

**A Geoarchaeological Deposit Model of The River Adur, Adur  
Tidal Walls Project, West Sussex.**

**NGR: 520651 106350 to 523359 104633  
(TQ 206 063 to 233 046)**

**ASE Project No: 170062  
Site code: ATW17**

**ASE Report No: 2017073  
Oasis id:276791**

**By Kristina Krawiec**

**March 2017**

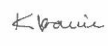
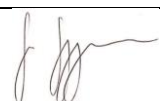
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**By Kristina Krawiec**

<b>Prepared by:</b>	Kristina Krawiec	Senior Archaeologist	
<b>Reviewed and approved by:</b>	Jon Sygrave	Project Manager	
<b>Date of Issue:</b>	15 <sup>th</sup> March 2017		
<b>Revision:</b>			

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**Abstract**

*This report presents the results of the geoarchaeological deposit modelling carried out on deposits within the floodplain of the River Adur, Adur Tidal Walls, West Sussex. The model was created using geotechnical borehole and test pit data provided by ERG. The subsequent modelling has demonstrated a thick sequence of Holocene deposits overlying potentially Pleistocene clay, sands and gravels. The lack of targeted geoarchaeological and palaeoenvironmental work within the valley makes the interpretation of the timing and nature of the evolution of the landscape difficult to ascertain with any precision. The site has the potential to yield important data relating to the Late Glacial to early Holocene periods.*

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**Oasis form**

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## **1.0 INTRODUCTION**

### **1.1 Site Background**

- 1.1.1 Archaeology South-East (ASE) were commissioned by J T Mackley & Co Ltd. on behalf of their client the Environment Agency to undertake a geoarchaeological desk based assessment and deposit model on the lower reaches of the River Adur as part of the Adur Tidal Walls Project, Shoreham-by-sea, West Sussex (NGR 520651 106350 to 523359 104633; Fig. 1).

### **1.2 Geology and Topography**

- 1.2.1 According to the British Geological Survey (BGS 2016) the valley is underlain by the Newhaven Chalk Formation which along the valley side is overlain by Head deposits. The valley floor comprises Holocene Alluvium, Tidal Flat Deposits, and along the seafront, Storm Beach deposits.
- 1.2.2 The current course of the river is constrained to the east by Shoreham-by-Sea which is protected from the river by substantial tidal walls. Despite this there are still extensive mudflats and small areas of fringing saltmarsh present in the southern end of the valley.

### **1.3 Planning Background**

- 1.3.1 A planning application was submitted to Adur District Council for the works: AWD/1614/15. After considering the application, and following advice from Mark Taylor, Senior Archaeologist, WSCC the following condition was set, in reference to archaeology:

*No development shall take place until the applicant has secured the implementation of a programme of archaeological works in accordance with a written scheme of investigation which has been submitted by the applicant and approved by the Local Planning Authority. A written record of any archaeological works undertaken shall be submitted to the Local Planning Authority within 3 months of the completion of any archaeological investigation unless an alternative timescale for submission of the report is first agreed in writing with the Local Planning Authority.*

*Reason: enable the recording of any items of historical or archaeological interest, in accordance with Local Plan policy and the requirements of paragraphs 129, 131, 132, 135, 139 and 141 of the National Planning Policy Framework 2012.*

- 1.3.2 As the scheme includes impacts below the mean high water level the Marine Management Organisation (MMO) was contacted to confirm requirements for an EIA and allowances were made in the project risk register for additional surveys that may be requested by the MMO. Rebecca Lambert, Assistant Inspector of Ancient Monuments for Kent and Sussex, Historic England, in her capacity as consultee to the MMO, supported the need for a programme of archaeological and geoarchaeological work during the scheme.
- 1.3.3 The geoarchaeological assessment and deposit model will incorporate all

available geotechnical information, as well as published and grey literature sources and BGS mapping. It will be produced by an geoarchaeologist with extensive experience of undertaking similar projects.

- 1.3.4 The reaches of the Adur impacted by the scheme (Fig. 2) will form the main study area, but data from the wider area (up to c. 1km from the scheme) will be incorporated where appropriate to do so. This will be dictated by the geomorphology and the wider Adur channel.
- 1.3.5 It should be noted that this form of non-intrusive appraisal cannot be seen to be a definitive statement on the presence or absence of archaeological/geoarchaeological remains within any area but rather as an indicator of the area's potential based on existing information. Further non-intrusive and intrusive investigations may be needed to conclusively define the presence/absence, character and quality of any archaeological/geoarchaeological remains.

#### **1.4 Research Aims and Objectives**

- 1.4.1 The general aim of the work is to better understand the geoarchaeological context and palaeoenvironmental potential of the site.
- 1.4.2 The research objectives of the project are as follows:
- To create 3 and 2 dimensional models of the sediment sequence at the site.
  - To determine if the sediments at the site have the potential to preserve palaeoenvironmental remains.
  - To provide advice to mitigate for the proposed works.

#### **1.5 Scope of Report**

- 1.5.1 This report provides images from digital 3 and 2-dimensional deposit modelling and lithological interpretation of geotechnical logs from several surveys carried out between 2010-2013.

