior Archaeologist	
Reviewed and approved by:	Dan Swift	Project Manager	
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Archaeology South-East
Units 1 & 2
2 Chapel Place
Portslade
East Sussex
BN41 1DR

Tel: 01273 426830
Fax: 01273 420866
Email: fau@ucl.ac.uk

Abstract

This report presents the results of an auger survey and palaeoenvironmental assessment was carried out by Archaeology South-East at Bridge Lane, Bursledon on the 7th May 2015. The fieldwork was commissioned by Bovis Homes Ltd as part of a reserved matters application for the site.

The survey recorded organic deposits infilling a small tributary stream channel of the River Hamble. The subsequent analyses have demonstrated that sediment accumulation spanned the Middle Bronze Age to the Late Iron Age. The pollen recorded in the sequence showed a relatively unchanging sequence of a dense woodland proximal to the site. Freshwater conditions prevailed at the sample site with sedges and alder carr. Within the woodland signal, the lime decline could clearly be seen and together with the chronological data supports patterns of landscape change see in the south east more broadly.

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1.0 INTRODUCTION

1.1 Site Background

1.1.1 Archaeology South-East was commissioned by Bovis Homes Ltd to undertake an auger survey and palaeoenvironmental assessment of deposits located within an infilled channel at Bridge Lane, Bursledon (NGR 449088 110167, Figures 1 and 2).

1.2 Geology and Topography

1.2.1 The underlying geology of the site is primarily London Clay, with sands of the Wittering Formation underlying the western third of the site. The superficial deposits at the site comprise Tidal Flat Deposits which overlie the London Clay to the immediate east of the site, although none have been mapped west of Blundell's Lane.

1.2.2 A recent geotechnical assessment (Parker Seal 2013) of the southern and central areas of the site revealed a topsoil depth of 0.5m. A 0.8m deep peat deposit was observed in one window sample within a boggy area at the east of the site, and a 1m deep deposit of made ground (associated with a buried pipeline) in another, but topsoil was recorded directly overlying natural clay and gravel deposits in the remainder of the site.

1.2.3 Archaeological trial trenching (ASE 2015a) identified the presence of this peat deposit as lying within an infilled channel, demarcated by a depression visible in the topography and marsh grass (Figure 2 and front cover image).

1.3 Planning Background

1.3.1 A Desk-Based Assessment (ASE 2013a) was initially prepared for the site and concluded that it has moderate potential for archaeological deposits of prehistoric and medieval date. A subsequent trial trench evaluation (ASE 2015a), based on a magnetometer survey (ASE 3013b), identified a number of probable post-medieval features comprising small drainage ditches or channels. In addition, the presence of a peat deposit was confirmed in the central eastern part of the site (Figure 2).

1.3.2 Bovis Homes are currently preparing a reserved matters application for the site and wish to address the following condition:

Condition 10 - No development shall take place until the implementation of a programme of archaeological mitigation of impact has been secured, in accordance with a Written Scheme of Investigation that has been submitted to and approved in writing by the Local Planning Authority.

Reason: To mitigate the effect of the works associated with the development upon any heritage assets and to ensure that information regarding this assets is recorded for future generations.

1.3.3 David Hopkins, Country Archaeologist for Hampshire County Council (HCC), recommended that, in addition to the archaeological evaluation (ASE 2015a), mitigation works should include a programme of palaeoenvironmental

sampling focusing on the peat deposit.

1.4 Scope of Report

1.4.1 This document reports on the results of the auger survey carried out at the site on the 7th May 2015 by Kristina Krawiec (Senior Archaeologist) and Susan Chandler (Assistant Archaeologist). The fieldwork was managed by Paul Mason and the post excavation by Jim Stevenson and Dan Swift.

2.0 BACKGROUND

2.1 Introduction

2.1.1 This section is based upon information in the Desk-Based Assessment (ASE 2013a) which covered a 750m radius centred on NGR: 449088 110167**,** the centre of the site.

2.2 Prehistoric

2.2.1 Palaeolithic material in the Hampshire Basin area of Hampshire has predominated on the river terrace gravels of the former Solent River and its tributaries, with other concentrations known from the clay-with flints deposits capping the chalk. The raised beaches which have produced important material from Sussex, notably Boxgrove, have been less fruitful in Hampshire.

2.2.2 Many Mesolithic sites in Sussex are represented by concentrations of flintwork rather than by settlement sites. These flint scatters are found in all parts of the county, forming clusters that may represent activity zones, with Early Mesolithic sites mainly located on the Wealden Greensand, while later material is found more widely across the county, including the coastal plain.

2.2.3 Flintwork concentrations and barrows indicate that settlement and farming during the Neolithic period was concentrated on the chalk downland, with other late Neolithic material found along the coast at places such as Langstone Harbour. Early Bronze Age settlement sites are still thought to be poorly represented, although ritual landscapes in the form of round barrow cemeteries are common on the downland. By the Middle Bronze Age, however, increased population and perhaps drier soils had encouraged settlement to spread from the Downs onto lower-lying land, although the Coastal Plain appears to have been sparsely settled, although richer in finds of metalwork (including hoards) and burials.

2.2.4 Most of the evidence for Iron Age activity in Hampshire is found on the downland. The most visible evidence relates to a series of defended enclosures, many of which originated in the Late Bronze Age. Field systems and settlement sites have been found on the coastal plain, such as at Warsash on the Hamble estuary and around Southampton.

2.2.5 Eleven prehistoric sites are recorded within the study area, including one from within the site:

- Mesolithic pick found in 1898
- Mesolithic flint cores, blades and flakes observed during topsoil removal for the construction of the M27 in 1972
- Assemblage of worked flints and pottery, spanning the Early Mesolithic to Early Iron Age periods, found during a watching brief on pipeline works in 2001

- Possible Early Bronze Age burnt mounds recorded in 1972
- Early Bronze Age waste flakes found during topsoil stripping in 1993
- Single sherd of Beaker pottery found in a possible gully during a watching brief on pipeline works in 2001
- Possible Early Bronze Age burnt mound found during watching brief in 2001
- Possible Early Iron Age bracelet found in 1940
- Small pit containing Early Iron Age worked flints found in 1972
- Abraded Early Iron Age potsherd found during topsoil stripping in 1972
- Possible prehistoric ditch found during evaluation in 2003

2.3 Roman

2.3.1 During the Romano-British period, Hampshire formed part of the territory of the largely pro-Roman Atrebates. Most of the major sites of the period occupy the river valleys and coastal plains, with major centres at Winchester and Silchester and later forts at Portchester and Bitterne (Southampton). Settlement on the downland consisted mainly of small agricultural settlements set within field systems. Trading posts and salt-working are recorded from around the Hamble estuary.

