Archaeology South-East

ASE

A Geoarchaeological Watching Brief at the Rose Garden, Bodiam, Robertsbridge, East Sussex.

NGR TQ 7856 2563

Project No: 3364
Site Code: BD08

ASE Report No. 2008245
OASIS id: archaeol6-54048

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With contributions by
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Abstract

A geoarchaeological watching brief was undertaken within the Rose Garden at the National Trust property of Bodiam Castle during a programme of geotechnical boreholes commissioned by the Trust. The watching brief allowed the characterisation of sediments at the locale which showed a sequence broadly similar to that recorded during earlier phases of investigation at the site undertaken by Burrin (1988). This included identification of weathered alluvium, an early Bronze Age peat layer and the underlying early Holocene contact with the solid geology. It is concluded that the site holds potential for the recovery of detailed palaeoenvironmental evidence relating to both early Bronze Age and Medieval landscape use of the Rother flood plain.

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1.0 INTRODUCTION

1.1 Archaeology South East (A division of the Centre for Applied Archaeology at UCL) was commissioned by The National Trust to undertake a watching brief during geotechnical borehole works commissioned by the Trust. The investigated site occupies an area known as the Rose Garden, which lies close to the Natural Trust property entrance on the north side of the river at TQ 7856 2563. The site lies at approximately 4.5m OD. The site is situated at the junction between sub-crops of the Wadhurst Clay and the overlying Tunbridge Wells Sandstone (Figure 1) both of which are over-stepped by alluvial sediments forming the object of study in this investigation.

1.2 A brief for this work was prepared by Caroline Thackray, Territorial Archaeologist for the National trust (Thackray 2007). The fieldwork was undertaken in March 2007. The project was managed by Jon Sygrave.

1.3 The National Trust is currently seeking a long-term solution to continuing sewage issues at Bodiam Castle. Initial proposals are being discussed for siting a treatment plant and pump to the mains. The preferred site would be within the Rose Garden (the piece of land to the left on entering the public car park and adjacent to the existing plant).

1.4 The Rose Garden is not within the scheduled monument boundary and not strictly subject to Scheduled Monument Consent, but the National Trust approach for the property is to treat the sensitivity of the archaeology at Bodiam as if the whole of the property were within the schedule designation. A borehole survey is planned to investigate soil conditions, to discover whether the ground will support the necessary structure and to evaluate the survival and sensitivity of underlying archaeology.

1.5 Aims and Objectives

1.5.1 The project aimed, through a watching brief on geotechnical boreholes within the Rose Garden, to guide further requirements for archaeological investigation and mitigation. To characterise the basic stratigraphic sequence at the site, to record major lithological changes and stratigraphic divisions through to the limits of any development impact and, if possible, to the surface of the underlying solid geology.

1.5.2 In addition samples were to be taken for broad palaeoenvironmental assessment to characterise the potential range of environmental indicators and scope for detailed palaeoenvironmental reconstruction and dating.

1.5.3 This work was to meet, within the limits of the borehole evidence available, the following research objectives.

- To establish a permanent record of the stratigraphy in selected locations
- Collect samples to assess the potential for off-site analysis/assessment
- Create preliminary interpretation of site formation processes
- Create a preliminary interpretation of the vegetation and aquatic conditions
- Establish the potential for survival of archaeological remains

1.6 Site Background

1.6.1 The National Trust's property at Bodiam comprises 27.84 hectares (68.05 acres) of land, including at its heart a medieval, quadrangular moated castle, built in 1386 by Sir Edward Dalyngridge. The Castle is set within a relatively unspoiled area of the East Sussex Weald, bounded on the south by the river Rother, the west by domestic dwellings and the north & east by agricultural land. A field lying to the south of the river and immediately east of the road has recently been acquired and is also now part of the Bodiam property. Designations include one complete scheduled monument – the castle, moat, ponds and medieval tenements and pill box (SM: 24405), and one part of a scheduled monument, comprising Roman settlement remains and medieval buildings in the newly acquired field south of the Rother. In addition, the castle is a Grade 1 listed building. To the north of the property (not NT) is the scheduled monument (SM: 25454) at Court Lodge. The whole of the property falls within the High Weald Area of Outstanding Natural Beauty.

1.6.2 The Bodiam Castle property lies within the middle section of the Rother valley, half way between Robertsbridge and the Isle of Oxney. The Rother Valley is the principle agent of drainage for the eastern and central Weald with a catchment area (Figure 2) in excess of 700km^2 covering a variety of mid-Wealden geologies from the outliers of Jurassic Purbeck Limestone to the Lower Cretaceous sands and clays of the Hastings Beds Group (Gallois 1965). The variety of relief, geological substrates and depositional systems encompassed within the course of the river Rother makes it the key river for developing an understanding the evolution of the Wealden landscape. Flood plain sequences hold the potential for recording long environmental histories encompassing late Devensian marine transgressions, early Holocene climatic amelioration, de-vegetation and increased erosion associated with agricultural expansion and possible indication of Roman and Post-Roman industrial expansion associated with the iron industry.

1.6.3 The Bodiam Castle site has been demonstrated to offer detailed records of palaeo environmental history (Burrin 1988; see below) being located at a point between the narrow and constricted upper regime of the Rother River with typically short, inorganic sequences, and the lower, deeper largely estuarine and marine sequences of the Romney Marshes. At Bodiam it is apparent that an extensive palaeo-environmental sequence is preserved containing a well-preserved organic component. This resource has already demonstrated the potential to deliver a detailed environmental history for the Holocene of the eastern Weald.

1.7 Wider Geology and Topography

1.7.1 The river valley sequences of the Eastern Rother are central to a full understanding of the environmental history of the eastern Weald and its principle drainage feature, the Romney Marshes. The river drains three distinct topographical zones and a variety of Jurassic and Cretaceous geologies. Each zone is characterised by a distinctive configuration of channel profile and provides palaeoenvironmental sequences of varying length, temporal and spatial inference. As will be illustrated, the Bodiam site occupies the central, and most valuable, of these three zones.

1.7.2 The Weald is the name given to the major-structure of the Weald-Artois

anticlinorum, an east-west trending major anticline unroofed throughout the late Cretaceous and Tertiary through a mixture of marine and sub-aerial processes of erosion, then later bisected through the formation of the English channel; most probably during MIS 13. The orientation of the River Rother drainage is entirely constricted and determined by this macro structure although in its upper reaches, more minor folding structures have helped to determine its course of drainage. The River crosses a number of geological formations including the exposed Jurassic limestone of the Purbeck beds and the Lower Cretaceous formations of the Hastings Beds, Wadhurst Clay, Tunbridge Wells Sand and the Weald Clay (Gallois 1965). It is the combination of factors including permeability, structural relief and resistance to erosion across the three zones of the Rother's course that has given rise to the differential patterns of sedimentation.

1.8 Scope of Report

1.8.1 This report provides an account of recorded stratigraphic sequences, correlated geological models of the sedimentation recorded at the sites and an assessment report based on palaeoenvironmental and micropaleontological samples taken from recovered samples.

1.8.2 The work is discussed in light of previous studies to suggest the potential value of the sequence and recommendations for further mitigation/analysis.

2.0 PREVOIUS WORK: THE BODIAM SITE IN CONTEXT

2.1 Previous archaeological research

2.1.1 A full discussion of the historical and archaeological background to the site is given in the property's Archaeological and Historic Landscape Survey (Johnson 2001). A brief summary, taken from (Thackray 2006), is outlined below.

2.1.2 The focus of the property is the moated, curtain-walled castle, built in 1386 by Sir Edward Dalyngrigge. It allegedly replaced an earlier manorial residence still marked by a moated site lying almost 1km to the north, outside the National Trust property. The castle was partly dismantled in 1643, and lay neglected for several centuries, until the 19th century when some repairs were ordered by John Fuller, and Lord Ashcombe. This work was continued into the 20th century by Lord Curzon, who left it to the National Trust after his death in 1925.

2.1.3 To the east, the property is bounded by arable farmland for which the archaeological potential is currently unknown, although likely to be high, unless completely ploughed out by 20th- century cultivation. To the south of the castle, the property lies adjacent to the banks of the river Rother, where there is the likelihood of the hidden remains of medieval wharves. To the west the property lies adjacent to the houses and house plots of Bodiam village, including the Castle Inn premises and grounds.