## 2.0 BACKGROUND

### 2.1 Introduction

- 2.1.1 The formation of the river system of the South Downs has been established for at least 250,000 years with significant incision of the lower valleys occurring during the last Ice Age (Devensian) when sea levels fell by at least 100m (Robinson and Williams 1983). Offshore data has suggested that the Adur was connected to the 'Northern Palaeovalley' (30km south of Shoreham-by-Sea) prior to the breach of the Straits of Dover between c.8000 and 7500 BP (Bellamy 1995, Sturt et al 2013). This now submerged channel is infilled with coarse-grained deposits which Bellamy suggests were fluvially supplied under a periglacial regime after the Last Glacial Maximum (Bellamy 1995). Periglacial environments are characterised by sparse vegetation which can lead to mass movement and transport of coarse-grained sediments, such as those recorded in BGS boreholes, at the base of the Adur sequence.
- 2.1.2 The geomorphology of the south east of England has been broadly characterised by the Pleistocene Archaeology of the Sussex Hampshire Coastal Corridor (PASHCC) project (Bates et al 2007). The PASHCC (Bates et al 2007) landscape zones for the area indicate that the Head may have the potential to preserve buried land surfaces / palaeosols particularly where the deposits are fine-grained. In addition the Holocene alluvium may also overlie undisturbed occupation horizons. Several handaxes have been recovered from this landscape zone at Worthing and at Goring-by-Sea.
- 2.1.3 During the transition to the Holocene the sedimentation within the valley is represented by more fine-grained deposition due to increased vegetation cover during climatic amelioration. In the lower Adur these are likely to represent estuarine, saltmarsh and lagoonal sediments.
- 2.1.4 There has been relatively little investigation into the deposits within the Adur valley, mainly due to the depth and nature of the sediments. The difficulties associated with recovering deep sand-based sequences within a tidal river valley are well known. However, BGS boreholes from the lower Adur have been used to broadly characterise the sediments of the valley (Waller and Long 2010, 12). The nearshore sequence demonstrates that the chalk bedrock, lying at -23m OD, is overlain by up to 10m of coarse-grained sand and gravel which thins inland. British Geological Survey data, adjacent to the A27 and further inland at Botolphs, demonstrates a tri-partite sequence of lower silt clays replaced by fine to medium-grained sands and finally silty clay and sandy clay deposits. The alluvial silt clays within these inland locations also demonstrate an organic component which is lacking from the nearshore sequences.
- 2.1.5 The floodplain of the Adur widens out south of the A27 into what was once an embayed coastline. The exact character of the lower Adur during the early Holocene is unclear due to a lack of palaeoenvironmental investigation, however, it is likely to have been a wide estuary or inlet which may have been periodically cut off from the open sea by shingle barriers. The area would have been characterised by wide mudflats and fringing saltmarsh crisscrossed by tidal creeks. The upper silts and clays of the tripartite sequence relate to later phases of alluvial deposition occurring as a result of both anthropogenic

drainage of the floodplain, woodland clearance of the valley sides and back barrier silting.

- 2.1.6 The western side of the valley also records a spur of Head deposit and Raised Beach. This may have represented an area of higher ground located at the edge of the wetland, a classic setting for prehistoric human activity. This was confirmed in an evaluation carried out by ASE (2009) which identified a small assemblage of prehistoric flint and a shallow pit which returned a Late Neolithic age determination (SUERC-45831; 3842±34; 2459-2202 cal BC and SUERC-45832; 3929±34; 2561-2298 cal BC).
- 2.1.7 The Adur as a whole has an absence of thick *in situ* peat deposits compared to those recorded in other river valley contexts in Sussex such as the Ouse. Waller and Long (2010) suggest this and the Arun valley require further investigation to determine whether this is truly the case or whether the Holocene stratigraphies represented in these valleys is atypical (Waller and Long 2010,18). The lack of targeted geoarchaeological and palaeoenvironmental investigation of the Adur is perhaps surprising given the number of geotechnical investigations within the catchment.
- 2.1.8 It is the later evolution of the lower Adur that has been somewhat easier to understand. The progressive movement of the channel eastwards and longshore drift of shingle has led to the mouth of the river also moving eastwards, becoming frequently blocked with shingle, leading to back barrier silting. This led to the building of a new port (New Shoreham), 1km to the east in the 11<sup>th</sup> century AD (Figure 3). However, this port was prone to the same problems throughout the medieval period and by the mid-eighteenth century the river mouth and harbour entrance lay a further 6km east (Robinson and Williams 1983). An artificial cut was made through the shingle spit at Kingston in 1760 but again the shingle began to block this entrance which had to be stabilised with groynes and breakwaters.

## **2.2 Previous investigations**

- 2.2.1 Within the wider area, previous investigations include an evaluation carried out by ASE (2002) on the western side of the valley which assessed the degree of preservation of medieval salterns at the site. These features are documented from aerial photographic survey and the evaluation demonstrated a degree of truncation by agricultural activity. Despite this, dating evidence was recovered from the mounds placing the activity between the 11<sup>th</sup>-14<sup>th</sup> centuries. This activity is just one group in an extensive network of salt production sites located on the western side of the Adur valley. The production here is suggested to be seasonal in nature and largely for local consumption during the 10<sup>th</sup> to 14<sup>th</sup> centuries AD (Holden and Hudson 1981, ASE 2011). A second evaluation was carried out to the south west of the salterns site (ASE 2013) which recorded low levels of prehistoric archaeology including a rare example of Beaker activity.

- 2.2.2 In addition, a watching brief was carried out at this site in advance of a proposed development. This work demonstrated the surface of the alluvium to lie at between 1.70 to 1.30m OD (ASE 2011). A small shell midden and two rubbish pits dating to the 11<sup>th</sup>-13<sup>th</sup> centuries were recorded. Later features included a cobbled area, a field boundary and early 20<sup>th</sup> century rubbish pits.
- 2.2.3 Further to the north, at Bramber, is further evidence of salt-making also dating to the 12<sup>th</sup>-13<sup>th</sup> centuries AD (PCA 1998). The site here was further utilised into the 14<sup>th</sup>-15<sup>th</sup> centuries for the deposition of cess. These features also recorded flooding episodes demonstrating the vulnerability of the floodplain to changes in fluvial regime in the Medieval period.
- 2.2.3 As previously stated, the Adur has received little in the way of targeted palaeoenvironmental and geoarchaeological investigation. This is in part due to the difficulties related to the recovery of coarse-grained sediment within intact cores. The Arun valley has received slightly more attention with both the offshore zone characterised by the Palaeo-Arun project (Gupta et al 2009) and a sequence examined at Amberley Wild Brooks (Waller and Long 2010, 13). The offshore data demonstrated good preservation of palaeo-landforms and sediments which were subject to palaeoenvironmental analysis, OSL and radiocarbon dating. This data supported the earlier work of Bellamy (1995) and determined that the upper fluvial gravels within the system were deposited after the Last Glacial Maximum, c.6.11 to 29.6 ka (Gupta et al 2009). The analyses also demonstrated a complex Pleistocene and Early Holocene history of climatic and sea level changes relating to the evolution of the Arun Valley. It is highly likely that such evidence exists beneath the sea-floor for the Adur Valley but this has yet to be investigated.
- 2.2.4 A recent site investigation carried out by PCA Heritage Ltd at New Monks Farm involved the drilling of cable percussive boreholes, window sample holes and test pits (ASE 2016). These along with other available BGS and legacy data were used to create a deposit model of the western side of the Adur Valley. PCA heritage made the data available for this project in order to form a more nuanced model.