2.3.2 No Romano-British sites have been recorded within the study area.

2.4 Anglo-Saxon

2.4.1 Hampshire was settled by Germanic people from the Jutland area of Denmark, penetrating via the Solent and river valleys such as the Meon. Early settlements are rare, with most evidence derived from cemeteries, although work at Chalton suggested that the earliest settlements were established on the chalk, later moving to the river valleys and spring-lines. A trading settlement was established at Hamwic, beneath modern Southampton. Although not recorded as a settlement before the late 11th century, the name Bursledon is of Anglo-Saxon origin, derived from ‘hill associated with a man called Beorhtsige’.

2.4.2 No Anglo-Saxon sites have been recorded within the study area.

2.5 Medieval

2.5.1 Bursledon is not mentioned in Domesday, originating as the waste of the manor of Bishops Waltham. A small village grew up to the south of the site, around St Leonards Church, with a tradition of shipbuilding along the riverfront. The site itself appears to have been open farmland at this time, although it has been suggested that the former medieval settlement of Northburlesden may have existed in the vicinity.

2.5.1 Fourteen medieval sites are recorded within the study area:

- Church of St. Leonard, 13th century with later additions
- Chapel of 'Brixentona', probably a reference to the parish church
- Possible site of the medieval settlement of Northburlesden
- Bank and ditch boundary
- Unspecified earthworks
- Unspecified earthworks
- Earthwork representing the former churchyard boundary
- Earthwork along line of parish boundary
- Hollow-way leading to St. Leonard's Church
- Medieval shipyard, with references back to 1436
- Shipbuilding site
- Field boundary shown on air photographs
- Shipbuilding site
- Ridge and furrow

2.6 Post medieval

2.6.1 Bursledon remained small in size until its development as a commute settlement in the 20th century. The site remained as undeveloped agricultural land throughout this period, lying adjacent to the old road to Winchester (now Blundell's Lane), which formerly crossed the Hamble via a ford until a bridge and the present Bridge Road was constructed from 1798.

2.6.2 Twenty-three post-medieval sites are recorded in the study area:

- Redcroft Farmhouse
- Upcott
- Greywell
- Thatched Cottage
- The Mausoleum, unlisted historic building

- Maidenstone Heath, historic garden
- Cattle shed at Brixedone Farm, unlisted historic building
- Cattle shed at Brixedone Farm, unlisted historic building
- Milking parlour and dairy range at Brixedone Farm, unlisted historic building
- Agricultural building at Brixedone Farm, unlisted historic building
- Animal shed at Brixedone Farm, unlisted historic building
- Maidenstone Heath hard, fording point across the river
- Ploverfield, historic garden
- Bursledon Bridge
- Shipbuilding slips
- Timber and stone pier/jetty
- Shipbuilding slips
- Quarry
- Second World War anti-aircraft gun emplacement
- site of wharf
- site of toll house
- site of pheasantry
- Bursledon Hall, locally listed building

2.7 Previous work

2.7.1 An archaeological watching brief (Network Archaeology 2001) within the southern and central fields of the site during the construction of a jetline pipeline between Hamble and Botley involved a 15m wide easement stripped of topsoil, within which was excavated a 1-2m wide x 1.5m deep pipe trench. The southern field (Plot 11/1) produced a palaeochannel and a single Beaker pottery sherd from a residual deposit within a gully, together with some unstratified later material including Roman tile. The central field (Plot 11/2) produced some unstratified prehistoric flints and post-medieval pottery, but no features.

2.7.2 In March 2015 ASE carried out a programme of trial trenching (ASE 2015a) across the area which identified areas of undated sand extraction

as well as a series of post-medieval drainage ditches. It was during this work that the organic deposit investigated by this auger survey and assessment was identified.

2.8 Project Aims and Objectives

2.8.1 The general objective of the auger survey and sampling is to assess the palaeoenvironmental potential of the peat deposit and, through subsequent analysis, to study the evolution of the landscape within the site's immediate environs; within a chronological framework.

2.8.2 The sampling presents the opportunity to address a number of specific research questions relating to prehistoric and later sites in Hampshire, as presented in the *Solent-Thames Research Framework: Agenda (2010).* More specifically;

1. What was the extent of clearance in different parts of the Solent-Thames Area at what periods?

2. The location and exploitation of woodland to be explored through palaeoenvironmental data.

3. Scientific as well as stratigraphic enhancement of the chronological framework using OSL, C14 and dendrochronology.

2.8.3 The final aim is to disseminate the results of the assessment.

3.0 METHODOLOGY

3.1 Fieldwork Methodology

3.1.1 The auger survey was conducted in three transects across the channel feature which is visible as depression in the ground surface. The cores were undertaken using an Eikjelcamp gouge corer with a Russian attachment for sample recovery. The sediments were recorded in an open chamber and a total of two sediment sequences were recovered using the Russian head. The locations of the cores were recorded using a Leica RTK GPS.

3.1.2 The lithology of the cores was logged on site using the Troels-Smith sediment classification system (1955, Appendix 2). The scheme breaks down a sediment sample into four main components and allows the inclusion of extra components that are also present, but that are not dominant. Key physical properties of the sediment layers are also identified according to darkness (Da), stratification (St), elasticity (El), dryness of the sediment (Dr) and the sharpness of the upper sediment boundary (UB). The sediment logs can be found in Appendix 1.

3.1.3 The sample with the most promising palaeoenvironmental potential was sub-sampled for palynological assessment and C14 dating.

3.3 Archive

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

Number of Contexts	none
No. of files/paper record	Core logs
Digital photos	5

Table 1: Quantification of site archive

4.0 RESULTS

4.1 Lithology

4.1.1 The auger survey comprised three transects which were carried out perpendicular to the alignment of a channel feature which was visible as a depression in the surface of the field. The base of the channel was infilled with a silt peat which contained woody fragments with depth (Unit 3). This was overlain by a well humified organic silt deposit which displayed occasional laminations (Unit 2). This unit varied across the channel with both a sandy and organic component alternately dominating.

4.1.2 This was overlain by a brown orange mottled sandy silt clay (Unit1) which represented an oxidised alluvial deposit. Occasional obstructions were encountered, i.e core 12, which may represent stones within the sediments or the true base of deposits. As it was not possible to recover the obstructions it is difficult to be certain if the base of the sequence was reached in some locations.

4.1.3 The model generated by this survey has shown deposits to deepen towards the centre of the area defined by the depression in the field topography. The obstructed cores 6 and 12 have been omitted from the model. For the most part though the model is a fair representation of the general topographic trend within the sub-surface topography.

4.2 Pollen *by Tom Hill*

4.2.1 A total of 10 samples were submitted for pollen assessment from the site which is proximal to the floodplain of the River Hamble. The ten samples under investigation were taken at regular intervals through the deposit and were found to comprise predominantly organic peat, with some minerogenic sediments encountered at the lower and upper unit boundaries.