2.1.4 The present work was carried out in the vicinity of the visitor car park and Castle Inn public house. The visitor car park is located on the now reclaimed area of the former *flote* or harbour. Running from the north west corner of the former *flote* to the west, under the Castle Inn and to the south of the village green, is the likely route of the former mill pond leat constructed in 1396 by Sir Edward Dallingridge and thought to have been active until 1600 (Johnson 2001).

2.1.5 Castle Inn was constructed in the late 19th century on the site of an earlier public house, The Red Lion, known to have existed on the site by 1671 (Johnson 2001). The north-south road, between the visitor entrance to the castle car park and the Castle Inn, is thought to be the route of a former Roman road.

2.1.6 Two archaeological watching briefs were undertaken by Luke Barber for ASE in 1998 and 2007, and a third by Sam Worrall (2003) during the installation of the existing sewage tanks and drainage works. During these investigations a series of water-lain deposits, possibly relating to the former *flote* were recorded, with finds showing a date range spanning the Roman, 13th/14th Centuries and through to the present day. These deposits ranged from the present ground surface at 4.4m OD to 2.33m OD, and sealed a peat deposit, dated to the Early Bronze Age, which was present at depths between 1.4m OD and 2.33m OD (Barber 1998).

2.2 Sedimentary and palaeoenvironmental research.

2.2.1 Hitherto the only detailed study of the River Rother was undertaken some twenty years ago by Burrin (1988). This work, which incorporated the results of 134 boreholes across 12 separate transects between Rotherfield and Bodiam, provides a broad indication of variation in sedimentation and palaeoenvironmental history for this section of the Eastern Rother. The work has its limitation, notably incomplete sequences for the deeper alluvium indicated down stream from Udiam and including the Bodiam site. In this zone the sheer depth of the sub-alluvium valley bottom resulted in truncated sequences missing the key late-glacial/early Holocene components. This work, in characterising the sedimentation and palynological history of the Rother Valley allowed the recognition of three key components to the Rother drainage: It's upper, Middle and Lower courses

2.2.2 *Zone 1: Rotherfield to Robertsbridge (Upper course)*
The Rother rises in the High Weald at over 170m above sea level with its spring emerging in a narrow Wealden valley or Ghyll near Rotherfield (TQ 557287). In this zone there is structural evidence for extensive and complex folding on a small scale with periclines and synclines forming the distinctive forest-ridge structure of the High Weald. Here drainage is almost entirely dictated by the overall east-west trend of these structures with the main valley of the Rother itself occupying a complex faulted syncline constrained by the anticlines of Crowborough and Battle (Burrin 1988). Here the floodplain itself is narrow and discontinuous because of the abundance of contributing Ghyll streams. The valley sides are relatively steep in this section of the river with concordant increase in colluvial in-wash and a commensurately reduced amount of alluvium.

2.2.3 *Zone 2: Robertsbridge to Bodiam (Middle Course)*
Within this stretch the River Valley broadens and the river develops a more linear course, less interrupted by upland tributaries. The River here cut through the lower lying relief of the Weald Clay and therefore develops wider floodplains with deeper, more alluvial sedimentary sequences.

2.2.4 *Zone 3: Bodiam to Rye (Lower Course)*
In this Zone there are dramatic differences in drainage. At Udiam there is a distinct change from a valley long profile with a relative steep gradient (1:438) to a virtually planer floodplain segment which represents the beginning of the marshes (Burrin 1988). This pattern matches similar long-profile changes for other Sussex Rivers (Kirkadly and Bull 1940; Jones 1981; Scaife and Burrin 1983; Waller *et al.* 1988). As we shall see in the discussion of sedimentology below, this change in long profile (Figure 3) is coincident with dramatic changes in the overall depth of the sub-alluvial surface (an increase in -30m between Roberstbridge and Rye) and most probably relates to late Devensian/ early Holocene marine erosion.

2.2.5 The differing drainage patterns within the three zones has consequently given rise to distinct sediment sequences. Bodiam itself sits at the interface between Zones 2 and 3 occupying a floodplain some 70m wide at some 2.25m O.D. At this point the River Valley appear to cross out crops of the Wadhurst Clay, although it is unknown which of the Jurrasic/Cretacous lithologies comprise the sub-alluvial valley floor.

A cross-valley profile was presented for the Bodiam site by Burrin (1988) (Figure 4), which was neither relatively shallow, nor flat bottomed in contrast to profiles from further up the valley. Up to 14m of alluvium has been recorded at this site but only four of the 11 boreholes forming the transect fully bottomed the channel profile and these showed a trend for a steeply shelving v-shaped profile towards the valley edge. The sedimentary sequence is consequently incomplete preserving only the upper parts across much of the transect. They show a multi-phase sedimentary history with the lowest recorded sediment body being a blue-grey silty clay overlain by extensive (up to 6m in thickness) peat deposits containing abundant plant macro-fossil remains including fragments of C*orylus*. Above the peat were further superficial alluvial deposits of grey and brown laminated silts and sands. These deposits included both a possible Romano-British occupation horizon and Wealden blast furnace slag.

2.2.6 Unfortunately no detailed pollen sampling was undertaken at the Bodiam site during Burrin's research. However the cross valley profile at Robertsbridge was subject to pollen sampling and could be used to suggest the likely degree of potential at the Bodiam site. However, the Robertsbridge site, falling in Zone 2, sits at the intersection between the more mineralgenic, inorganic deposits of the Upper Zone alluvial suite and the Lower, peat-rich deposits of the Rother Middle Zone previously described (Scaife in Burrin 1988). Palaeoenvironmental potential at Bodiam could therefore be much greater.

2.2.7 The Robertsbridge sequence showed an abundance of *Corylus* throughout, this matches the observations of macro fossil remains of the plant to suggest it was a locally growing species. *Alnus* and *Salix* are also important parts of the local plant community and both might be expected within the floodplain environment. Evidence for the vegetation of the interfluves comes from the dominance of *Tilia*, *Fraxinus* and *Quercus*. The abundance of these pollen types combined with low observed counts for *Betula* and *Graminae* suggest very little woodland clearance close to the site but cereal pollen and *Plantago* within the pollen sequence suggest agricultural activity within the wider river catchment.

3.0 GEOARCHAEOLOGICAL METHODOLOGY

3.1 Six boreholes were undertaken within the rose garden at Bodiam. One was undertaken using a standard Dando percussion rig the other five using a Window Sampling Rig (Figure 5).

3.2 The boreholes were recorded and sampled by Andrew Maxted, ASE. Sediments were recorded in the following manner: Beneath the made ground, detailed observations were made of the lithological and sedimentological character of sediments encountered. These comprised detailed sediment descriptions at 0.25m intervals or at the junction of major stratigraphic or lithological boundaries. The descriptions comprised matrix lithology, coarse components, sediment cohesion and well as characterisation of superficial structures and likelihood of decalcification.

3.3 Where deposits suitable for environmental sampling were encountered (sealed features containing evident carbonised remains, peats, water-logged or cess deposits), bulk soil samples were taken from the spoil for environmental analysis. Bulk samples were stored in secure, environment controlled facilities at ASE.

4.0 RESULTS

4.1 Borehole Logs

All boreholes were sites at an approximate altitude of 4.5m OD., the locations of each within the Rose Garden can be seen in Figure 6. The following observations were made:

Borehole 1 (WS1)

Stratigraphy	Depth	Lithology	Colour	Sample	Notes
Made Ground	0	Clay	10YR 3/1		Friable clay loam with humic content. Charcoal noted.
Weathered Alluvium	0.6	Clay	2.5Y 4/2	c. 0.5m	Soft, clean clay orange staining
Alluvium	1.8	Clay with silt	2.5Y 5/3	c. 1.5m	Soft but quite firm clay with firm orange staining. Some charcoal, burnt clay.
Alluvium	1.6	Clay	G1 6/1	c. 2.0m	Adhesive blue clay with some organic element.
Organic Alluvium	2.4m	Clay with peat	G1 2.5/	c. 2.5m	Peaty clay dark black with 50% organic element.
Organic Alluvium	2.65m	Clay	G1 6/1	c. 3.0m	Back to adhesive blue clay with organic content
Organic Alluvium	3.2 -4m	Clayey Peat	G1 2.5	c. 3.5m	Adhesive peat with clay, high in organics and preserved plant material.