### **3.0 METHODOLOGY**

#### **3.1 Methodology**

3.1.1 The data for the deposit model comprised the results of several cable percussive, window sample and test pit surveys carried out between 2010-2013 were provided to ASE by ERG and J T Mackleys. In addition, the data from a previous deposit model carried out by ASE were included with the permission of the client, Andy Shelley of PCA Heritage Ltd (ASE 2016). The locations and height data of each intervention were recorded on the logs and were entered by hand into the deposit model. The borehole and test pit logs were reviewed by ASE's geoarchaeologist and the sediments were categorised into stratigraphic units to aid modelling. The breakdown of the deposits in the area modelled is as follows:

Topsoil; Landfill/made ground; Silt clay alluvium; Sandy clay alluvium; Grey alluvium; Laminated silt clay/sand; Peat; Sand; Chalky silt clay; Coarse sand; Coarse gravel; Head; Organic clay; Chalk (recovered as gravel within a sandy silt clay matrix in places).

3.1.2 The window sample and test pit logs which did not penetrate to the bedrock were not included in the model to prevent distortions in the data. However where deposits of particular interest, such as peat, some of these logs were included.

#### **3.2 Rockworks and GIS models**

3.2.1 The data was inputted into Rockworks deposit modelling software in order to produce sections and 3D and 2D diagrams demonstrating the sequence of deposits in the area (Figures 4-6). The software stores information in a database format which can be archived if required. Due to the scale of the system cross sections have been selected in order to best illustrate the complexity of deposits (Figures 6-7).

## **4.0 RESULTS**

### **4.1 Lithology**

- 4.1.1 The geotechnical logs provided for the assessment give a broad understanding of the nature of the deposits at the site. The underlying chalk bedrock was reached at -1m OD in the western part of the valley and -20.69m OD in the centre of the valley. The surface of the underlying chalk was weathered in places with chalk blocks within a slightly silty clay matrix in the western side of the valley and a chalk/flint gravel within a silt clay matrix in the eastern side of the valley (Figure 4). In some areas, this disturbed chalk was overlain by a discontinuous organic clay deposit (green layer at the base of deposits, Figure 4) which contained woody fragments and may relate to post-Glacial deposition.
- 4.1.2 This was overlain in the deepest parts of the sequence by coarse gravels which contained a sandy and silt element in places which may suggest variation in depositional regime within this otherwise higher energy deposit. The recovery of this material is likely to have been disturbed due to the coarse-grained nature of the deposit so identifying discreet horizons is not possible. This gravel is in turn overlain by a coarse sand deposit which is recorded as orange, possibly suggesting a degree of post-depositional oxidation (Figures 4 and 5).
- 4.1.2 The model shows these coarse deposits to be thickest in the eastern side of the valley. These coarse lower deposits were then overlain by a thick loose grey sand which is described as silty and laminated in places. The loose nature of this sediment is likely to have made intact recovery impossible, as is evidenced by the lack of U4 samples in the geotechnical logs. In addition the pressure from the tidally influenced water table would have liquefied these deposits during the drilling.
- 4.1.3 The model demonstrates the presence of a channel on the western side of the now infilled valley (Figure 4). This may relate to the conjectured early medieval (or earlier) course of the river. This is infilled with a complex sequence of sand, laminated silt sand and alternately sand and silty clay alluvium. This is likely to be oversimplified by the model and may represent a combination of environments including in-channel sedimentation, mudflat development, minor tidal creeks and possible saltmarsh.
- 4.1.4 The northern end of the model illustrates the complexity of the deposits further inland (Figure 5). A rare peat deposit is shown to be present, c. 1m thick overlying the higher ground (Figure 7) This deposit is especially important given the lack of such deposits from the lower valley and the potential this material has for yielding material for dating and palaeoenvironmental reconstruction. This deposit overlies a laminated silt sand clay deposit which is likely to be a tidal mudflat or estuarine deposit (Figure 6). The peat may be related to saltmarsh formation or to a period of channel migration and floodplain development.
- 4.1.5 The upper alluvial deposits recorded across the area are likely to be adversely affected by land reclamation/drainage and the stabilisation of the

main channel. This will have led to widespread oxidation of sediments which will affect the levels of preservation of palaeoenvironmental remains within these deposits.

## **4.2 Model**

- 4.2.1 The data provided has allowed these deposits to be modelled across the site. However there are several caveats when interpreting the data. The model is stretched between two data clusters to the east and west which will have an impact in how the model has interpolated the deposits across areas with no data. The window samples and test pits carried out, on the whole, did not reach the basal chalk and were not included in the model. However, where significant deposits were recorded such as peat these records were included in the model.
- 4.2.2 The solid three dimensional model illustrates the topographic variation in the chalk with the deepest deposits confined to the southern of the valley (Figures 4 and 5 and 7). The chalk is overlain by the coarse-grained sands and gravels in this area. This sand deposit then gives way to a series of silt and clay dominated alluvial deposits located to the western side of the valley (Figure 4). These deposits show the general trend for the later Holocene westward migration of the channel before its current eastwards course was established.



## **5.0 DISCUSSION AND CONCLUSIONS**

### **5.1 Summary**

- 5.1.1 The deposit modelling has allowed a broad understanding of the nature of the deposits within the Adur Valley and demonstrates the complex nature of the depositional processes at work. The eastern side of the valley is dominated by sand and gravel deposits which may relate to the earliest deposits and also storm beach gravels and shingle barrier reworking. The western side of the valley retains the remains of the former Late Holocene course of the river which is dominated by sandy silt clay alluvial deposits.

### **5.2 Discussion of depositional sequence**

- 5.2.1 The basal chalk is weathered in places, described as 'putty' or blocky within a silt clay matrix which probably dates to the Pleistocene and may have the potential to preserve palaeoenvironmental data. In places this is overlain by an olive green organic clay with woody fragments. This deposit is discontinuous but has the potential to preserve palaeoenvironmental remains, including material for radiocarbon dating. This clay is overlain by coarse sands and gravels which again are suggested to be Pleistocene. These deposits were deposited under high energy conditions and may correlate with the upper sediments recorded in the Palaeo-Arun, deposited after the last Glacial Maximum (Gupta et al 2009).
- 5.2.2 These coarser sediments are overlain by a thick deposit of sand in the eastern side of the valley which in places is recorded as laminated. This suggests a degree of variation in depositional environment which may relate to the opening and closing of offshore shingle barriers. The area is known to have been subject to continually changing coastal processes throughout the Holocene as has been recorded at other sites within West Sussex, i.e Selsey (ASE 2014).
- 5.2.3 The alluvial deposits are characterised by a sequence of sandy silt/clay deposits which are likely to be more complex than the model is able to suggest. These deposits show a clear channel in the western side of the valley (Figure 4). This channel is initially infilled by a fine sand deposit which is then overlain by silt and clay dominated alluvium. In places where the channel meanders the sediments are laminated probably demonstrating tidal deposition. To the north of the A27 and to the eastern sides of the valley this laminated deposit is overlain by a peat deposit. More specifically within Reach E3 borehole FU/WS215 recorded a thin peat unit which would present a target for future sampling.
- 5.2.4 The transition from sand-dominated to silt / clay-dominated sediments at the site probably relates to the evolution of the shingle barrier and changes in anthropogenic land-use. The clearance of the surrounding woodland in conjunction with the eastwards migration of the river mouth led to back barrier silting. The undulating surface of these deposits indicates the presence of probable tidal creeks. The uppermost alluvial deposit is likely to be oxidised due to later land drainage and canalisation of the Adur which has created an alluvial blanket across the site smoothing out any changes in topography of the

earlier deposits.