Methodology

4.2.2 Pollen preparation followed standard techniques including potassium hydroxide (KOH) digestion, hydrofluoric acid (HF) treatment and acetylation (Moore et al., 1991). A count of at least 200 total land pollen grains (TLP) excluding aquatics and spores were attempted for each sample. However, four of the samples were found to produce very low pollen concentrations (0.34m, 0.54m. 0.69m, 0.98m) and as a consequence, assessment counts were not possible for these depths.

Results

4.2.3 Pollen preservation was found to be good in six of the ten samples assessed. The best preserved part of the assemblage are encountered towards the base of the sequence, whereas four of the five uppermost samples yielded little or no pollen. This suggests some form of post-depositional pollen degradation may have taken place. This may be due to fluctuations in the water table which have enhanced pollen destruction through repeated cycles of oxidation/reduction. In contrast, the basal samples may have been preserved in better conditions (perhaps below the water table, restricting the

level of oxygen penetration). This is however hypothetical and further work would be required to provide a definitive conclusion regarding the variation in pollen preservation through the sequence under assessment.

4.2.4 A pollen diagram is provided in Figure 5, summarising the main taxa encountered during the assessment. Trees, shrubs and herbs have been presented as a percentage of TLP (Total Land Pollen) whilst aquatic and spore data is provided as raw counts. Additional graphs within each TILIA diagram display the percentage of trees, shrubs and herbs (relative to one another) at each sample depth, in addition to the total pollen counts to infer the level of pollen preservation. It is worth highlighting that only species with >2% TLP have been presented and hence a number of taxa encountered (particularly herbaceous taxa) with low abundance during the assessments are not present on the diagrams. As a consequence such taxa will not be taken into consideration here, but are likely to appear more significant if full analyses were undertaken when such species that are found to contribute smaller percentages are considered in further detail.

4.2.5 The overall vegetation picture that is portrayed is *broadly* the same throughout the profile, in that tree species dominate, consistently contributing up 70-80% TLP throughout the sequence. The remaining assemblages comprise shrub and herb taxa, with a very low presence of aquatics (<1%). Of the arboreal pollen, the assemblages comprise a mixture of *Alnus* (Alder), *Quercus* (Oak) and *Tilia* (lime) taxa. The shrub taxa is predominantly represented by *Corylus-Myrica* type (Hazel or Sweet Gale). Whilst these two taxa are often very difficult to distinguish from one another it is assumed that the pollen encountered is from *Corylus* and as such will be referred to accordingly. Herbs are typified by Poaceae (wild grasses) and Cyperaceae (sedges), with occasional Chenopodiaceae (i.e goose foot), and Aster-types, including Lactucoideae (dandelions). Spore taxa are present throughout, typified by *Pteropsida monolete* (ferns), *Pteridium* (bracken) and *Polypodium* (common polypody).

4.2.6 In addition to pollen, diatoms were visible in all samples during preparation. The majority of samples contained species of the genera *Pinnularia*, *Cymbella*, *Stauroneis* and occasional *Surirella* and *Diploneis*.

4.3 Radiocarbon dating

4.3.1 A total of two samples were submitted for radiocarbon dating to Beta Analytic Laboratories, Florida. A sample of wood was recovered from 1.22m bgl (ASE_DS_00350) and 1.50m bgl (ASE_DS_00349). The dates recovered provide a good chronology for the palynological assessment.

Lab no. **ASE no.**	**Material**	**δ13C o/oo**	**Cal BC 95% Confidence**	**Conventional radiocarbon age** **BP**
BETA-416187 ASE_DS_00349	Wood *Corylus/Alnus* sp	-29.1	1305 to 1410 Cal BC	3180±30
BETA-416188 ASE_DS_00350	Wood *Ilex aquifolium*	-25.6	355 to 275 and 255 to 165 and 125 to 120 Cal BC	2170±30

Table 2: Radiocarbon dating results

5.0 DISCUSSION AND CONCLUSIONS

5.1 Overview of stratigraphic sequence

5.1.1 The auger survey has demonstrated a good survival of deposits within the channel feature which is expressed as a depression in the surface topography of the site. The radiocarbon dating has suggested that deposition was occurring from at least the Middle Bronze Age (BETA-416187; 3180±30 BP, 1310 to 1410 cal BC) to the Late Iron Age (BETA-416188; 2170±30 BP, 360-120 cal BC). The channel does not feature on any of the historic mapping of the site and therefore it can be assumed that it had ceased to take flow by the post-medieval period.

5.1.2 The high organic content of the lower deposits infilling the channel contained a well preserved microfossil assemblage, of which only the pollen was assessed in any detail although diatoms were noted where they were present. The overall pollen signal indicates that relatively dense woodland was present for much of the period of sediment accumulation. The presence of diatom genera that are more typically associated with freshwater environs confirms that a freshwater depositional environment prevailed throughout the Middle Bronze Age to the Late Iron Age (although full analysis would be required to conclusively rule out any marine influence).

5.1.3 The overall composition of trees, shrubs and herbs stays broadly the same throughout the sequence, although there is an interesting shift in the major arboreal taxa towards the top of the profile. At the base of the sequence (1.69m depth), lime dominates, contributing over 50% TLP, with alder and oak only contributing *c*. 10% TLP. However, there is a relatively drastic reduction in lime pollen over time, falling to <5% TLP at 1.10m depth, only then slightly recovering to c. 10% TLP at 0.83m. As lime reduces in abundance with height, oak pollen briefly increases to c. 20% TLP at 1.52m depth, before reducing in abundance and stabilising at c. 5-10% TLP. This correlates with the Middle Bronze Age lime decline recorded elsewhere within south east England which is related to clearance

5.1.4 The trend in alder opposes that of lime, contributing only c. 7% TLP at the base of the sequence, only to increase and subsequently dominate, contributing 50-60% TLP at the top of the profile. This is likely to infer an overall shift in the composition of the woodland during the period of sedimentation. The setting appears to have been a lime dominated woodland, prior to the arrival, colonisation and subsequent establishment of alder. It is suggested that this may be a reflection of possible clearance in the wider landscape and the impact of increased waterlogging at the site over time. This may be due to factors including increased surface run-off due to clearance and the wet phase climatic downturn seen in the Iron Age (Barber et al 1994, Mauquoy et al 2004).

5.2 Deposit survival

5.2.1 The deposits located within the base of the channel feature demonstrated a good degree of preservation of microfossils. The high organic content indicates a gradual infilling of the feature under slow-flowing or stagnant water conditions. Variations in the flow of water are indicated by increases in

coarser sandy sediment followed by periods of organic silt deposition. This is likely to have been affected seasonally with the channel acting as drainage for the higher ground surrounding the site. The tidal range of the River Hamble has had little effect on the depositional environment within the area of the channel sampled which demonstrated a freshwater environment throughout.