Table 1: Data from Borehole 1

Borehole 2 (WS2)

Stratigraphy	Depth	Lithology	Colour	Sample	Notes
Made Ground	0	Clay with humic element	2.5Y 4/2		Clay with humic constituent, Some CBM. By 0.9m, more compact/firmer, some charcoal
Weathered Alluvium	1.1	Silty Clay	10YR 5/8	c.1.2m	Some fine flint gravel and pockets of ash noted.
Alluvium	1.6	Clay with silt	10YR 5/8	c. 1.5m	Soft lighter clay with orange staining.
Organic Alluvium	1.8	Clay (blue)	2.5Y 5/3	c. 2.0m	Adhesive clean clay some orange staining.
Peat	2.7	Clayey Peat	G1 6/1	c. 3.0m	Crumbly quite dry peat with some clay, high in organics.
Lower Alluvium	3.40 - 5m	Clay with Silt	G1 2.5/	c. 4.6m	Grey, quite firm and clean clay with silt

Table 2: Data from Borehole 2

Borehole 3 (WS3)

Stratigraphy	Depth	Lithology	Colour	Sample	Notes
Made Ground	0	Clay Silt	10YR 3/1		Friable clay based loam with some silt. Flint and ash.
Weathered Alluvium	0.55	Clay with humic element	2.5Y 4/2		Lighter greyish soft clay with orange [silty] staining. Charcoal < 5%
Alluvium	1.6	Clay with silt	10YR 5/8	1.9m	Clean soft clay.
Organic Alluvium	2.4	Clay	2.5Y 5/3	2.4m	Very dark brown organic seams with wood pieces.
Alluvium	3.7 -5m	Silty Clay	10YR5/8	4m	Organics rare.

Table 3: Data from Borehole 3

Borehole 4 (WS4)

Stratigraphy	Depth	Lithology	Colour	Sample	Notes
Made Ground	0m	Clay Silt	10YR3/1		Friable dry clayey loam
Weathered Alluvium	0.6m	Silty Clay	2.5Y 5/3		Lighter greyish quite firm clay with orange [silty] staining. Greyer/blue towards next strata. Ash and charcoal noted
Alluvium	1.80m	Clay	G2 5/1	1.8m	Soft clay
Alluvium	2.44m	Clay with silt	G2 2.5/1	2.5m	Adhesive clay.
Organic Alluvium	2.75 – 4m	Clay	10YR2/1	2.9m	Dark brown, soft malleable clay, not too sticky, clean.

Table 4: Data from Borehole 4

Borehole 5 (WS5)

Stratigraphy	Depth	Lithology	Colour	Sample	Notes
Made Ground	0m	Clay Silt with Sand			Friable dry clayey loam. Ash and modern CBM fragments noted.
Weathered Alluvium	0.8m	Clay with silt	2.5Y 5/1		Firm but elastic greyish clay with orange [silty] staining.
Alluvium	1.9m	Clay	G2 5/1	c.2m	Soft bluish clean clay, becoming bluer towards peat level.
Organic Alluvium	2.5m	Clay	10YR2/2	2.6m	Friable organic peat seams within clay.
Alluvium	3.7 - 4m	Silt with Clay	2.5Y 6/2	3.8m	Grey olive silt with clay (some rooting (insufficient to sample)

Table 5: Data from Borehole 5

Borehole 6 (Percussion BH1)

Stratigraphy	Depth	Lithology	Colour	Sample	Notes
Made Ground	0m	Clay with sand	7.5Y 3.2		Crumbly clayey loam matrix with modern CBM content.
Weathered Alluvium	0.70m	Clay	1G 3/1	c. 0.9m	Soft alluvial clay with silty orange staining
Weathered Alluvium	0.95m	Clay with silt	2.5Y 5/1	c. 1.1m	Clean olive/grey clay with silty orange staining
Alluvium	1.6m	clay	1G 4/1	c. 2	Compact alluvial clay
Peat	2.2m	Peat with clay	7.5Y2.5/1	c. 2.3	Dark organic peat with moderate clay component
Organic Alluvium	3.0m	Clay	2.5Y 4/2	c.3.0m	Slightly adhesive clay with 15% organic component
Peat	3.2m	Peat	7.5Y 3/2	c.3.5m	Dark brown peat with high organic element
Alluvium	4.4m	Clay	2.5Y 4.2	c. 4.7m	Blue/grey clay
Fluvial Sands	4.7	Silty Sand	10YR 5/8	c. 5.8	Fine sand with silt
Solid	5.7m	Stiff Clay with siltstone (Wadhurst Clay)	2G 5/1	c. 6.8m	Very compact, dry clean bedrock
Solid	8–10.45m	Silty Clay (Wadhurst Clay)	2G 4/1	c. 8m	Stiff, Compact and bedded

Table 6: Data from Borehole 6

5.0 GEOLOGICAL MODELLING

5.1 Overview

5.1.1 The borehole coverage provided enough scope to effectively model the sub-surface sedimentary sequence. Only a single hole (Borehole 6) reached a depth deep enough to show the height of the solid Geology which was thought to be Wadhurst Clay. The Window Sample holes ended close to their practical limit of 5m. The sequences all show a comparable sedimentary succession for the locale. The Wadhust Clay is immediately overlain, at a depth of around 5m by around a metre of fluvial sands, these most probably represent the Late Glacial/Early Holocene bed load of the river.

5.1.2 The sands are in turn overlain but mineralgenic alluvial beds of soft blue-grey clay which are again suspected to be early Holocene in age and represent overbank deposits in a fairly open floodplain.

5.1.3 Up to 2.2m of organic alluvium with varying degrees of peat development, both as lenses and as amorphous beds, then indicate a change in sedimentary regime. Possibly as the result of meander cut off, channel infilling and development of reed beds. These deposits contain abundant macroscopic plant remains and some potential for recovery of insect remains. They are entirely consistent, both in terms of depth and character, with peat deposits recorded nearby by Barber (1998) and dated to the early Bronze Age.

5.1.4 The organic alluvium gives way to clean mineralgenic alluvium at between 2 and 2.5m depth. This deposit appeared weathered and oxidised in its upper part and has been potentially truncated across much of the site by the emplacement of Made Ground. The upper alluvium again represents a change in regime, perhaps due to increased surface run-off through late prehistoric change to local vegetation or migration of the river channel bringing the course of the river back through the locale.

5.1.5 The degree to which the Made Ground truncates the upper alluvium could not be established from the limited exposures of the boreholes, the Made Ground may simply be emplaced as a raft to raise the ground surface. The lower portion of the Made Ground contained abundant charcoal and ash, and these levels should be considered archaeologically sensitive until it is firmly proven that they relate to modern development.

5.2 Plotted Logs

5.2.1 Three plots shows the sedimentary sequence as modelled using an industry standard geological software package. Two transects are presented along with a three-dimension model of the logs. Figure 7 shows a north south transect incorporating the deep borehole (BH6) while Figure 8 shows a southwest-northeast profile**.** The log model is shown in Figure 9. These logs are entirely consistent with the profile presented by Burrin for Bodiam (Figure 3) away from the central line of drainage. While the lack of inter-digitation with colluvial deposits suggests that the site is located in an area of exclusively fluvial regime, the weathered nature of the upper facies of the alluvium may attest to extensive period of drying out and raises the possibility

of weak landsurface development. This possibility could be tested through soil micro-morphological studies of the sediment.

5.2.2 The logs demonstrate the consistent nature of the sequence across the extent of the Rose Garden with only minor variation in the depth of the organic alluvium at the degree to which actual beds of peat are present. Given that most arising from the boreholes came from levels which were waterlogged it was not securely possible to differentiate between organic-rich alluvium and substantial beds of peat. In terms of management and future geoarchaeological investigation it is considered prudent to consider both units as one.

6.0 THE ENVIRONMENTAL SAMPLES

6.1 Overview

6.1.1 Thirty-two palaeoenvironmental samples were recovered from boreholes during the watching brief. Of these the most extensive sequence comprised the fourteen samples collected from the deep Borehole 6, which comprised a complete sequence through to the surface of the bedrock. These were sub-sampled and sent to John Whittaker for palaeoenvironmental characterisation.

