

**An Archaeological Watching Brief
On Land at West Wittering,
West Sussex.**

NGR SZ 7740 9828

**ASE Project No: 5174
Site Code: WWC11**

**ASE Report No: 2014040
OASIS id: archaeol6-172339**

By Greg Priestley-Bell

With contributions from

**Lucy Allott Gemma Ayton Luke Barber Trista Clifford
Anna Doherty and Karine Le Hégarat**

Illustrations by Justin Russell

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Abstract

Archaeology South-East (ASE) was commissioned by Jacobs Engineering to carry out an archaeological watching brief during groundworks associated with the construction of a seawall on Chichester Harbour at West Wittering, West Sussex. The work revealed remains from three periods: later prehistoric, Roman and post-medieval/modern. Prehistoric remains comprised scatters of worked and fire-cracked flint from the topsoil, together with a small assemblage of residual material from a Roman feature. The character of the assemblage was mixed, and suggested a predominantly Mesolithic or Neolithic origin, with a later prehistoric, perhaps Bronze Age element.

Roman remains comprised a single feature, a 'T-shaped' pit lined with stone and fired-clay. There was evidence of significant burning throughout the length of pit, but only minor burning evident within the stone-lined extension. A large quantity of fired-clay fragments including diagnostic briquetage, together with a significant quantity of Roman pottery probably dating to between AD120-250 was recovered from the fill. This structure was almost certainly a boiling pit (perhaps clay-lined) associated with salt-working.

Post-medieval/ modern remains comprised a mixed assemblage of finds from the topsoil, including WWII shell fragments, modern cartridge cases and a lead bullet and iron fragments.

A walkover survey of the site and Historic Building Recording on a sluice were also undertaken as part of the project.

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1.0 INTRODUCTION

1.1 Site Background

1.1.1 Archaeology South-East (ASE), the contracting division of the Centre for Applied Archaeology (CAA), Institute of Archaeology (IoA), University College London (UCL) was commissioned by Jacobs Engineering, on behalf of their client the Environment Agency, to carry out an Historic Environment Assessment and an archaeological watching brief during groundworks associated with the construction of a seawall on Chichester Harbour at West Wittering, West Sussex (NGR 477400 998280; Figure 1).

1.1.2 The former flood defence at West Wittering comprised a raised bund defence along the shoreline with a sluice at the mouth of the creek to Chichester Harbour. Flood defence improvements, undertaken as part of this scheme, included raising the level of the protective bund and reinforcing the sluice protection.

1.2 Geology and Topography

1.2.1 The site is located on Selsey Bill, a low lying peninsular comprised of relatively flat land dissected by infilled estuarine channels (harbours) and protected from erosion by artificially maintained shingle barriers. The site lies to the east and northeast of a sand spit projecting into Chichester Harbour known as East Head which protects the site from the prevailing strong south westerly tides. The East Head Spit is itself a rapidly changing and fragile landform.

1.2.2 The British Geological Survey (BGS) indicates that the site lies in an area of superficial Brickearth cover with localised outcrops of marine gravel. These gravel outcrops most probably relate to Holocene storm beaches although there are also possible outcrops of the Pleistocene Pagham Beach at the site. The site is underlain by a Tertiary Bedrock solid geology. Poorly mapped, but present within the area, are a series of infilled and partially active Holocene intertidal creeks. At a depth below marine deposits dating to both the Pleistocene and Holocene are older interglacial channels (Donnelly, 2011).

1.3 Planning Background

1.3.1 The site lies within an area of known archaeological potential and it was therefore recommended by the Archaeology Officer for Chichester District Council (CDC) that an archaeological monitoring exercise be undertaken as a condition of planning consent.