5.2.2 The lack of associated dryland archaeological features (ASE 2015a) does not necessarily indicate a lack of activity and these lower deposits have the potential to preserve organic archaeological remains.

5.3 Consideration of research aims

5.3.1 The assessment work has provided a strong pollen signal detailing the lime decline which is identified as occurring in the Middle-Late Bronze Age in south-east England (Scaife1982, Greig 1982). This directly helps to addresses the questions in the research agenda for the Solent-Thames of the nature of clearance in the region. There are very few well-dated pollen sequences from the coastal plain area and this short sequence contributes to wider debates on the timing of clearance in the region (Lambrick 2014).

5.3.2 The lack of other anthropogenic indicators within the pollen data may be due to the fact that this area was relatively low-lying, sloping land close to the meso-tidal River Hamble. The waterlogging associated with the channel feature may have made this too marginal an area for conventional agricultural and settlement practices. The presence of burnt mounds in the local area suggest that low levels of Bronze Age activity were occurring but this may not have left a significant environmental signature.

5.4 Conclusions

5.4.1 The assessment of the deposits at Bridge Lane has demonstrated that the potential for the tributary streams of the River Hamble to preserve intact palaeoenvironmental sequences is high. As the deposits within the channel were not removed wholesale it is not possible to determine if these sediments also preserve archaeological remains.

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HER Summary

HER enquiry no.						
Site code	BUB15					
Project code	7475					
Planning reference						
Site address	Bridge Lane, Burseldon					
District/Borough	Hampshire					
NGR (12 figures)	449088 110167					
Geology	London Clay; Wittering Formation; Tidal Flats					
Fieldwork type	Eval	Excav	WB	HBR	Survey	**Other**
Date of fieldwork	May 2015					
Sponsor/client	Bovis Homes					
Project manager	Paul Mason					
Project supervisor	Kristina Krawiec					
Period summary	Palaeolithic	Mesolithic	Neolithic	**Bronze Age**	**Iron Age**	
	Roman	Anglo-Saxon	Medieval	Post-Medieval	Other	
Project summary **(100 word max)**	*In May 2015 ASE undertook an auger survey and a palaeoenvironmental assessment on behalf of Bovis Homes. The survey recorded organic deposits infilling a small tributary stream channel of the River Hamble. The subsequent analyses have demonstrated that sediment accumulation spanned the Middle Bronze Age to the Late Iron Age. The pollen recorded in the sequence showed a relatively unchanging sequence of a dense woodland proximal to the site. Freshwater conditions prevailed at the sample site with sedges and alder carr. Within the woodland signal, the lime decline could clearly be seen and together with the chronological data supports patterns of landscape change see in the south east more broadly.*					
Museum/Accession No.						

OASIS Form

OASIS ID: archaeol6-220074

Project details

Project name	A Palaeoenvironmental Assessment at Bridge Lane, Bursledon
Short description of the project	A trail trenching exercise carried by ASE identified a peat deposit within an infilled channel At Bridge Lane, Bursledon. An auger survey was carried out and a sequence of waterlogged organic sediment was recovered for palynological assessment and dating.
Project dates	Start: 07-05-2015 End: 08-05-2015
Previous/future work	Yes / No
Any associated project reference codes	7475 - Contracting Unit No.
Type of project	Field evaluation
Site status	None
Current Land use	Grassland Heathland 2 - Undisturbed Grassland

Project location

Country	England
Site location	HAMPSHIRE EASTLEIGH BURSLEDON Bridge lane
Postcode	SO31 8AG
Site coordinates	SU 449088 110167 50.8963282364 -1.36135441908 50 53 46 N 001 21 40 W Point

Project creators

Name of Organisation	Archaeology South-East
Project brief originator	Bovis Homes Ltd
Project design originator	Archaeology South-East
Project director/manager	Paul Mason
Project supervisor	Kristina Krawiec
Type of sponsor/funding body	Bovis Homes Ltd

Project archives

Digital Media	"GIS","Images raster / digital photography","Text"

available

Project bibliography 1	
Publication type	Grey literature (unpublished document/manuscript)
Title	A palaeoenvironmental assessment at Bridge Lane, Bursledon, Hampshire
Author(s)/Editor(s)	K.Krawiec
Date	2015
Entered by	kristina krawiec (k.krawiec@ucl.ac.uk)
Entered on	10 August 2015

Appendix 1: Core logs

Transect 1

Core 1 sampled <1>
449120.366, 110135.338, 9.265m OD

0-0.44m	DA	ST	EL	SICC	UB
	3	0	0	3	0
	Ag3 Sh1				
	Dark brown silty peat, clayey at top, well humified organics				
0.44-0.98m	DA	ST	EL	SICC	UB
	2/3	0	0	2	4
	Ag2 Sh2 Tl++ Dh+				
	Organic mottled grey brown silt, visible twigs seeds roots, less well humified				
0.98-1.00m	DA	ST	EL	SICC	UB
	2	0	0	2	3
	Ag3 Sh1 GMin++				
	Sandy pale grey organic silt, very wet				
1.00-1.84m	DA	ST	EL	SICC	UB
	2/3	2	0	2	4
	Ag3 Sh1				
	Mottled brown and pale grey organic silt sand, gravel at base				

Core 2
449120.563, 110139.571, 9.275m OD

0-0.44m	DA	ST	EL	SICC	UB
	3	0	0	3	0
	Ag2 Sh1 Dh1 Gmaj				
	Grey brown organic silt, occasional stones				
0.44-0.64m	DA	ST	EL	SICC	UB
	3	0	0	3	0
	Ag1 Sh2 Dh1TL++				
	Silt peat, woody at base, obstruction unable to core further				

Core 3
449120.349, 110144.213, 9.405m OD

0-0.30m	DA	ST	EL	SICC	UB
	3	0	0	3	1
	Ag3 Sh1 Gmin+ As+				
	Orange brown silt occasional clay, occasional sand				
0.30-0.60m	DA	ST	EL	SICC	UB
	3	2	0	2	4
	Ag2 Sh2 Dh+ Gmin+ Tl+				
	Mottled pale grey brown weakly laminated silt/organic silt				
0.60-1.10m	DA	ST	EL	SICC	UB
	4	0	0	2	4
	Ag1 Sh2 Dh1 Tl+				
	Silty peat, woody at base				