6.2 Characterisation and Micropalaeontology (John Whittaker)

6.2.1 Of the fourteen samples examined from BH6 nature of the sedimentary residues of the bottom six would strongly suggest that they are of the bedrock, rather than part of the subsequent alluvial sequence (Table 7). The interval 8.00 – 9.50m exhibits a grey fine shaley siltstone (colour-coded grey in Table 7), while the succeeding three samples (interval 5.80 – 7.65m) indicates a ferruginous sandstone (colour-coded orange in Table 7). They do not appear to have readily discernable microfossils but it is beyond the scope of this assessment to identity them further, save to say they will be of rocks belonging to this the southern anticline of the Weald.

6.2.2 The eight samples from the 0.90m down to 5.20m certainly do belong to the Rother alluvium. Although plant debris and seeds occurred in all eight samples and insect remains five of them, no other microfossil remains were noticed in spite of a diligent search. That is save for remains of the (flexible) organic carapaces of cladocera (*Daphnia* and the like) and their egg cases (ephippia) in the sample from 3.00m which may underline the freshwater nature of the entire upper 5.2m of sediment. If there had been any tidal influence, then surely the microfossils would evidence this. The environment appears to have been a mudflat with build-ups of vegetation (probably reedbeds from time to time – Figure 1), but there are no calcareous foraminifera or ostracods present which are invariable found in tidal rivers. Even if the environment was too reducing, in a true brackish salt-marsh the distinctive and diagnostic agglutinating foraminifera would be found. They have a shell of mineral grains cemented onto an organic template with organic cement and are preserved in the even the most “organic” of sediments. None was present, again in spite of a careful search.

6.2.3 In the top two samples (0.90m and 1.10m) there are iron nodules and even “slag” (Table 1). The former, where found, seem to be associated with weathering or near-surface groundwaters, formed prior to the onset of fully terrestrial conditions, or pedogenic activity on the old mudflats (Candy, *in* Ashton *et al.,* 2005). The latter may also signify the onset of industrial activity.

6.3 Further Work

6.3.1 Scope exists to undertake further work on the samples recover during the course of the watching brief. This could included a palynological assessment, extraction and identification of macroscopic plant remains and insects and the possibility of dating through AMS. However, given the circumstances of recovery and possibility of contamination which arise during non-purposive work it is recommended that should the development be initiated, further purposive work, ideally through a combination of test pitting and borehole sampling, be undertaken.

6.3.2 Samples from the watching brief will continue to be stored in a safe, stable environment at ASE until a decision on further work is made.

ORGANIC REMAINS

Depth in borehole	0.90m	1.10m	2.00m	2.30m	3.00m	3.5	4.70m	5.20m	5.80m	6.80m	8.00m	9.05m	9.50m
plant debris + seeds	x	x	x	x	x	x	x	x					
insect remains	x			x	x	x		x					
iron nodules	x	x											
slag	x												
cladocera					x								
	alluvial silt			*peat*			*alluvial silt*		*bedrock*				

Ecology	*mudflats, some drying out. Latterly with industrial waste*	*reedbeds on mudflats*	*mudflats*
	riverine, freshwater		

Organic remains are recorded on a presence (x)/absence basis only

BEDROCK : **Ferruginous sandstone**; **Grey fine shaley siltstone**

Table 7: Organic remains and micropalaeontology from BH6

7.0 DISCUSSION AND CONCLUSIONS

7.1 Above the surface of the Solid Wadhurst Clay and overlying fluvial sands the entire recorded sequence form the investigation appears to be alluvial in nature. Plants and organic remains were noted throughout but were particularly abundant in beds of organic clays and peat encountered between 2 and 4m in depth.

7.2 The alluvial sequence can therefore be divided into three main phases: early Holocene Floodplain, Early Bronze Age reed-beds and a later Holocene return to flood plain conditions.

7.3 The upper alluvium appeared to contain abundant indication of human activity in the form of ash, charcoal, slag and ceramic building material (CBM) flecks. None of these remains offered scope for immediate dating but it is considered likely that these relate to the Roman, medieval and post-medieval occupation of the site or its margins. This is entirely consistent with finds recovered from Barber's (2007) investigations through trial trenching of nearby locales where find included Roman Tile and 13-14th century ceramics. The extraction during the coarse of palaeoenvironmental assessment of the upper alluvium noted the presence of small iron slag fragments which might relate to Roman or Medieval industrial activity. Slag fragments were also noted by Burrin (1988) within the locale.

7.4 No further light could be shed on the apparent unconformity between the Early Bronze Age peat deposit and the overlying Roman and Post-Roman alluvium. This abrupt sedimentary change is critical to understanding both the development of the Bodiam site into a harbour during the historic period and for understanding the evolution of the Rother drainage regime through the Holocene. The unconformity could relate to very local changes in fluvial regime or a major flux in drainage precipitated by landuse change, sea level fluctuations or climatic variation. Detailed examination of this feature contact should be considered a major research priority for the locale. As a null hypothesis it should be considered that a rapid change in sedimentary regime led to the reopening of the channel in the Roman or medieval period which led to its subsequent use as a harbour.

7.5 Guided by the recorded logs it should be possible to put into place a successful mitigation for any proposed development. Purposive boreholing, with the recovery of sleeved U100 samples would provide a detailed palaeoenvironmental record and dating samples and should be considered a minimum response to development. Ideally however trial pit excavation, by hand where necessary should be considered as a suitable approach to the site. This would allow the recovery of artefactual remains through the sequence as well as exposure of the context between the upper alluvium and underlying organic deposits. Access to open sections would allow close interval sampling for pollen and plant remains and for the extraction of soil micromorphology sample to examine directly the nature of the unconformity and the possibility of ephemeral landsurface development in the upper alluvium.

7.6 Any deep development which may impact on the early Bronze Age peats should consider the possibility of structure such as trackways and platforms.

The presence of such structure would require not only complex mitigation given their importance but also regard for future water level management within the peat beds to ensure their wider survival beyond the limits of the development area.

7.7 The watching brief has provided an efficient and pragmatic approach to characterising the sedimentary regime at the Rose garden site. Further work could now be built upon the framework established by this study to provide a detailed account of change in human activity and environment at the site as part of mitigation for the proposed development.

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SMR Summary Form

Site Code	**BD08**					
Identification Name and Address	Rose Garden, Bodiam Castle, Robertsbridge, East Sussex.					
County, District &/or Borough	East Sussex, Rother, Bodiam					
OS Grid Refs.	TQ 7856 2563					
Geology	Alluivum overlying Wadhurst Clay					
Arch. South-East Project Number	3364					
Type of Fieldwork	Eval.	Excav.	Watching Brief X	Standing Structure	Survey	Other
Type of Site	Green Field	Shallow Urban	Deep Urban	Other: Palaeoenvironemtal		
Dates of Fieldwork	Eval. March 2008	Excav.	WB.	Other		
Sponsor/Client	National Trust					
Project Manager	Jon Sygrave					
Project Supervisor						
Period Summary	Palaeo.	Meso.	Neo.	BA X	IA	RB X
	AS	MED X	PM	Other Modern		

100 Word Summary.

A geoarchaeological watching brief was undertaken within the Rose Garden at the National Trust property of Bodiam Castle during a programme of geotechnical boreholes commissioned by the Trust. The watching brief allowed the characterisation of sediments at the locale which showed a sequence broadly similar to that recorded during earlier phases of investigation at the site undertaken by Burrin (1988). This included identification of weathered alluvium, an early Bronze Age peat layer and the underlying early Holocene contact with the solid geology. It is concluded that the site holds potential for the recovery of detailed palaeoenvironmental evidence relating to both early Bronze Age and Medieval landscape use of the Rother flood plain.