1.4 Aims and Objectives

1.4.1 The general aim of the archaeological investigation was to identify and record:

- The character, extent and state of survival of significant archaeological remains within the site;

1.4.2 The specific objectives of the investigation were, as highlighted by the Archaeology Officer for CDC:

- To examine the potential for the survival of a medieval tidal mill at the location of the proposed flood defence;

- To examine the potential for the survival of a wide variety of archaeological deposits along the proposed route of the access road

1.5 Scope of Report

- 1.5.1 This report details the findings of an archaeological watching brief undertaken by Greg Priestley-Bell (Senior Archaeologist), Chris Russel, Becky Peacock, Nick Garland and Gary Webster (Archaeologists) between the 20th September 2011 – 19th October 2011. The project was managed by Jon Sygrave (Project Manager) and Jim Stevenson (Project Manager, Post-Excavation).
- 1.5.2 Appendix 1: a report of a walkover survey carried out as part of a Historic Landscape Assessment on 8th and 9th March 2012 by Richard James (Senior Archaeologist); Appendix 2: report on site visits made as part of Historic Building Recording on 24th April 2012 and 8th June 2012 by Maggie Henderson (Historic Buildings Archaeologist).

2.0 ARCHAEOLOGICAL BACKGROUND

2.1 The Desk Based Assessment

2.1.1 A Desk-Based Assessment (DBA) was commissioned by Jacobs Engineering, on behalf of the Environment Agency, and produced by Ove Arup & Partners Ltd (2011). The DBA covers an area within a 3k radius of NGR SZ 7740 9828, the centre of the site. A summary of the key aspects of the DBA is given below with due acknowledgement.

2.3 Palaeolithic

2.3.1 A number of Palaeolithic artefacts have been recovered from the area. A Palaeolithic handaxe and flint flakes were found on the foreshore at West Wittering, approximately 600m to the north of the site and a flint Acheulian handaxe was found on West Wittering beach approximately 1km to the south.

2.4 Mesolithic

2.4.1 There are no recorded Mesolithic finds from the study area.

2.5 Neolithic

2.5.1 There are a large number of surface finds and sites related to the Neolithic period in the vicinity. These include finds of fire cracked flints, waste flakes, blades, scrapers and hammerstones along the present day shoreline. Additional Neolithic evidence in the area includes finds of a flint scraper and borer, a Cissbury type axe found on the beach, an unfinished flint arrowhead and two polished flint axes.

2.6 Bronze Age

2.6.1 Some human activity in the area during the Bronze Age is indicated by a bronze implement recovered from the West Wittering allotments and a Bronze Age gold penannular ring which was found at Bracklesham Bay.

2.7 Iron Age

2.7.1 Iron Age finds from the vicinity are mainly coins, with a gold coin of Verica found on the West Strand, approximately 200 early British coins found to the south of Cakeham and large numbers of Iron Age coins found on the shore south of East Wittering village.

2.8 Roman

2.8.1 There are a number of Roman related sites and artefacts in close proximity to the site. Of note is a possible Roman Road which may have run from Birdham to West Wittering and is supported by field name evidence. Roman coins and pottery fragments have been recovered to the north east of West Wittering while a Roman coin was recovered near Cakeham Tower. Additional Roman coins were found on West Wittering beach and Roman pottery and coins have been found in various locations at East Wittering.

2.9 Anglo Saxon/Early Medieval

- 2.9.1 The settlement of West Wittering was in existence by AD 683 when it formed part of the endowment granted by Caedwalla King of Wessex to Wilfred the Bishop of York to form the Manhood for the Bishops of Chichester. A Monasterium was founded at West Wittering in AD 740, possibly on the site of the rebuilt Parish Church of St Peter and St Paul. Saxon artefacts recovered from the area include gold objects, some of which may be in the form of torcs, and material from near Cakeham Manor.
- 2.9.2 The nearest Scheduled Monument to the site is at Cakeham Manor, which is also a Grade II* listed building. The earliest sections of the listed building date from the early 12th century while an associated deer park located to the north is mentioned in 1235. Remains of a medieval square moat are also visible at the site of the Grade II listed Redlands Farmhouse to the north of West Wittering.