Core 4
449120.458, 110148.789, 9.548m OD

0-0.44m DA	ST	EL	SICC	UB	
	3	0	0	3	0
	Ag2 Sh1 Gmin1 DH+ As+				
	Brown orange, mottled sandy organic silt, occ clay				
0.44-0.77m	DA	ST	EL	SICC	UB
	3	1	0	2/3	4
	Ag2 Sh1 Gmin1 Gmaj				
	Sandy organic silt, mottled brown grey, stones at base				
0.77-1.00m	DA	ST	EL	SICC	UB
	4	3	0	2/3	4
	Ag2 Sh1 Dh+ As1				
	Organic occ clay silt,occ sand and organic lenses				
1.00-2.40m	DA	ST	EL	SICC	UB
	4	2	0	2	0
	Ag2 Sh1 Dh1Gmin++ Tl+				
	Woody silt peat, bands of sand, v wet poor recovery base too wet to recover				

<u>Transect 2</u>

Core 5
449131.072, 110148.343, 8.764m OD

0-0.09m	DA	ST	EL	SICC	UB
	3	0	0	4	0
	Ag2 Sh1 Gmin1				
	Orange grey mottled organic silt with occ sand				
0.09-0.45m	DA	ST	EL	SICC	UB
	2	0	0	4	1
	Ag2 As1 Gmin1				
	Sandy orange yellow silt clay				
0.45-1.20m	DA	ST	EL	SICC	UB
	4	0	0	3	4
	Ag1 As2 Dh1				
	Organic silt peat, poorly humified at base, wet, siltier with depth				
1.20-1.60m	DA	ST	EL	SICC	UB
	2	0	0	2	4
	Ag2 As2				
	Pale grey organic silt, more organic with depth, well humified				
1.60-1.77m	DA	ST	EL	SICC	UB
	2	0	0	2	4
	Ag1 Gmin2 Sh+				
	Grey fine sand with occ silt and organics				
1.77-2.04m	DA	ST	EL	SICC	UB
	2	0	0	2	4
	Ag2 Gmin1 Sh1				
	Slightly sandy smooth silt				
2.04-2.10m	pale grey very dry sandy silt, too hard to core, geol?				

Core 6
449131.488, 110143.899, 8.541m OD

0-0.63m DA	ST	EL	SICC	UB	
	3/4	0	0	3	0
	Ag1 Sh1 As1				
	Mottled black brown organic silt clay				
0.63-1.00m	DA	ST	EL	SICC	UB
	4	0	1	3	4
	Ag1 Sh2 Dh1 Tl+				
	Silt peat, poorly humified, occasional twigs				

Core 7
449131.229, 110140.193, 8.638m OD

0-0.45m mixed silt clay, disturbed					
0.45-1.30m	DA	ST	EL	SICC	UB
	3	1	0	2	4
	Ag2 Sh2 Tl+ Gmaj				
	Grey brown silt, occ laminations, organic and woody remains				
(1.20-2.00m poor recovery)					
1.30-2.04m	DA	ST	EL	SICC	UB
	2	1	0	2	0
	Ag2 Gmin2 Gmaj Tl+				
	Grey yellow sandy silt, occ gravel and twigs				

Core 8
449131.09, 110135.692, 8.873m OD
0-0.55m grey orange mottled silt clay, geol?

<u>Transect 3</u>

Core 9
449143.258, 110134.293, 7.781m OD

0-0.30m wet silty peat, disturbed					
0.30m-1.00m	DA	ST	EL	SICC	UB
	3	1	0	2	4
	Ag3 Sh1 Gmin++				
	Grey brown occasional black mottled silt with sand, v mixed				

Core 10
449145.595, 110136.86, 7.732m OD

0-1.40m DA	ST	EL	SICC	UB	
	3	0	0	2	0
	Ag1 Sh2 Dh1				
	Poorly humified v wet peat, woody and silty at base				
1.40-1.60m	DA	ST	EL	SICC	UB
	2	0	0	2	4
	Ag1 Gmin3 Gmaj				
	Grey silty sand, occ gravel				
1.60-1.77m	DA	ST	EL	SICC	UB
	2	0	0	2	4
	Gmin1 Ag3				
	Blue-grey silt occ sand, soft				

Core 11
449147.477, 110140.179, 7.846m OD
0-0.20m mottled grey orange silt clay
0.20-0.90m orange clay

Core 12
449146.811, 110138.994, 7.793m OD
0-0.50m orange grey mottled silt clay

0.50-1.25m	DA	ST	EL	SICC	UB
	4	0	2	2	4

Sh1 Dh3 Tl+ Ag+
V fibrous peat, poorly humified, v wet, silty at base

1.25-1.76m	DA	ST	EL	SICC	UB
	3	0	0	1	4

Ag2 Gmin2 Sh++
sandy silt, obstruction at base

Samples

With Russian auger
<1 > 0.27-0.94m
0.94-1.20m
1.20-1.29m gap
1.29-1.79m
1.79-1.85m gap
1.85-2.08m
Core location 1: 449120.388, 110135.214, 9.23m OD

<2> 0-0.92m
0.92-1.69m
Core location 3: 449120.614, 110144.39, 9.387m OD

Appendix 2: Troels-Smith sediment classification scheme (1955)

Darkness	
nig.4	black
nig.3	
nig.2	
nig.1	
nig.0	white

Degree of Stratification	
strf.4	well stratified
strf.3	
strf.2	
strf.1	
strf.0	no stratification