- 5.2.5 The upper made ground deposits were a combination of mixed clay and gravel deposits with occasional timber fragments recorded. These deposits have been modelled as a single unit but in reality these deposits are likely to be highly variable in date and character and relate to successive phases of land stabilisation and reclamation.

### **5.3 Surrounding landscape context: previous relevant studies**

- 5.3.1 The lack of purposive geoarchaeological investigations within the valley makes chronological landscape evolution difficult to chart. At present there are no dated palaeoenvironmental sequences from the lower Adur and the sedimentary sequence is not described in any great detail due to an absence of purposive geoarchaeological boreholes. The archaeological evaluations carried out within the valley have demonstrated both prehistoric and medieval activity located on the Head deposits and sandwiched between the alluvial deposits of the floodplain. The complex nature of the alluvial sedimentation at the site may mask archaeological deposits and artefacts both within the floodplain and at the edge of the valley.
- 5.3.2 Within the wider south east region, investigations undertaken at Broadwater, Worthing demonstrated the survival of a sequence of deposits dating to the late glacial period through to the Bronze Age (Pope et al forthcoming). The channel here became a marine inlet after post-glacial marine transgression and the area records alternating saltmarsh and freshwater wetland development. The geological mapping suggests that this channel may once have been connected to the western edge of the Adur estuary and is a comparable dataset for any palaeoenvironmental work that may be carried out at the site.
- 5.3.3 In addition, the investigations undertaken offshore on the Palaeo-Arun have demonstrated that valuable information is preserved within deeply buried sediments (Gupta et al 2009). It also demonstrates the need to integrate on and offshore datasets when considering the landscape evolution of the coastal plain.

### **5.4 Conclusions**

- 5.4.1 The deposit modelling has demonstrated that the site has the potential to contain deposits with the potential to preserve palaeoenvironmental remains. The recovery of such material will be challenging given the nature of the sediment, mainly due to the water-pressure and the sand-dominated character of the deposits. The recovery of intact sealed samples through any sand deposit would allow OSL dating of the sediments. It may also be possible to target the lower coarse sands and the basal olive green organic clay which overlies the chalk in places for the recovery of Pleistocene or Late Glacial microfossil assemblages. The upper silt/clay-dominated Holocene sediments have the potential to preserve microfossil remains which would allow landscape reconstruction although some caution is advised with reference to the complex taphonomic pathways that operate in coastal systems. The presence of a peat deposit within FU/WS215 may be of particular significance

as in situ peat is rare from the near coast area and would provide a target for radiocarbon dating.

- 5.4.2 The focus of any future purposive investigations should be on recovering good quality samples from single locations, such as F/WS215 for the peat and EB3/BH7A for the organic clay, rather than attempting long transects across the area. In addition the complex alluvial deposits at the site have the potential to not only mask archaeological deposits and artefacts but also preserve wooden archaeological remains at a variety of altitudes and this should be borne in mind when considering levels of impact for proposed development.

## BIBLIOGRAPHY

- ASE 2002. An archaeological evaluation at New Monks Farm, Lancing, West Sussex. Report no. 1296
- ASE 2011. An Archaeological Watching Brief at New Monks Farm, Lancing, West Sussex. Report no. 2011162
- ASE 2013. Archaeological evaluation and building recording report, Brighton and Hove Albion Football Club new training ground, New Monks Farm, Lancing, West Sussex. Report no. 2013067
- ASE 2014. Archaeological excavation at Medmerry Managed Realignment, Selsey, West Sussex: A post excavations assessment and updated project design. Report no. 2014268
- ASE 2016. A geoarchaeological deposit model of the river Adur, New Monks Farm, West Sussex. Report no. 2016457
- ASE 2017. Adur Tidal Walls, Shoreham-by-Sea: Scope for geoarchaeological deposit model and desk-based assessment.
- Bates, M.R, Wenban-Smith, F, Briant, R. and Bates, R. 2007. Curation of the Sussex/Hampshire coastal corridor Lower and Middle Palaeolithic Project. Aggregates Levy Project Report no. 3279 ANL.
- Bellamy, A.G.1995. Extension of the British landmass: evidence from shelf sediment bodies in the English Channel in Preece, R.C (ed), *Island Britain: a Quaternary perspective*. *Geological Society Special Publication* 96, pp 47-62.
- BGS 2016. Geology of Britain Viewer (accessed 16/11/2016).  
<http://www.bgs.ac.uk/discoveringGeology/geologyOfBritain/viewer.html?src=topNav>
- Gupta, S, Collier, J, Palmer-Felgate, A, Dickinson, J, Bushe, K and Humber, S. 2009. Submerged Palaeo-Arun River: reconstruction of prehistoric landscapes and evaluation of archaeological resource potential. English Heritage Project report.
- Historic England 2015a: *Environmental Archaeology: A guide to the theory and practice of methods, from sampling and recovery to post-excavation (second ed.)*. Historic England
- Historic England 2015b: *Geoarchaeology: Using earth sciences to understand the archaeological record*. Historic England
- Holden, E.W and Hudson, T.P. 1981. Salt-making in the Adur Valley, Sussex. *Sussex Archaeological Collections* 119, pp 117-148.
- Pope, M, Whittaker, J, Scaife, R and Peyre, L. forthcoming. Palaeoenvironmental investigations in the Teville Stream at Willowbrook Road, Worthing, West Sussex.
- Sturt, F, Garrow, D and Bradley, S. 2013. New models of North West European Holocene palaeogeography and inundation. *Journal of Archaeological Science* 40, pp

393-3976.

Waller, M and Long, A. 2010. *The Holocene coastal deposits of Sussex; a re-evaluation*, In Waller, M, Edwards, E and Barber, L. Romney Marsh: Persistence and change in a coastal lowland. Romney Marsh Research Trust.

Robinson, D.A and Williams, R.G.B.1983. Sussex: Environment, landscape and society, in Sutton, A (ed) *The Sussex Coast past and present*, pp 56-66

WSCC, ESCC & CDC, 2015. *Sussex Archaeological Standards*

### **Data Reports**

Fugro. 2010. Environment Agency Adur Tidal Walls, West Bank final report on ground investigation. Fugro Engineering Services Ltd.