OASIS Form

OASIS ID: archaeol6-54048

Project details

Project name	Bodiam Rose Garden Watching Brief, East Sussex
Short description of the project	A watching brief of geotechnical boreholes on National Trust property at the Rose Garden, Bodiam Castle, East Sussex.
Project dates	Start: 11-03-2008 End: 15-03-2008
Previous/future work	Yes / Yes
Type of project	Field evaluation
Site status	National Trust land
Current Land use	Other 13 - Waste ground
Monument type	PALAEOCHANNEL Early Bronze Age
Monument type	PALAEOCHANNEL Medieval

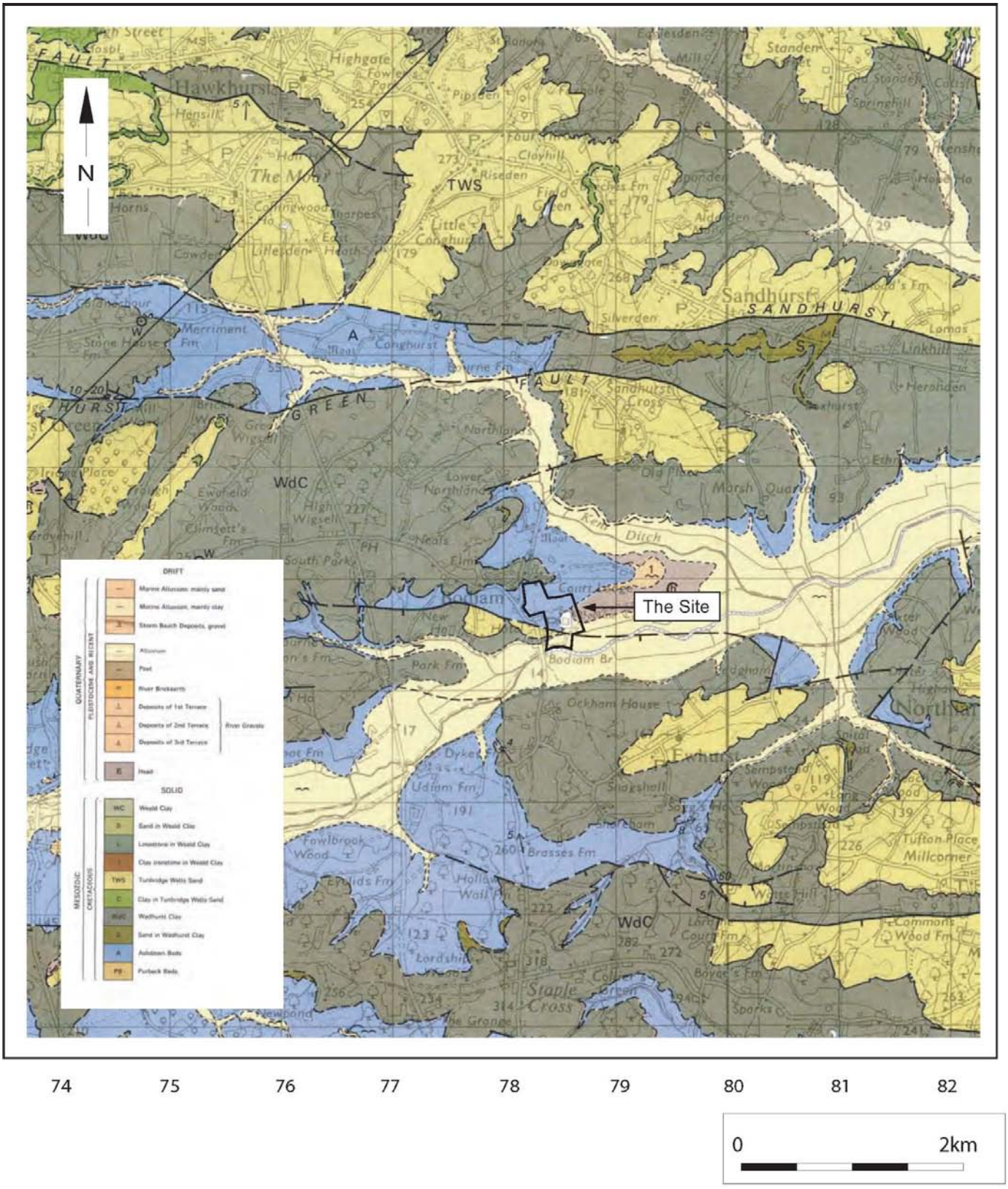
Project location

Country	England
Site location	EAST SUSSEX ROTHER BODIAM Bodiam
Study area	1.00 Hectares
Site coordinates	TQ 7856 2563 51.0017202131 0.545207435683 51 00 06 N 000 32 42 E Point
Height OD / Depth	Min: 4.00m Max: 5.00m

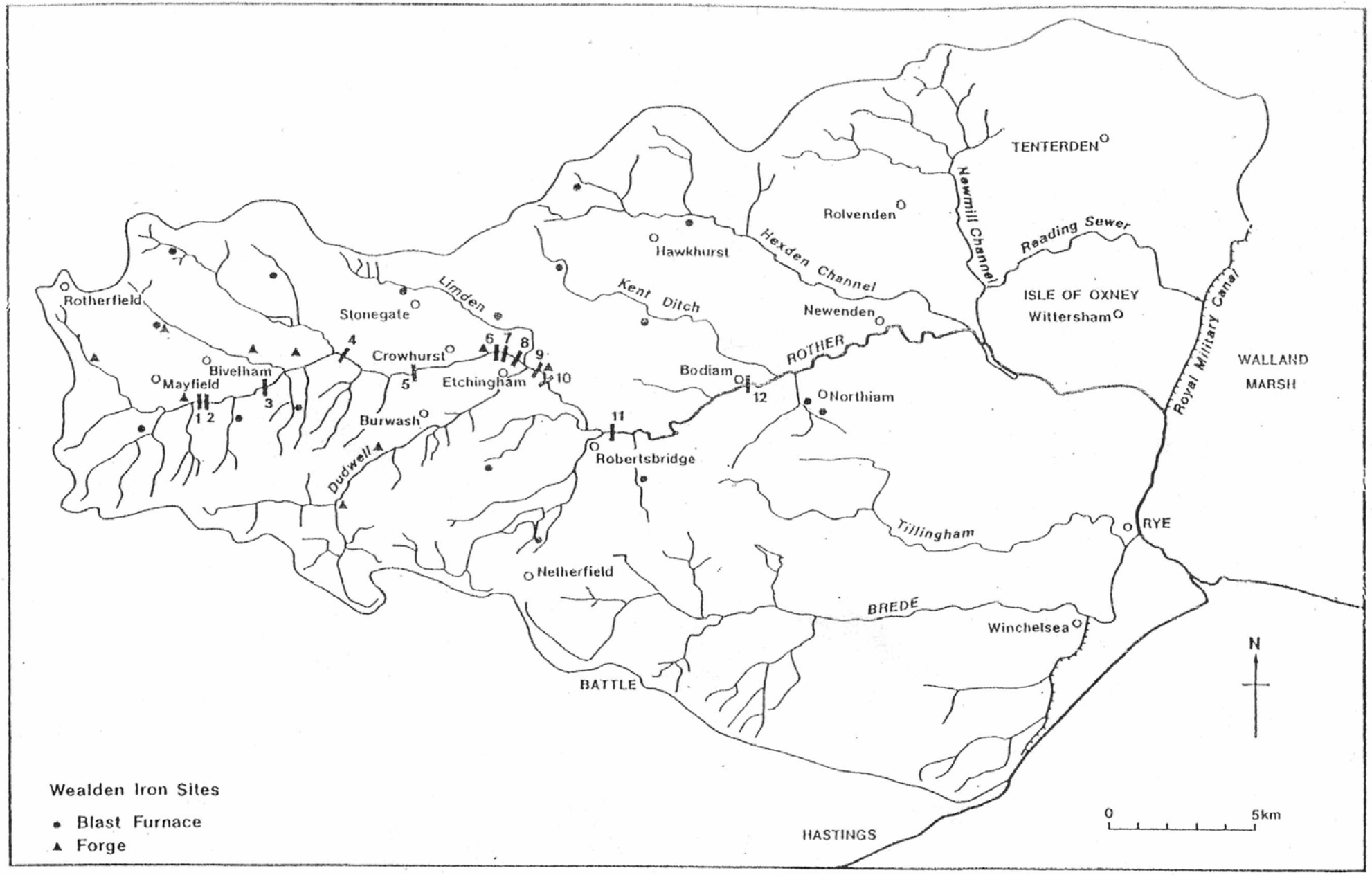
Project creators

Name of Organisation	Archaeology South East
Project brief originator	National Trust
Project director/manager	JON SYGRAVE
Project supervisor	Matt Pope
Type of sponsor/funding body	National Trust