2.10 Post-medieval and cartographic evidence

- 2.10.1 A possible tidal mill and mill pond are shown on the site on a coastal survey map (the "Armada Map") of 1587. The mill building is shown at the mouth of the tidal mill pond and labelled Wittering Mille, while the mill pond is shown stretching to the east where the church is also shown and labelled West Wittering.
- 2.10.2 Very little development is shown on Budgen's 1724 map and Yeakall and Gardner's detailed 1778 map again also shows a largely rural area. West Wittering is labelled as a small collection of buildings set amongst fields. Remains of a post-medieval brick kiln have been observed on the foreshore to the north of the site although it is not indicated on any historic mapping and most likely dates to the 18th century.
- 2.10.3 The 1846 Tithe Map of West Wittering Parish illustrates field boundaries and coastal paths similar to the present day. The site lies within Field 534, which is described in the tithe apportionment as being "the Slipe". Slipe is a local term meaning a boggy semi-tidal pasture land. This illustrates the nature of the site in the mid-19th century and also implies some form of flood defences were already in place to create semi-tidal conditions. Coastguard Lane and buildings on Snow Hill are detailed on this map, along with the watercourse of Snow Creek and the drains running north to south into the creek.
- 2.10.4 Sheringham's 1848 map indicates the areas of boggy flooded land, such as the site, in contrast to the arable or pastureland drawn as neatly hatched, such as the fields to the south of the site. The area remains mainly unchanged on the first edition 1875 Ordnance Survey (OS) map. The buildings to the north of the site area are now labelled as the Coastguard Station and the area north of site is labelled as Snow Hill. A large area beyond the sluice in Chichester Harbour is labelled as Old Oyster Beds.
- 2.10.5 The second edition 1898 OS map continues to the watercourse between West Wittering and the sluice as remaining unchanged. Snow Hill is now labelled as Snore Hill while the Coastguard Station and Old Oyster Beds continued to be marked in the same positions as shown on earlier mapping.
- 2.10.6 The settlement of West Wittering remained small at the beginning of the twentieth century. The third edition 1911 OS map again shows the extent of the watercourse between West Wittering and the sluice as unchanged. The 1933 OS map begins to

show some expansion of the village although the site itself remains unchanged. The site area is now labelled as 'Liable to Floods'

3.0 ARCHAEOLOGICAL METHODOLOGY

3.1 Monitored Areas

- 3.1.1 The areas monitored during the watching brief were the machine stripping of the site compound and secondary site compound, and machine stripping of the haul road.
- 3.1.2 A metal detector survey was carried out during the monitoring of the main site compound.

3.2 Fieldwork Methodology

- 3.2.1 Ground works undertaken by engineering contractors were monitored by an archaeologist until it became clear that no archaeological remains were present. Usually, this was once machine excavation reached undisturbed natural geology. Any machine used for removal of material above undisturbed natural subsoil was fitted with a toothless bucket.
- 3.2.2 Where new excavations revealed significant archaeological remains, the contractors allowed sufficient time for careful hand excavation and the collection of samples by the archaeologist in attendance. The District Archaeologist was kept informed of progress so that he had the opportunity to monitor the archaeological work or inform the Local Planning Authority (LPA) of developments as appropriate.
- 3.2.3 All encountered archaeological deposits, features and finds were recorded according to accepted professional standards in accordance with the approved ASE Written Scheme of Investigation using pro-forma context record sheets.
- 3.2.4 A full photographic record of the archaeological deposits and features was kept (including monochrome prints, colour slides and digital), and will form part of the site archive.
- 3.2.5 The spoil from the excavations was inspected by archaeologists to recover artefacts or ecofacts of archaeological interest.

3.3 The Site Archive

- 3.3.1 The site archive is currently held at the offices of ASE. The contents of the archive are tabulated below (Table 1). The archive will be offered to Chichester Museum in due course.