Fugro. 2012. Environment Agency River Adur East Bank, factual report on ground investigation. Fugro Engineering Services Ltd.

Fugro. 2014. Environment Agency Shoreham Adur Tidal Walls, factual report on ground investigation. Fugro Engineering Services Ltd.

ASE 2016. A geoarchaeological deposit model of the river Adur, New Monks Farm, West Sussex. Report no. 2016457

### **ACKNOWLEDGEMENTS**

ASE would like to thank ESG Ltd for providing the data and Andy Shelley (PCA Heritage) for permission to use previous data and J T Mackleys for commissioning the work. The author would like to thank Justin Russell who produced the figures for this report; Jon Sygrave who project managed the process and Jim Stevenson for project managed the post-excavation.

## HER Summary

<b>HER enquiry no.</b>						
<b>Site code</b>	ATW17					
<b>Project code</b>	170062					
<b>Planning reference</b>	AWDM/1614/1					
<b>Site address</b>	Adur Tidal walls, Shoreham by sea					
<b>District/Borough</b>	West Sussex					
<b>NGR (12 figures)</b>	520651 106350 to 523359 104633					
<b>Geology</b>	Alluvium, Tidal Flat Deposits, Storm Beach Deposits, Newhaven Chalk Formation					
<b>Fieldwork type</b>	Eval	Excav	WB	HBR	Survey	<b>Other</b>
<b>Date of fieldwork</b>						
<b>Sponsor/client</b>	J T Mackleys					
<b>Project manager</b>	Jon Sygrave					
<b>Project supervisor</b>	Kristina Krawiec					
<b>Period summary</b>	Palaeolithic	Mesolithic	Neolithic	Bronze Age	Iron Age	
	Roman	Anglo-Saxon	Medieval	Post-Medieval	<b>Other</b>	
<b>Project summary (100 word max)</b>	A geoarchaeological deposit model was undertaken of the Adur valley, as part of the Adur Tidal Walls Project, Shoreham by sea. The model was created using existing geotechnical data and demonstrates the complexity of the deposits buried within the valley.					
<b>Museum/Accession No.</b>						

## Oasis record

**276791**

### Project details

Project name	a geoarchaeological deposit model, Adur Tidal Walls, West Sussex
Short description of the project	A geoarchaeological deposit model for the Adur Tidal Walls, project, West Sussex. Using data from site SI works and other sources a deposit model was created to better understand the impact of the scheme on the buried deposits of the Adur.
Project dates	Start: 10-02-2017 End: 10-02-2018
Type of project	Environmental assessment
Current Land use	Wetlands
Survey techniques	Landscape
Survey techniques	Soils

### Project location

Country	England
Site location	WEST SUSSEX ADUR SHOREHAM BY SEA Adur Tidal Walls
Site coordinates	TQ 206 063 50.843070500525 -0.286862219783 50 50 35 N 000 17 12 W Point

### Project creators

Name of Organisation	Archaeology South East
Project brief originator	Archaeology South-East
Project design originator	ASE
Project director/manager	Jon Sygrave
Project supervisor	Kristina Krawiec
Type of sponsor/funding body	Contractor
Name of sponsor/funding body	J T Mackley and co Ltd

**Project archives**

Digital Archive recipient	Marlipins
Digital Media available	"Database", "GIS", "Images raster / digital photography"

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**Project bibliography 1**

Publication type	Grey literature (unpublished document/manuscript)
Title	a geoarchaeological deposit model of the river Adur, Adur Tidal Walls project, West sussex
Author(s)/Editor(s)	Krawiec, K
Other bibliographic details	2017073
Date	2017
Issuer or publisher	ASE

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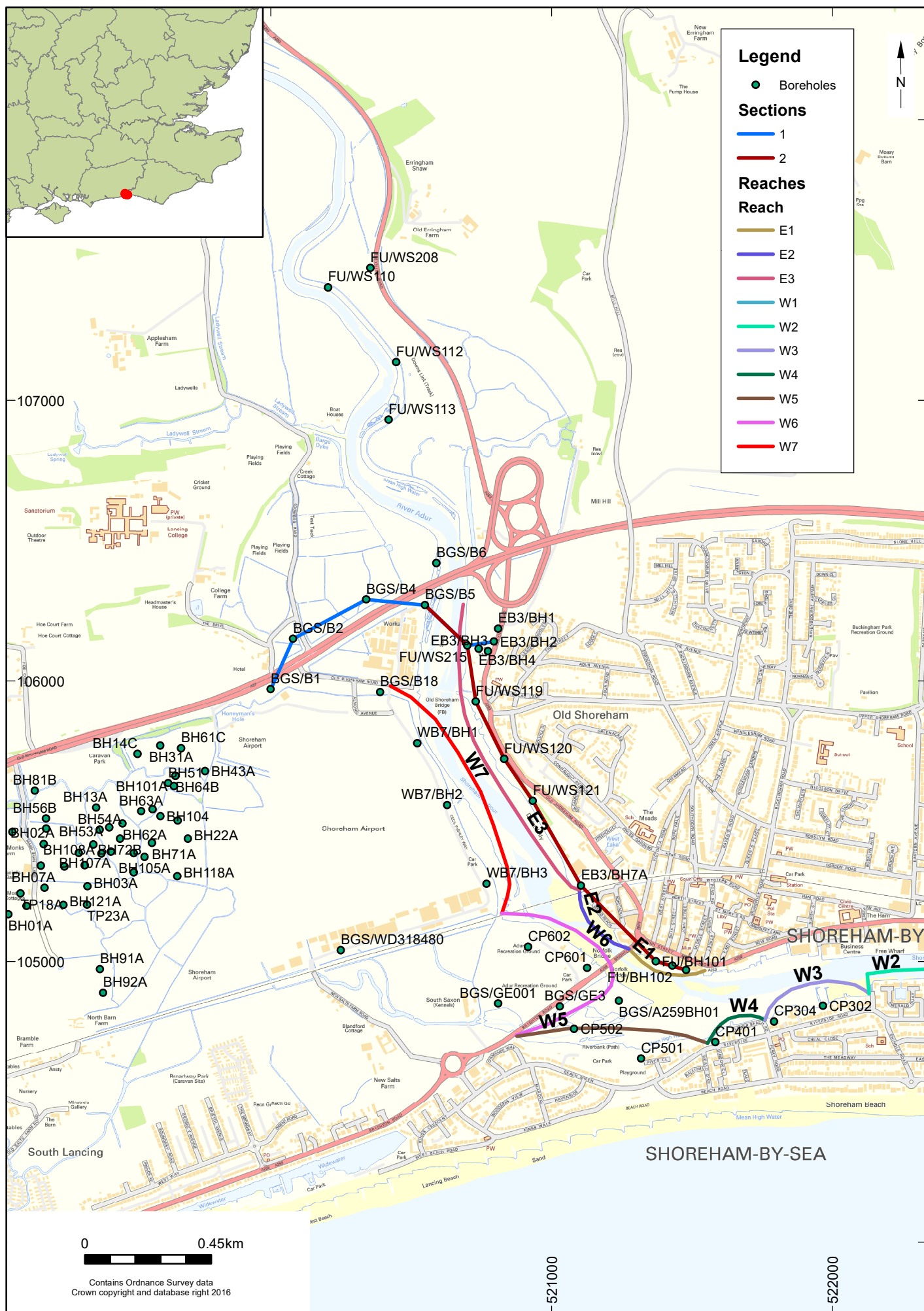
Entered by	K.KRAWIEC (k.krawiec@ucl.ac.uk)
Entered on	20 February 2017