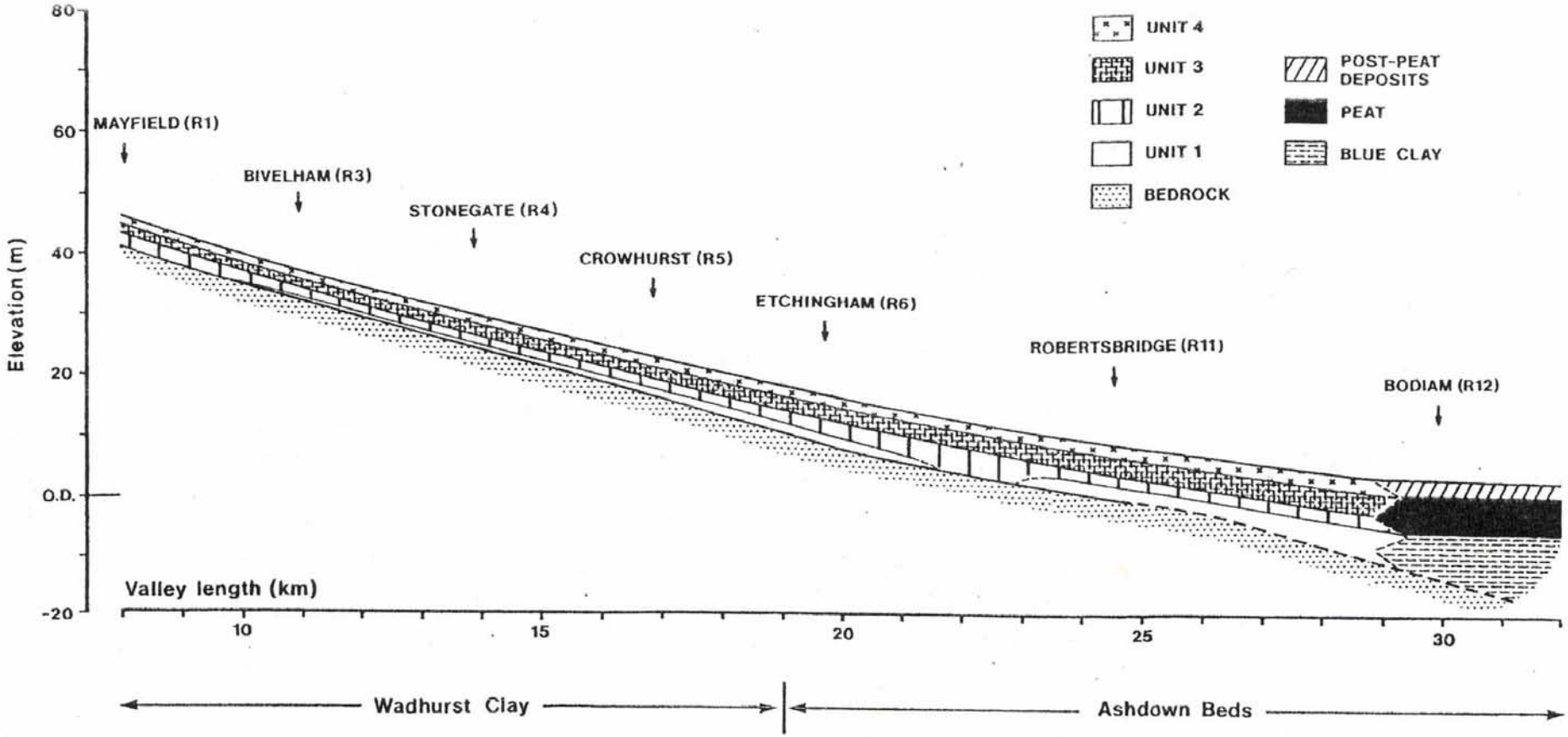
Entered by	Matt Pope (m.pope@ucl.ac.uk)
Entered on	16 January 2009



© Archaeology South-East		Bodiam, Borehole Monitoring	Fig. 1
Project Ref: 3364	January 2009	Location and Geological Map	
Report Ref: 2008245	Drawn by: DJH		

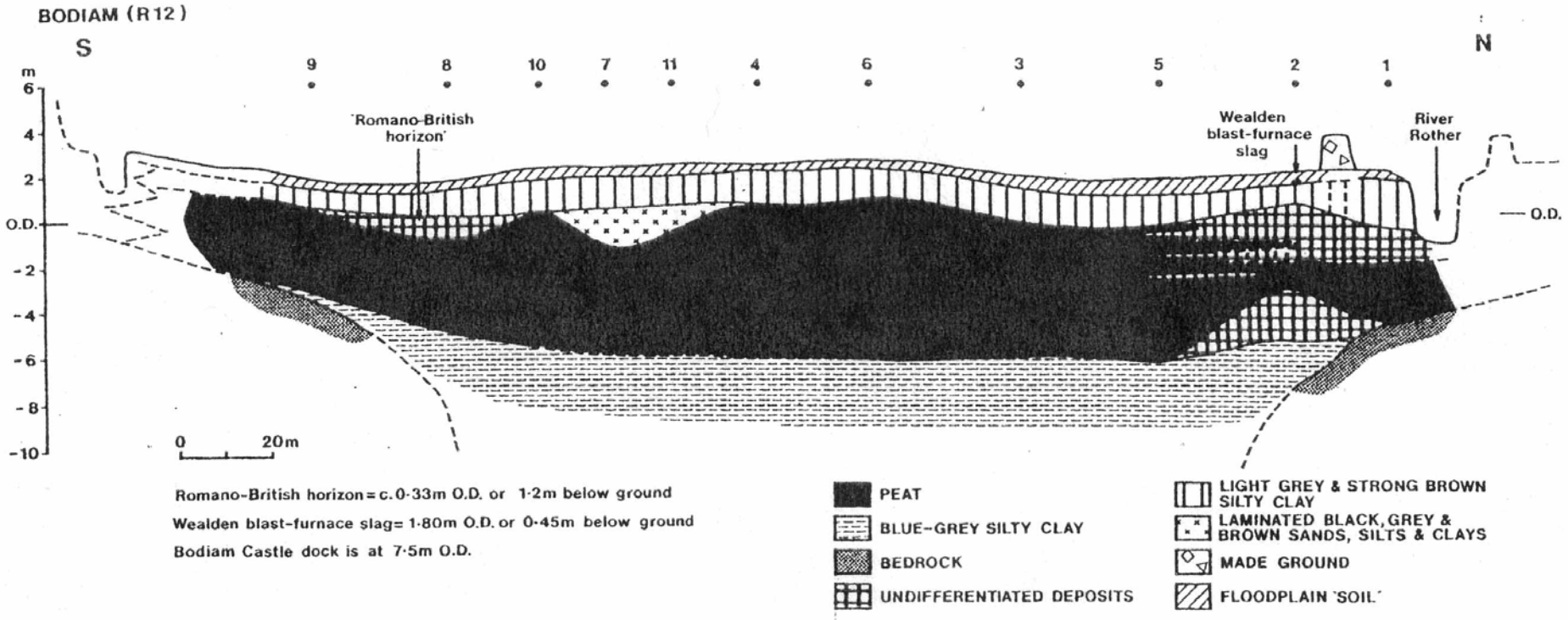


© Archaeology South-East		Bodiam, Borehole Monitoring	Fig. 2
Project Ref: 3364	January 2009	Location of Burrin's (1988) Borehole Transects	
Report Ref: 2008245	Drawn by: DJH		