Number of Contexts	13
No. of files/paper record	1 file
Plan and sections sheets	1
Bulk Samples	4
Photographs	6 B+W, 6 CS, 52 Digital

Table 1: Quantification of site archive

4.0 RESULTS

4.1 Main Site Compound

4.1.1 The following contexts were recorded during the Main Site Compound monitoring:

Area	Context	Type	Description	Max. Length m	Max. Width m	Deposit Thickness m
Main site compound	001	Layer	Topsoil			0.10 – 0.15
	002	Layer	Subsoil			0.05 – 0.10
	003	Deposit	Top of natural			n/a
	004	Cut	Pit	3.3	1.0	
	005	Fill	Of central 004			0.50
	006	Fill	Of western 004			
	007	Fill	Of 013			0.40
	008	Fill	Of eastern 004			
	009	Fill	Of 004			
	012	Masonry	wall			
	013	Cut	Culvert replacement	1.0	0.50	

Table 2: List of recorded contexts from the Main Site Compound

4.1.2 The machine stripping of the main site compound revealed a simple stratigraphic sequence of natural brickearth, overlain by 0.05-0.10m of subsoil, overlain by 0.10-0.15m of topsoil.

4.1.3 The topsoil [001] produced a worked flint and a significant quantity of fire-cracked flint (Scatter A). No associated features were identified at any of the worked flint/fire-cracked flint find spots

4.1.4 A 'T-shaped' pit [004]/[013] measured c. 3.3m long, c. 1m wide and c. 500mm deep. Cut [004], the 3.3m long section, was lined with stone and fired-clay and contained a fill [004]/[006]/[008] of mid greyish brown very silty sand with 30% gravel, while the eastward stone-lined extension [013] measured c. 1m long, c. 500mm wide and c. 400mm deep and also contained a fill [007] of mid greyish brown very silty sand with 30% gravel.

4.1.5 Pit [004] was subdivided by a dry stone partition [012] close to its western end that contained a very silty sand fill [006] identical to fills [007] and [008] but with frequent fragments of fired clay. There was evidence of significant burning throughout the length of pit [004], but only minor burning evident within the stone-lined extension [013]. The fills ([005], [006], [007], [008] and [009]) of the three elements produced a large quantity of fired-clay fragments, together with a significant quantity of Roman pottery probably dating to between AD120-250.

4.1.6 A metal detector survey produced a variety of probably modern material, including WWII shell fragments, modern cartridge cases and a lead bullet and iron fragments.

4.2 Haul Road

4.2.1 The following contexts were recorded during the Haul Road monitoring:

Area	Context	Type	Description	Max. Length m	Max. Width m	Deposit Thickness m
Haul Road	001	Layer	Topsoil			0.10 – 0.15

Table 3: List of recorded contexts from the Haul Road monitoring

4.2.2 Only a shallow topsoil strip (to a depth of 0.15m below the ground surface) was undertaken during the Haul Road excavations. Consequently, no archaeological features or deposits were exposed

4.2.3 A small amount of struck and burnt flint was collected from the topsoil (Scatter B, Figure 2). No associated features were identified.

4.2.4 In the field to the west, through which the haul road passes, aerial photographs show what appears to be a small coaxial field system comprising several ESE-WNW orientated linear crop marks and a few short returns. In some cases, low linear earthworks, corresponding to the crop marks, are visible on the ground. However, due to the shallowness of the haul road topsoil strip in this area and the very low level of disturbance no archaeological excavation was carried out.

4.3 Secondary Site Compound

4.3.1 The following contexts were recorded during the Secondary Site Compound monitoring:

Area	Context	Type	Description	Max. Length m	Max. Width m	Deposit Thickness m
Secondary Site Compound	001	Layer	Topsoil			0.10 – 0.15

Table 4: List of recorded contexts from the Secondary Site Compound monitoring

4.3.2 No archaeological features, deposits or finds were recovered during monitoring of the Secondary site Compound.

5.0 THE FINDS

5.1 Summary

- 5.1.1 A moderate assemblage of finds was recovered during the excavations at Wittering. An overview is shown in Table 5 below. Finds were washed and air dried as appropriate to the material requirements and packaged according to IFA guidelines. None required conservation.