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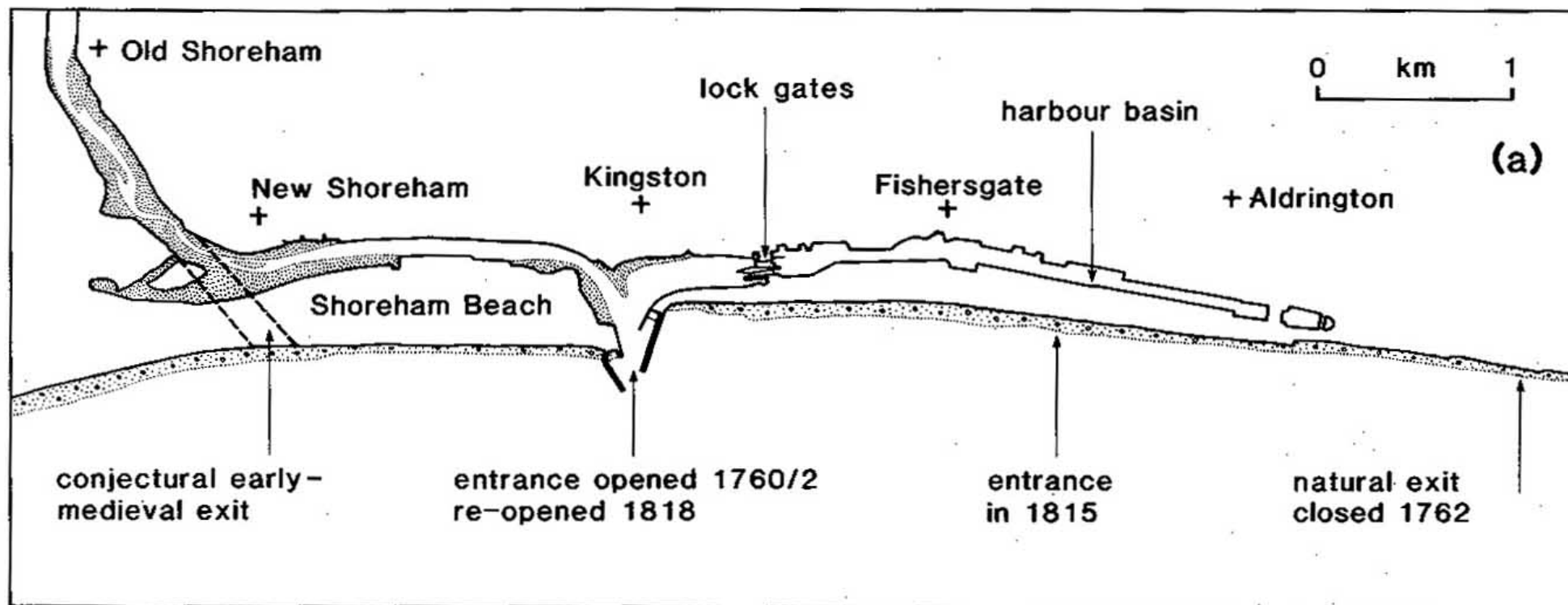




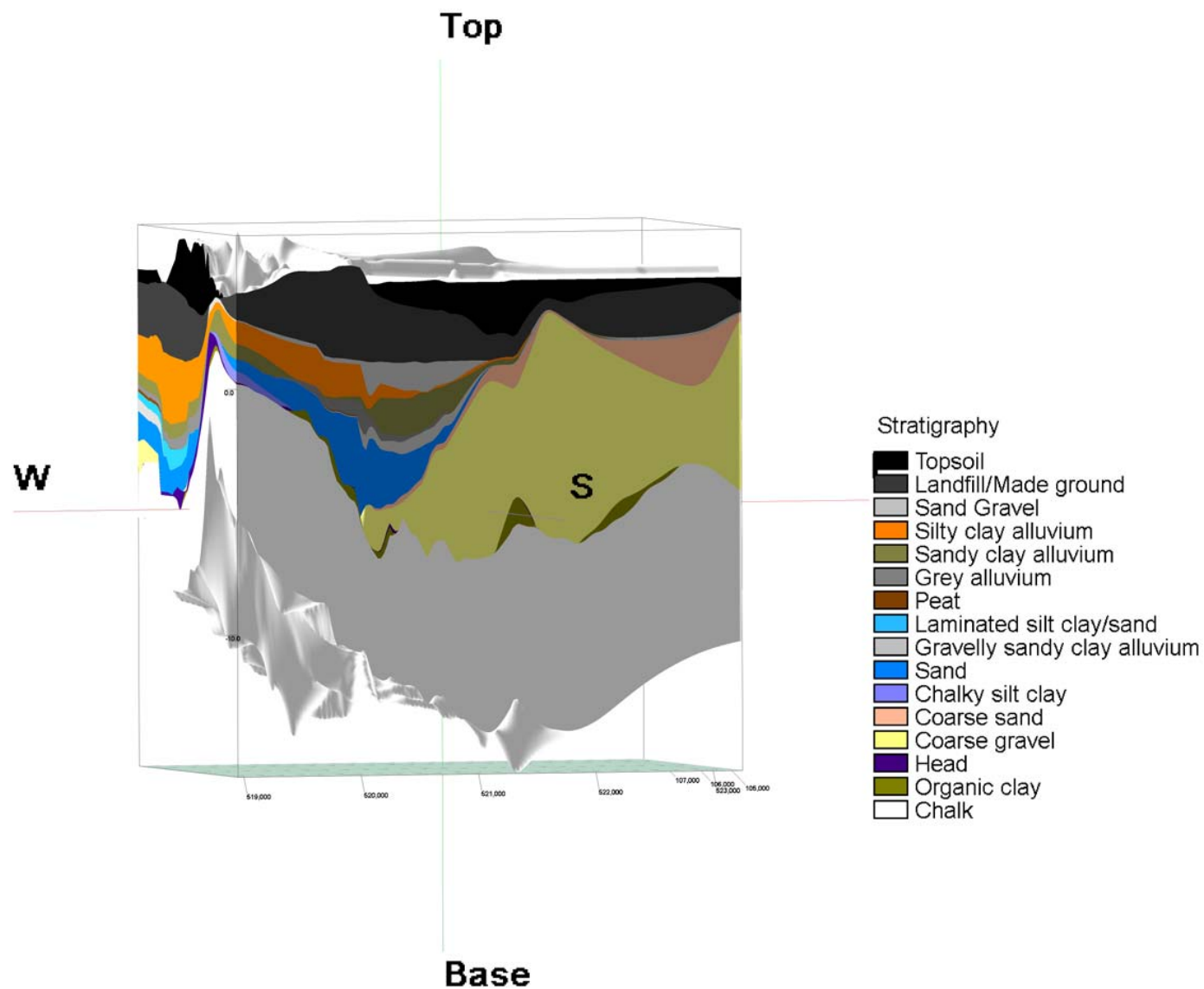
© Archaeology South-East		Adur Tidal Walls	Fig. 1
Project Ref: 170062	Feb 2017	Site location	
Report Ref: 2017073	Drawn by: JLR		