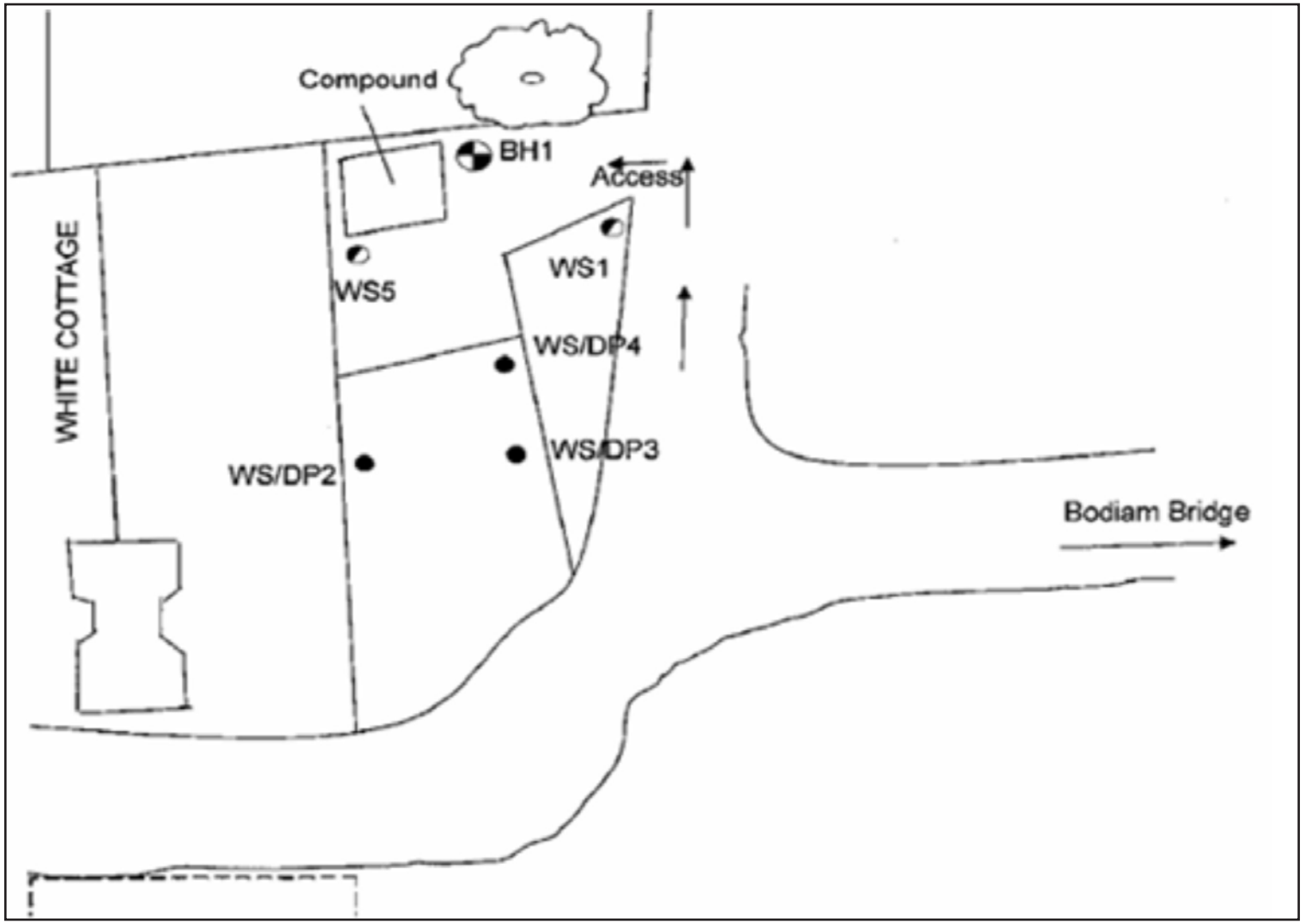
Valley fill lithostratigraphy in a downstream direction (generalised).

© Archaeology South-East		Bodiam, Borehole Monitoring	Fig. 3
Project Ref: 3364	January 2009	Long valley profile of the Rother showing change in gradient and sedimentary regime at Bodiam (From Burrin 1988)	
Report Ref: 2008245	Drawn by: DJH		



© Archaeology South-East		Bodiam, Borehole Monitoring	Fig. 4
Project Ref: 3364	January 2009	Valley cross section at Bodiam (From Burrin 1988)	
Report Ref: 2008245	Drawn by: DJH		

© Archaeology South-East		Bodiam, Borehole Monitoring	Fig. 5
Project Ref: 3364	January 2009	Window sampling rig in the Bodiam Rose Garden	
Report Ref: 2008245	Drawn by: DJH		



© Archaeology South-East		Bodiam, Borehole Monitoring	Fig. 6
Project Ref: 3364	January 2009	Locations of Window samples and Borehole (From RSA Geotechnics 2008)	
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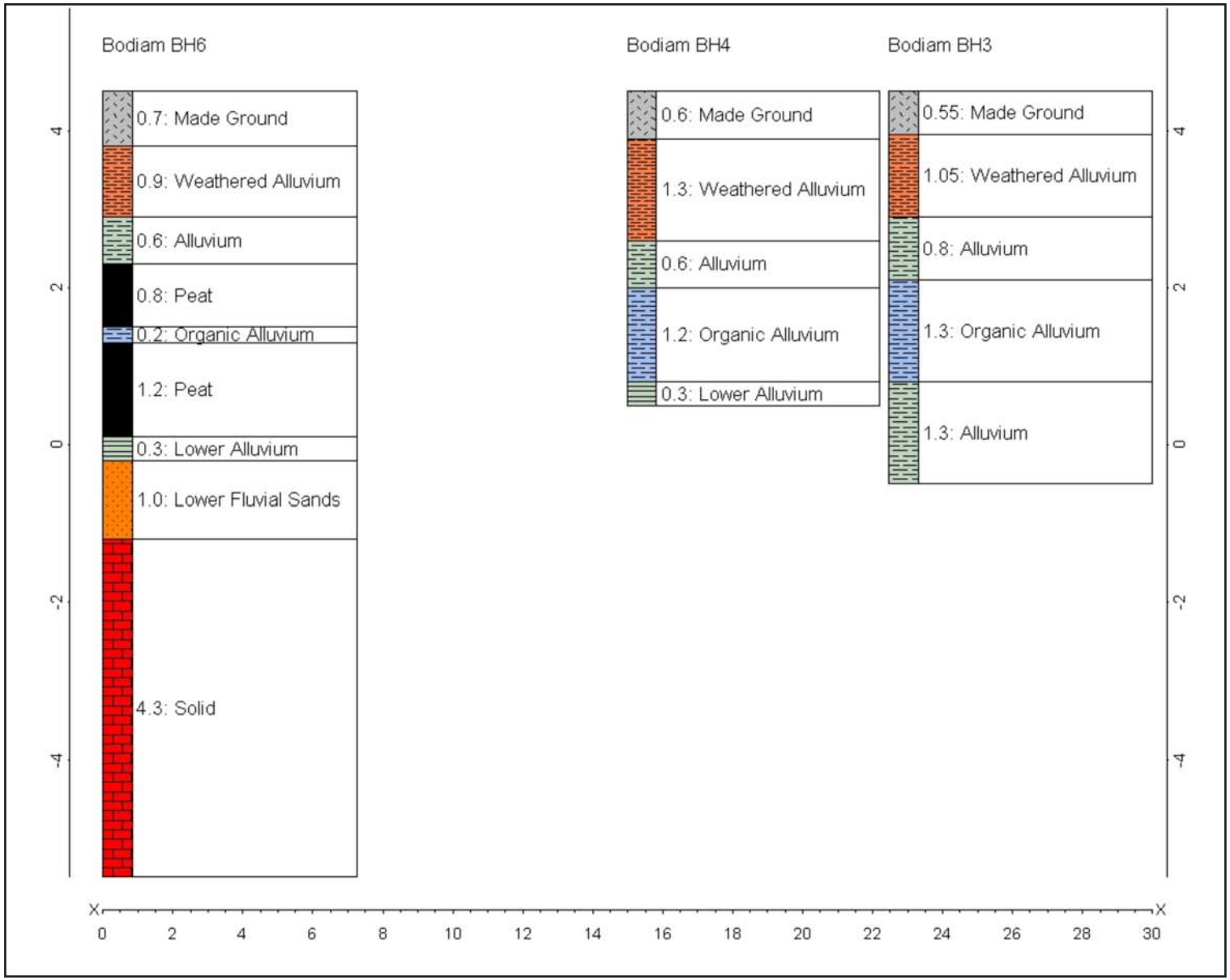