Context	Pottery	wt (g)	CBM	wt (g)	Bone	wt (g)	Flint	wt (g)	FCF	wt (g)	Stone	wt (g)	Fe	wt (g)	F Clay	wt (g)	Pb	Wt (g)
01			5	120			10	72	53	270			1	66	31	980	7	110
01 clay stone area							15	372										
01 clay stone SE area							12	162	9	92								
01 Haul Road ch260-300							9	244	14	212								
01 Haul Road SOP14							2	24										
01 Turning area			1	14			14	270	5	116	1	410						
02 or 03							5	58										
03	1	10																
05	18	322			1	<2	21	174	36	976	6	2686			30	706		
05 or 09									42	670								
06	47	650					1	30							48	1110		
07	5	80					2	26										
08	23	506					4	24							21	1610		
09					10	4									28	1810		
Total	94	1568	6	134	11	4	95	1456	159	2336	7	3096	1	66	158	6216	7	110

Table 5: Finds quantification

5.2 Worked Flint by Karine Le Hégarat

5.2.1 Introduction

A total of 68 pieces of struck flint weighing 837g and 159 fragments (2336g) of burnt unworked flint were recovered from the excavation work at West Wittering. The worked flint came mostly from topsoil and subsoil / top of natural deposits (67.6% of the total assemblage, n=46). The remaining 22 pieces were retrieved from a Roman feature (contexts [04] and [13]) and are therefore residual. The assemblage falls into two groups. Identifiable forms are uncommon but mostly Mesolithic / Early Neolithic in date. The rest of the assemblage consists of pieces of flint débitage which are characteristic of later prehistory.

5.2.2 Methodology

The pieces of struck flint were individually examined and classified using standard set of codes and morphological descriptions (Butler 2005 and Inizan *et al.* 1999). Basic technological details as well as further information regarding the condition of the artefacts were recorded. Dating was attempted when possible. All data have been entered onto a Microsoft Excel spreadsheet, and it is summarised by context types and artefact types in Table 6.

	Flakes*	Blade-like flakes and blades**	Cores	Retouched forms	Total	
Topsoil (01) and subsoil / top of natural (02/03)	32	8	4	2	46	
Roman T-shaped feature (04) and stone-lined extension (13)	19	3	-	-	22	
Total	51	11	4	2	68	

Table 6: Summary of the struck flint by context and category type (* includes core preparation flake, ** includes core preparation blade)

5.2.3 Condition and raw material

Overall the condition of the flintwork was poor. A large proportion of the artefacts display heavy post-depositional edge damage, implying some significant degree of post-depositional disturbance. The flintwork represents mostly surface material and material re-deposited in later contexts, and therefore the poor condition is not surprising. The raw material selected for the production of the lithics is characterised by a light grey or brown to dark grey flint. The outer surface, when present, is mostly eroded to a thin light brown surface. Inclusions are occasionally recorded; however, the raw material appears to be of a relatively good flaking quality. Although local gravel deposits would have been readily available on and around the site, it seems that the flint was actually acquired from tertiary superficial deposits.

5.2.4 Provenance

In total, 22 pieces of worked flint came from a Roman feature. A further four pieces came from the subsoil / top of natural (context [02/03]), and 42 pieces came from three low-density surface scatters. The latter small concentrations contained artefacts from a range of periods. Overall, the material appears chronologically mixed, and therefore the results are presented together.