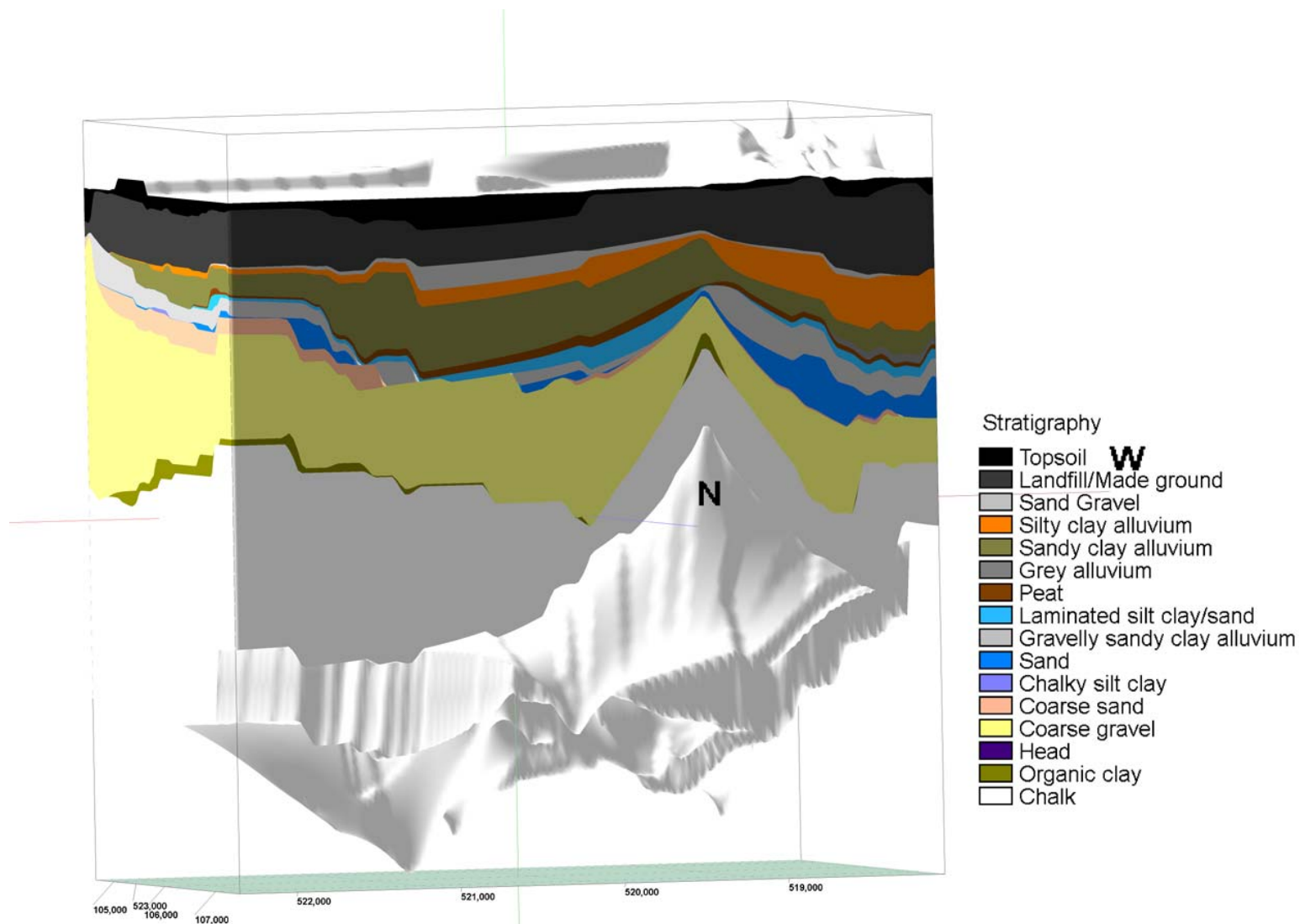


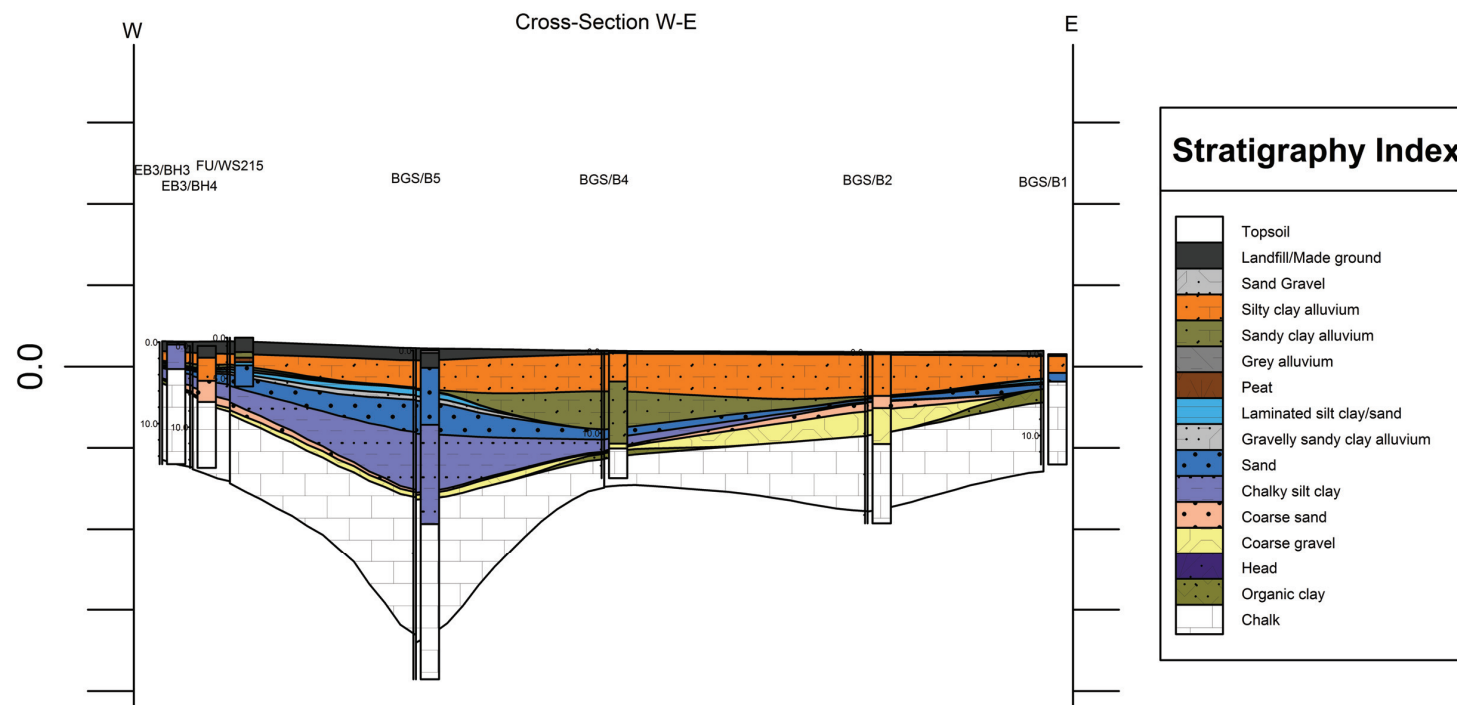
© Archaeology South-East		Adur Tidal Walls	Fig. 2
Project Ref: 170062	Feb 2017	Reaches, Borehole