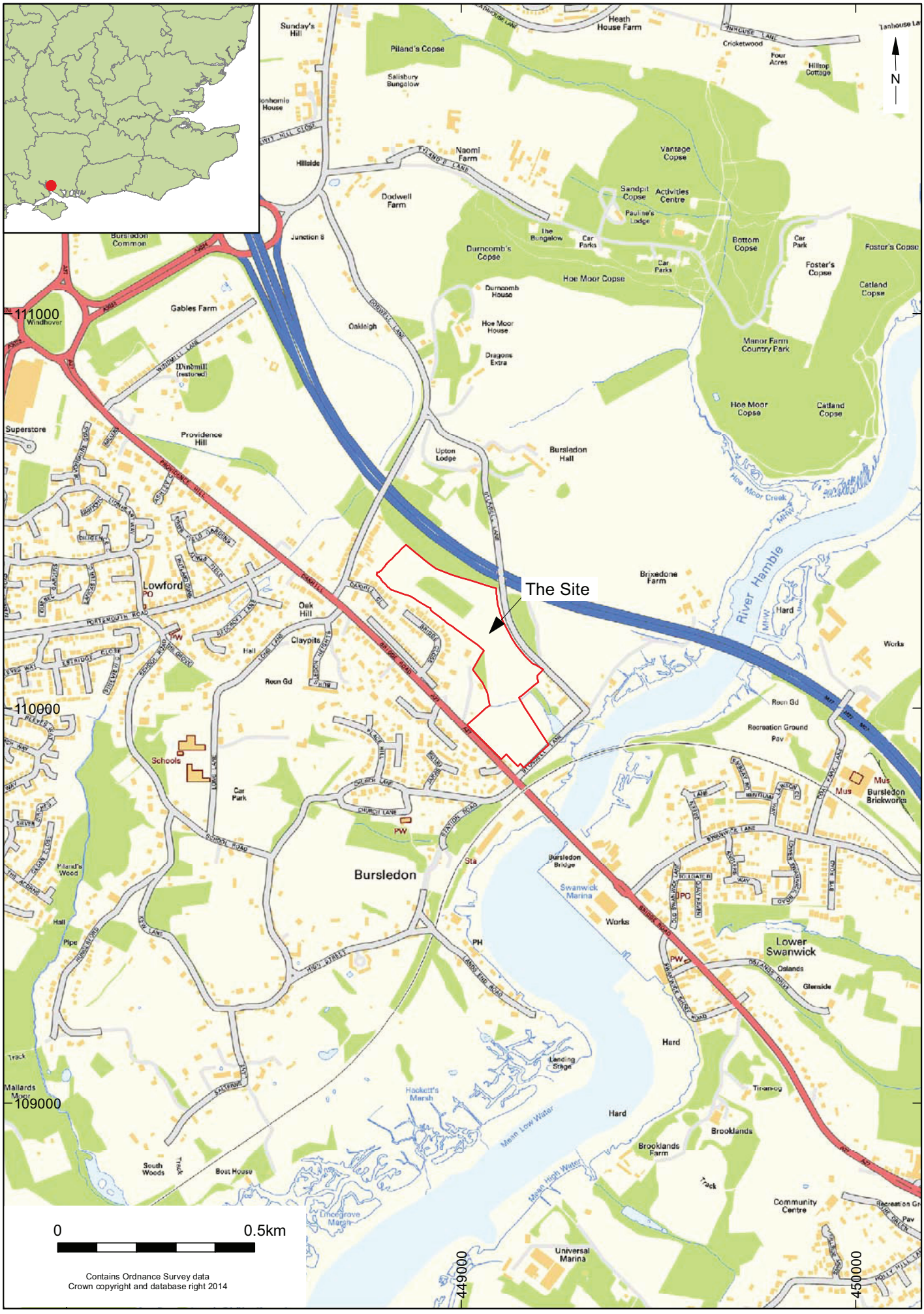
Degree of Elasticity	
elas.4	very elastic
elas.3	
elas.2	
elas.1	
elas.0	no elasticity

Degree of Dryness	
sicc.4	very dry
sicc.3	
sicc.2	
sicc.1	
sicc.0	water

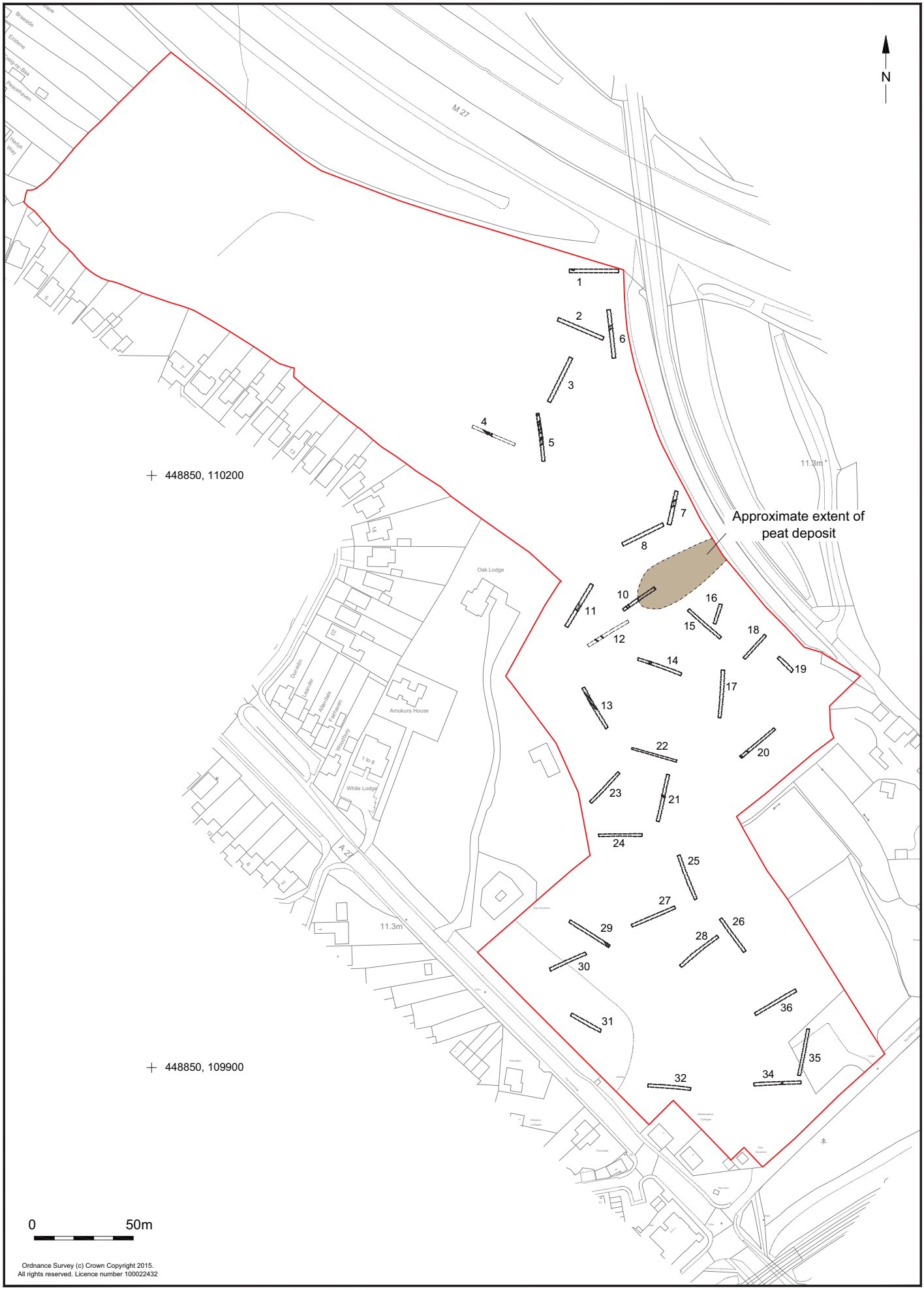
	Sharpness of Upper Boundary
lim.4	< 0.5mm
lim.3	< 1.0 & > 0.5mm
lim.2	< 2.0 & > 1.0mm
lim.1	< 10.0 & > 2.0mm
lim.0	> 10.0mm