5.2.5 Results

The assemblage comprises 51 unmodified pieces of flint débitage (including 33 flakes), four cores and two retouched pieces. The material falls into two groups. The majority of the cores and several flakes, blade and blade-like flakes are Mesolithic / early Neolithic in date. These artefacts represent a small percentage of the entire assemblage and are spread over the investigated area. Knapping activity at the site is suggested by a core face / edge rejuvenation blade and a trimming flake from subsoil / top of natural context [02 / 03], a rejuvenation flake tablet which came from a core used to remove bladelets (topsoil deposit [01]), a multiplatform core, a single platform blade core and a fragmentary blade core both from topsoil deposit [01]. The latter two cores are exhausted and are typical bladelet cores. In addition, a notched piece was recovered from context [01]. Although the tool is undiagnostic, it was made on a blade which suggests a Mesolithic / early Neolithic date.

The remainder of the assemblage consists of flakes, a fragmentary core and a piercer. None of these artefacts are chronologically diagnostic, but based on technological grounds, they are mostly later in date. The flakes are mainly irregular and crudely made. They display plain platforms with no preparation, incipient cones of percussion and prominent bulbs of percussion, characteristics which indicate a reduction strategy typical of late prehistory.

5.2.6 Discussion

The flintwork from West Wittering is clearly chronologically mixed and has been deposited over a long period of time. It originates mostly from disturbed surface deposits, with a smaller residual element coming from Roman contexts. The assemblage of flintwork has provided evidence for Mesolithic / early Neolithic presence at the site. Although this period was represented by a low density of material, the flintwork indicates flint knapping activities, and the presence of a core face / edge rejuvenation blade and a rejuvenation flake tablet as well as two exhausted bladelet cores indicate a careful reduction strategy. Evidence for Mesolithic / Neolithic presence in the area remains sparse, and it is possible that the site was only seasonally exploited during this period. Nonetheless, several tranchet axes found on the Selsey peninsula suggest woodland exploitation (Pitts 1980). The remainder of the assemblage has also provided evidence for activity during the late prehistoric period. However, the lack of diagnostic pieces and the overall low density of artefacts have prevented any interpretation in regards to the type of activities undertaken.

5.3 Prehistoric and Roman Pottery by Anna Doherty

5.3.1 Reasonably large stratified groups of Roman pottery were recovered from the fills of feature [004] along with a few residual sherds of Middle to Late Bronze Age date. The

pottery has been quantified by sherd count, weight, Estimated Vessel Number (ENV) and Estimated Vessel Equivalent (EVE) on *pro forma* sheets which are retained for the archive.

- 5.3.2 Three sherds of flint-tempered pottery, possibly all of the same vessel, were found in fills [005] and [006]. These were oxidised with moderate, ill-sorted flint inclusions of c.0.5-2.5mm set within a fairly quartz-free matrix which contained moderate fine voids of up to 5mm, suggesting burnt out fine organic matter. Whilst these are relatively well formed and fired and would probably be classed as pottery rather than briquetage, the possible use of organic tempering and the fully-oxidised orange firing colour may indicate a vessel used in salt-working processes. The fabric is characteristic of the Middle to Late Bronze Age and is almost certainly residual within this feature.
- 5.3.3 Fills [003] and [005]-[008] produced a total of 96 sherds, weighing 1442g from c.20 estimated vessels. All of these sherds are in Rowland's Castle grey ware fabrics. Many come from just a few fragmented but partially-complete jar bases. A number of these sherds appeared lightly burnt. It is possible that the burning is the result of being heated during salt-working although in some cases oxidisation seemed to go across sherd edges, suggesting that they were burnt after breakage.
- 5.3.4 Only two diagnostic feature sherds were recovered, both from fill [006]. One is a short everted rim jar. This seems to be deliberately fired black and appears to imitate earlier BB1 style everted rim jars. Another partial rim was from a reeded-rim bowl. Taken together, these two forms would probably suggest a date range of c.AD120-150 although, as a whole, the group from feature [004] could feasibly be a little later. Rowland's Castle ware was the dominant fabric type in this region until at least the early 4th century.