and Section Locations	
Report Ref: 2017073	Drawn by: JLR		

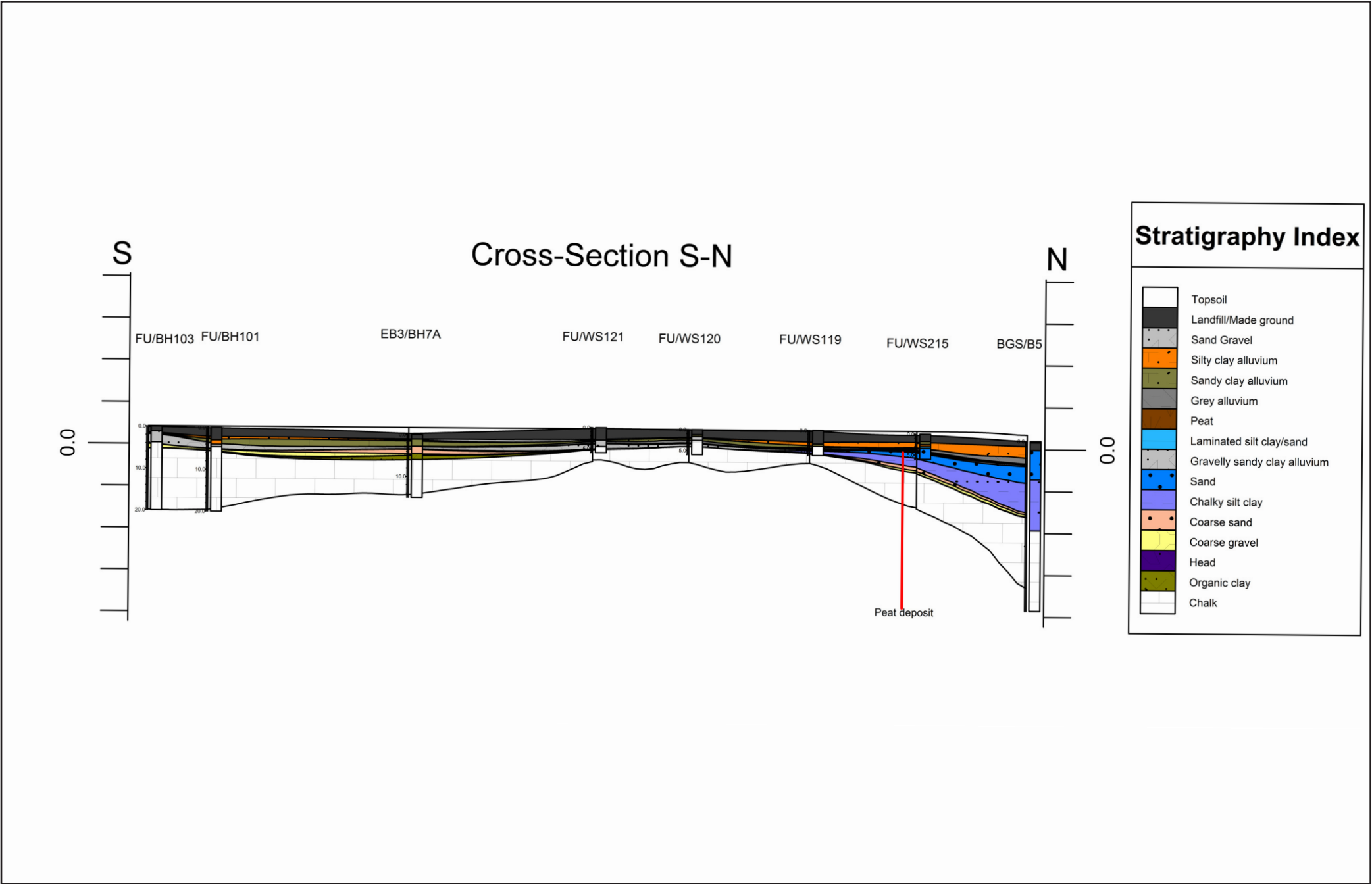












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