	Sh	*Substantia humosa*	Humous substance, homogeneous microscopic structure
I Turfa	*Tb*	*T. bryophytica*	Mosses +/- humous substance
	Tl	*T. lignosa*	Stumps, roots, intertwined rootlets, of ligneous plants
	Th	*T. herbacea*	Roots, intertwined rootlets, rhizomes of herbaceous plants
II Detritus	*Dl*	*D. lignosus*	Fragments of ligneous plants >2mm
	Dh	*D. herbosus*	Fragments of herbaceous plants >2mm
	Dg	*D. granosus*	Fragments of ligneous and herbaceous plants <2mm >0.1mm
III Limus	*Lf*	*L. ferrugineus*	Rust, non-hardened. Particles <0.1mm
IV Argilla	*As*	*A.steatodes*	Particles of clay
	Ag	*A. granosa*	Particles of silt
V Grana	*Ga*	*G. arenosa*	Mineral particles 0.6 to 0.2mm
	Gs	*G. saburralia*	Mineral particles 2.0 to 0.6mm
	Gg(min)	*G. glareosa minora*	Mineral particles 6.0 to 2.0mm
	Gg(maj)	*G. glareosa majora*	Mineral particles 20.0 to 6.0mm
	Ptm	*Particulae testae molloscorum*	Fragments of calcareous shells

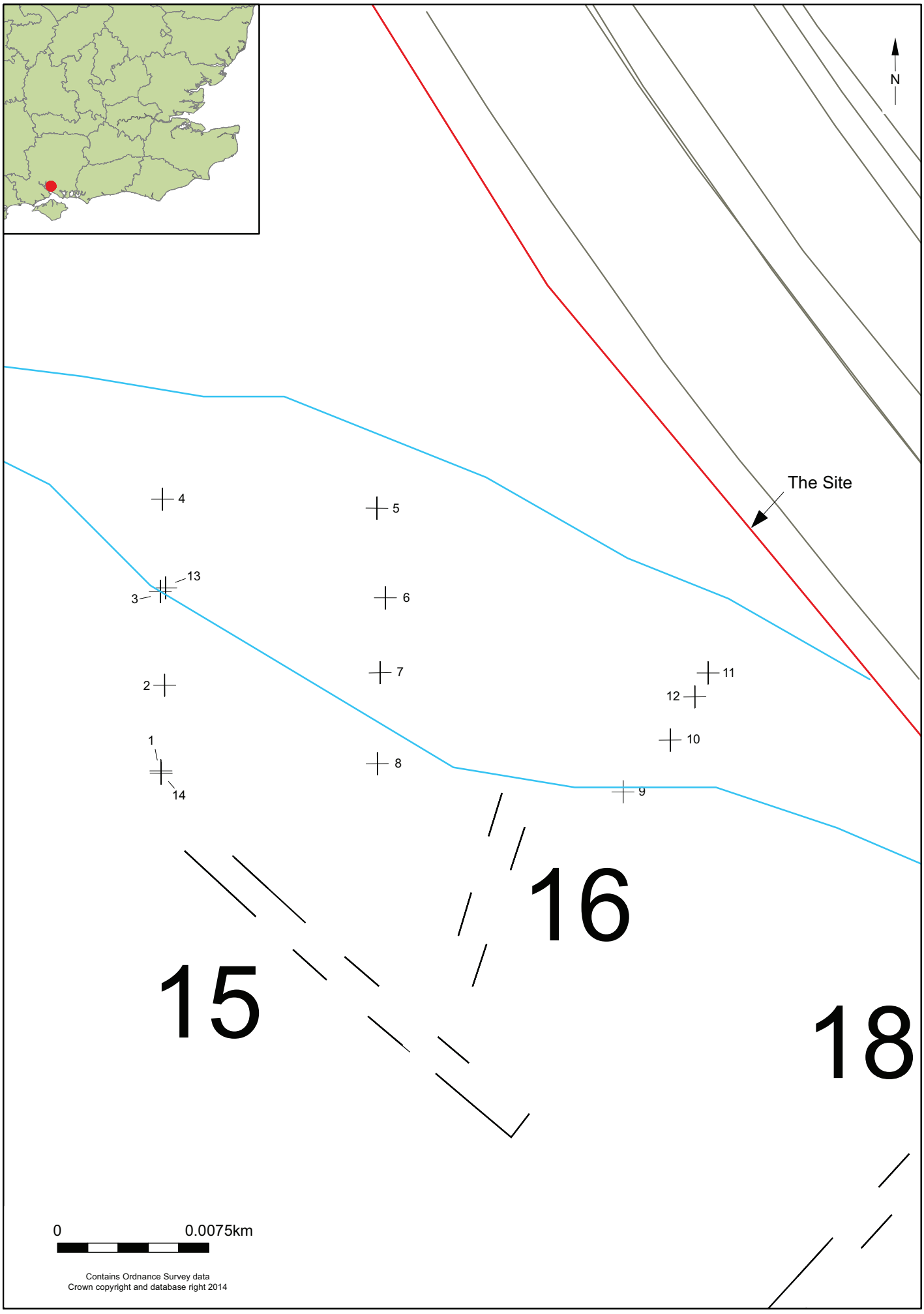
Physical and sedimentary properties of deposits according to Troels-Smith (1955)



© Archaeology South-East		Bridge Road, Bursledon	Fig. 1
Project Ref: 7475	August 2015	Site location	
Report Ref: 2015285	Drawn by: LG		



• •**Archaeology South-East**		Bridge Road, Bursledon	Fig. 2
Project Ref: 7475	August 2015	Approximate extent of peat deposit	
Report Ref: 2015285	Drawn by: JLR		