5.4 The Fired Clay by Trista Clifford

5.4.1 Introduction

A total of 158 fired clay fragments were recovered weighing 6192g. Table 5 shows an overview of the assemblage. All material derives from the fills of salt working hearth [004] and has been identified as briquetage.

5.4.2 Methodology

The fragments were examined with the naked eye for diagnostic characteristics indicating form and/or function, and recorded on pro-forma archive sheets. Fabrics were identified using a x10 magnification binocular microscope. Three fabric groups were identified:

Fabric 1- Abundant clear and coloured medium quartz, sparse to common organic voids and moderate medium black iron rich speckle. Generally reduced cores, somewhat laminar appearance. Abundant grassy impressions on inner and outer surfaces.

Fabric 2- Poorly mixed fine to medium sand, mid orange clay with cream and dark orange streaks, sparse flint to 5mm. Yellow salt scale on functional surfaces.

Fabric 3- Yellowish clay, poorly fired. Medium sand, v sparse coarse rounded quartz and common circular voids.

5.4.3 The assemblage

The overall mean fragment weight (MFW) is 39.2g overall, indicating a low degree of abrasion across the assemblage, suggesting that the material has not travelled far from its' original place of deposition. The difference in MFW between classes of material is also small (Briquetage vessel 39.8g; Briquetage support 28g) and reflects the difference in Fabric used for the two classes.

The entire assemblage was identified as briquetage defined as fired clay or ceramic material used for the extraction of salt from brine. A range of forms is present (Table 7) classified according to the typology set out by Morris (2001, 41).

Form	Fabric	Context				Total
		5	6	8	9	
Amorphous	1, 2	2/26g	2/26g			4/52g
Briquetage support	2	1/20g		1/36g		2/56g
Briquetage vessel	1	59/1710g	45/1110g	20/1454g	27/1748g	151/6022g
Structural material	3				1/62g	1/62g
Total		62/1756g	47/1136g	21/1490g	28/1810g	158/6192g

Table 7: Overview of forms present within the assemblage, quantified by fragment count and weight

5.4.4 Containers

Rim, base and body sherds from straight sided rectangular slab built evaporation troughs were recovered in Fabric 1 from all contexts containing fired clay. The outer surfaces of nearly all fragments exhibited dense organic chaff temper; inner surfaces were also tempered in this way but were more abraded and showed evidence of possible scraping in some cases. Where salt scaling was evident it nearly always appeared on inner surfaces, apart from the vitrified surfaces of rim sherds where scaling occurred on both inner and outer surfaces. No complete vessel forms were recovered but there was some indication of minimum sizes. It was not possible to suggest a minimum number of vessels present.

Thickness of wall and base fragments measured between 11mm at the thinnest and 20mm at the broken join/edges. Some flat fragments could have derived from either the wall or base; thicknesses were fairly similar for both. The only identifiable rim fragments are finished with semi-circular thumb or wattle impressions c. 15-20mm wide spaced c.20-30mm apart and angled at 45° to the wall impressed into the rim edge giving a fluted appearance which may have been functional rather than decorative. Similar rim forms were found at Stanford Wharf (Poole 2012, Fig 8.2.17) although here the impressions are closer together and not angled appearing more decorative than functional.

Context [009] contained the most complete wall dimensions of five conjoining fragments measuring 210mm wide with an incomplete height of 135mm. Of these

fragments at least two had undergone heating post breakage; these fragments were reduced and the surfaces vitrified with a greenish 'glaze'. The same vitrification process was evident on a number of other wall fragments across all contexts, particularly rim fragments.

Two conjoining base fragments from context [008] had an incomplete width of 212mm. A number of wall fragments from the same context exhibited deep thumb impressions along the lower edge where the slab had been joined to the base and some also showed finger smoothing on inner and/ or outer surfaces. A single base fragment from this context was identified as a corner and indicated that the ends of the vessel may have been slightly curved, as those found at Chichester (Bradley 1992).