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Project Ref: 3364	January 2009	North South Log Profile for the Bodiam Rose Garden	
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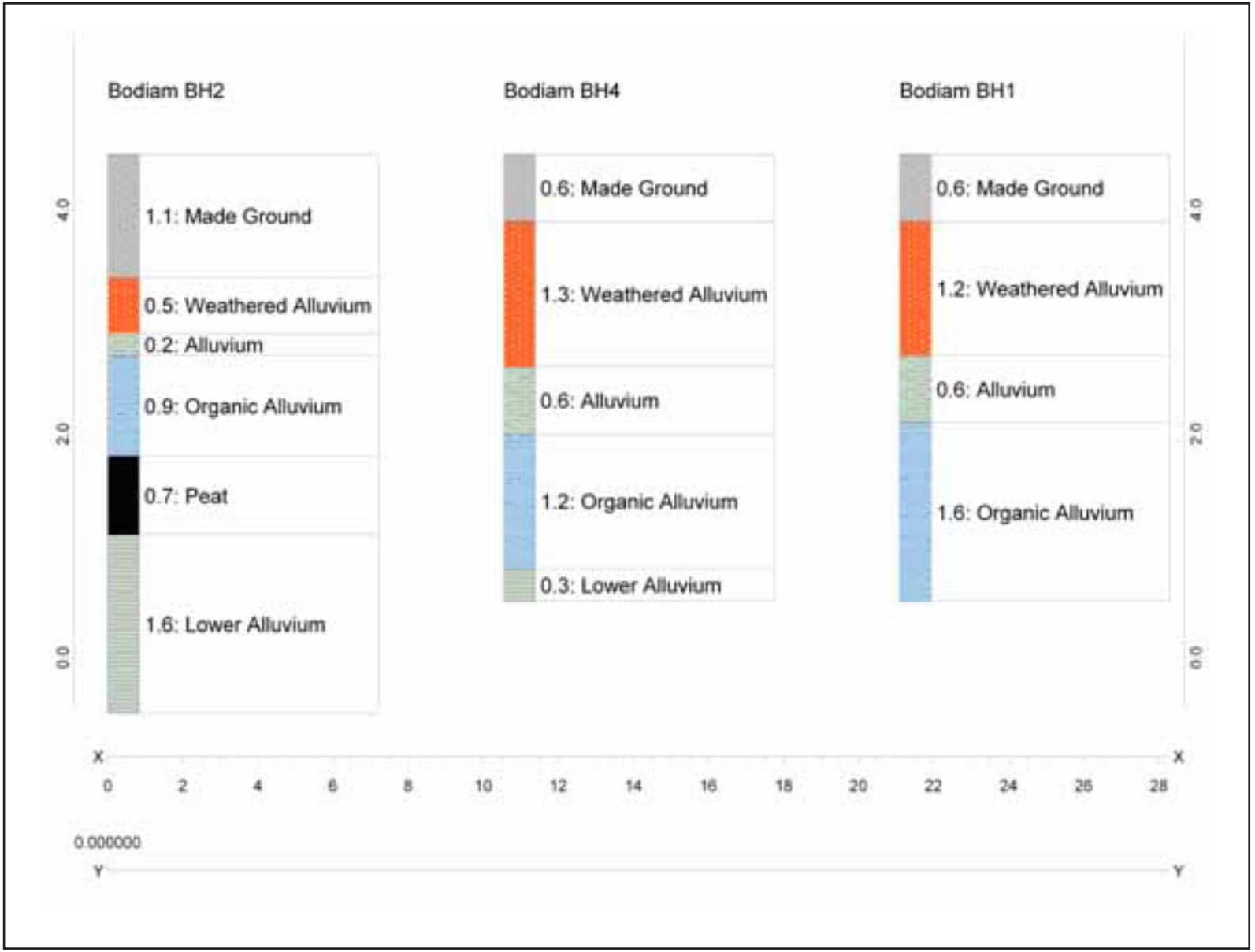

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Project Ref: 3364	January 2009	Southwest-Northeast Profile for the Bodiam Rose Garden	
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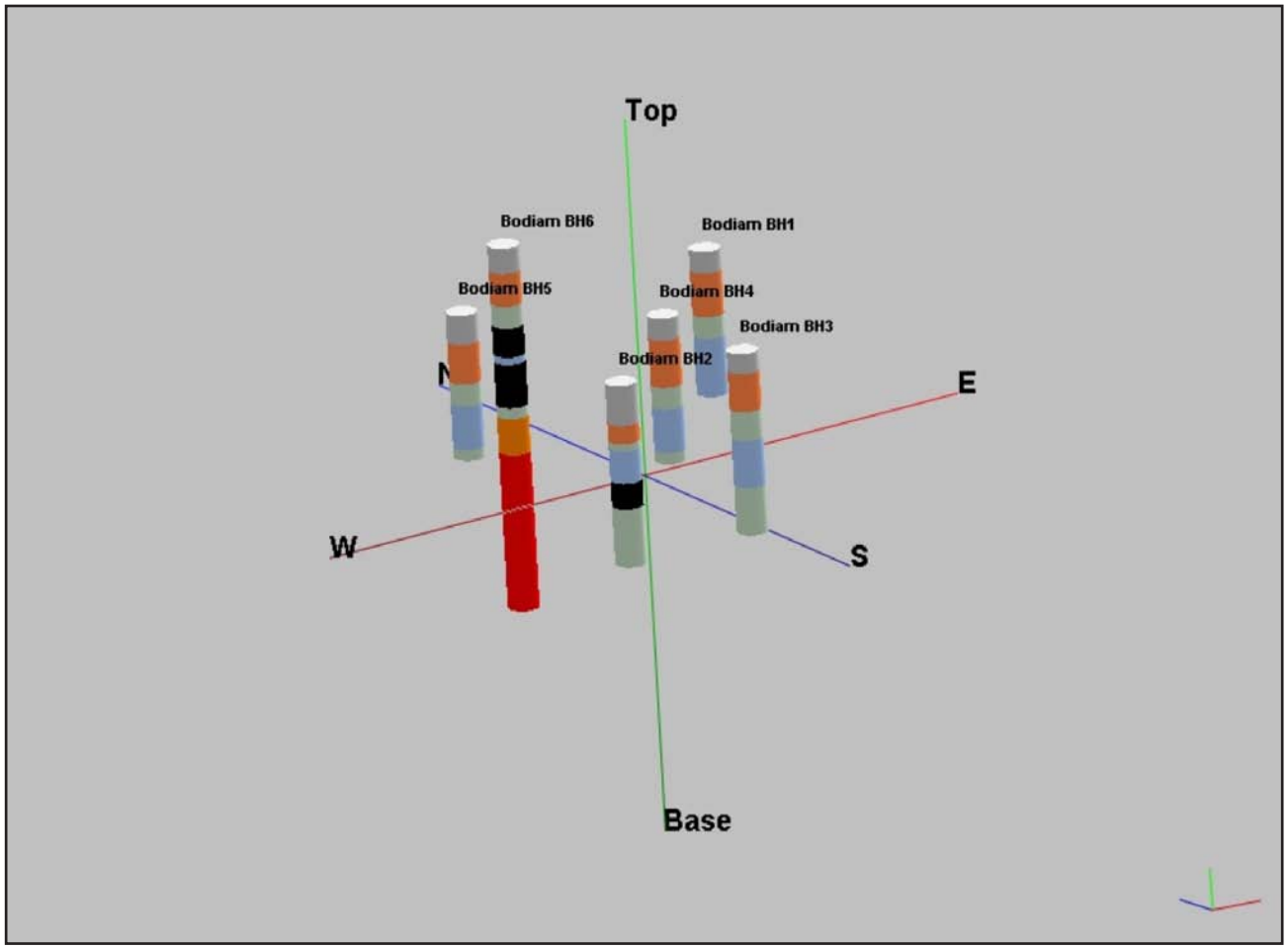

© Archaeology South-East		Bodiam, Borehole Monitoring	Fig. 9
Project Ref: 3364	January 2009	3-Dimensional log plot for the Bodiam Rose Garden	
Report Ref: 2008245	Drawn by: DJH		

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