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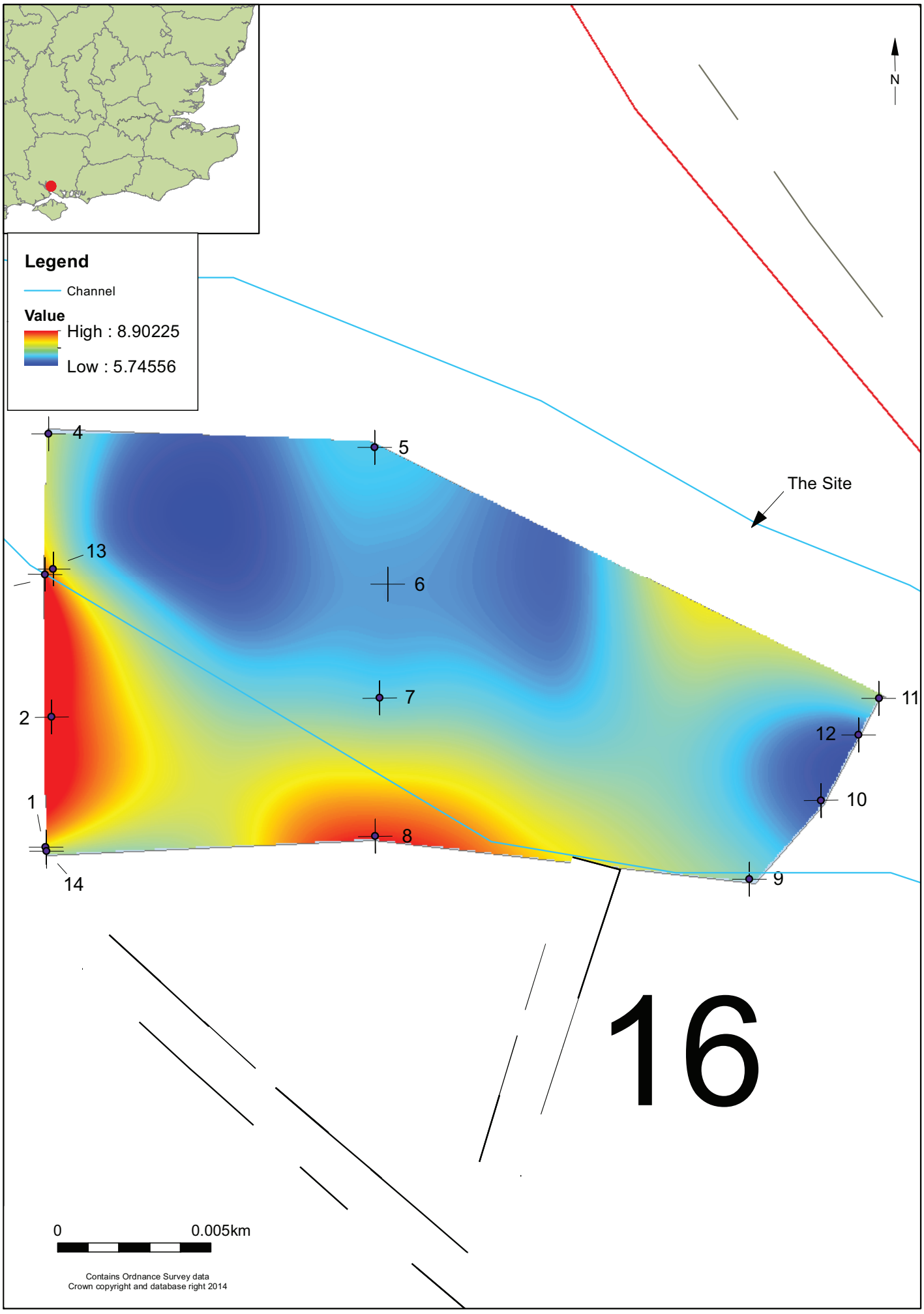
Project Ref: 7475	August 2015	Core locations and channel edge as shown in ground surface topography	
Report Ref: 2015285	Drawn by: LG		



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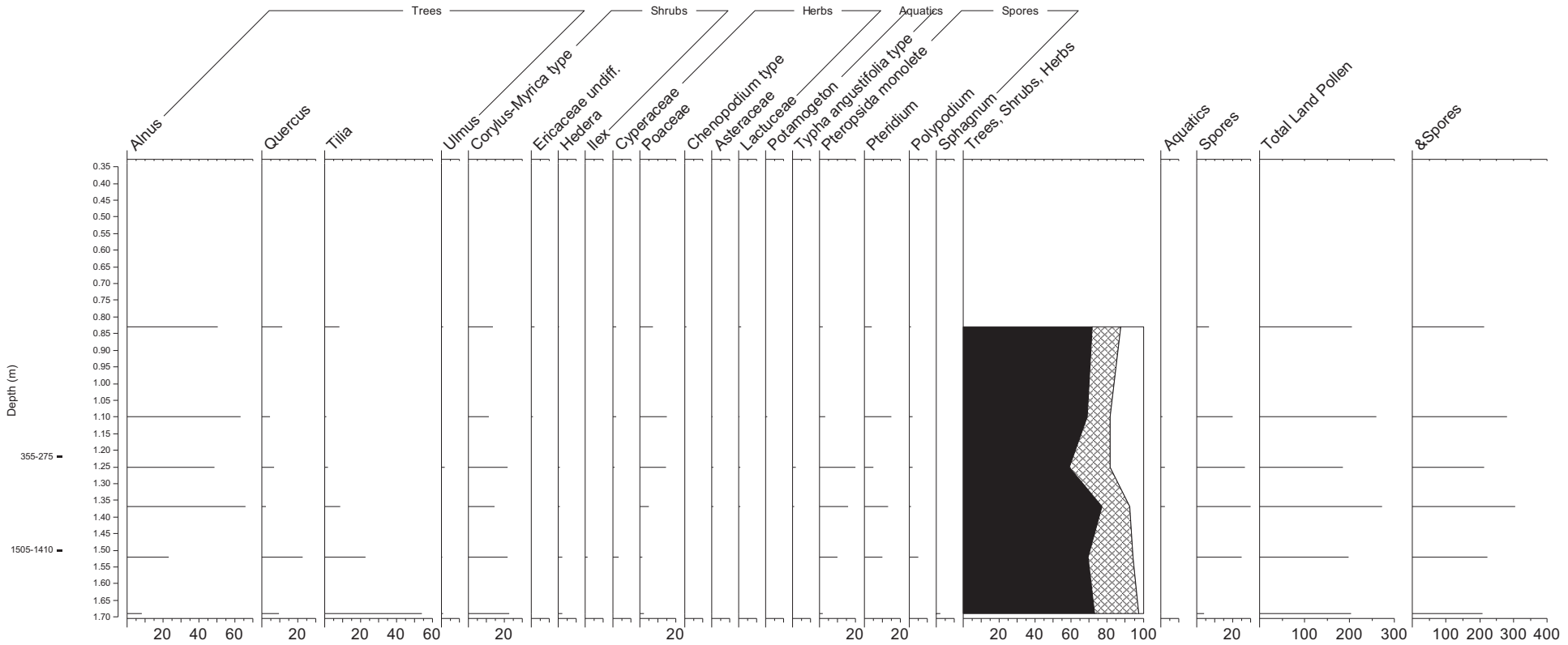
Project Ref: 7475	August 2015	Gravel surface	
Report Ref: 2015285	Drawn by: LG		



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Project Ref: 7475	Sept 2015	Pollen diagram	
Report Ref:	Drawn by:		

Sussex Office
Units 1 & 2
2 Chapel Place
Portslade
East Sussex BN41 1DR
tel: +44(0)1273 426830
email: fau@ucl.ac.uk
web: www.archaeologyse.co.uk

Essex Office
27 Eastways
Witham
Essex
CM8 3YQ
tel: +44(0)1376 331470
email: fau@ucl.ac.uk
web: www.archaeologyse.co.uk

London Office
Centre for Applied Archaeology
UCL Institute of Archaeology
31-34 Gordon Square
London WC1H 0PY
tel: +44(0)20 7679 4778
email: fau@ucl.ac.uk
web: www.ucl.ac.uk/caa