5.4.5 Supports

Two fragments of support briquetage made in Fabric 2 were identified as a probable prop (context [005]) and a support clip (context [008]). These would have been employed to stabilise the troughs during heating; the clip from [008] had an L shaped profile indicating it had been attached either to a straight rim or, more likely the L shaped base profile of a trough. The fabric was not as well prepared as Fabric 1 which probably reflects the ad hoc use of natural clays when needed during the evaporation process.

5.5.6 Structural material

A single fragment of wattle impressed daub came from context [009]. The fragment has two stem impressions of 6 and 7mm diameter set in a triangular arrangement with an 11mm diameter wattle impression. The fragment is undiagnostic of specific use. No other structural material such as plates, bars or wedges were evident within the assemblage.

5.5.7 Miscellaneous undiagnostic material

Two amorphous fragments were identified as briquetage due to fabric and association with known forms, although their exact use remains unidentified.

5.6 Registered Finds by Trista Clifford

5.6.1 Twenty four Registered Finds were recovered from the topsoil during the metal detector survey. A summary of the assemblage is shown in Table 8; it includes mass produced objects such as buttons, coins and unidentifiable strips indicative of casual loss. All objects were of modern date. A note on the military metalwork is included below. The assemblage has been recorded in full for the archive and is recommended for discard.

Context	RF Number	Object	Material	Date
01 Met Detect	1	ORDINANCE	COPP	MODERN
01 Met Detect	2	CARTRIDGE	COPP	MODERN
01 Met Detect	3	CARTRIDGE	COPP	MODERN
01 Met Detect	4	UNKNOWN	IRON	MODERN

Context	RF Number	Object	Material	Date
01 Met Detect	5	BUCKLE	WHITE METAL	MODERN
01 Met Detect	6	LOCK	WHITE METAL	MODERN
01 Met Detect	7	STAPLE	IRON	MODERN
01 Met Detect	8	COIN	COPP	MODERN
01 Met Detect	9	PENNY (1946)	COPP	MODERN
01 Met Detect	10	DECIMAL PENNY	COPP	MODERN
01 Met Detect	11	BUTTON	COPP	MODERN
01 Met Detect	12	SHEET	WHITE METAL	MODERN
01 Met Detect	13	.22 BULLET	COPP	MODERN
01 Met Detect	14	UNKNOWN	COPP	MODERN
01 Met Detect	15	BULLET BUTT	COPP	MODERN
01 Met Detect	16	APPLIQUE	WHITE METAL	MODERN
01 Met Detect	17	CORE OF ANTI AIR ROUND	COPP	MODERN
01 Met Detect	18	UNKNOWN	LEAD	MODERN
01 Met Detect	19	UNKNOWN	COPP	MODERN
01 Met Detect	20	UNKNOWN	IRON	MODERN
01 Turning Area	21	BINDING	COPP	MODERN
01 Turning Area	22	UNKNOWN	COPP	MODERN
01 Turning Area	23	UNKNOWN	LEAD	MODERN
01 Turning Area	24	BUTTON	COPP	MODERN

Table 8: The Registered Finds

5.7 Military metalwork by Justin Russell

- 5.7.1 Three non-military cartridges were recovered, two of which were 12 bore shotgun cartridge bases (RF< 2 >and <3>), both made by Nobel while the third cartridge (RF<13>) was a .22 rifle made by Western Arms. All were fired and date from the 20th Century.
- 5.7.2 The single military cartridge (RF<15>) is a mark 2 .380, for use in an Enfield pistol, a standard officers' sidearm. The headstamp reads R/\L 42 .380 II z which imparts that the cartridge was filled at the Royal Laboratory factory in Woolwich, 1942 and filled with nitro cellulose propellant.
- 5.7.3 A single fired bullet, a mark 7 .303 (RF<20>) was found, dating from the 20th Century. The bullet shows significant impact damage and the five rifling grooves, twisting left indicate it was fired from a Lee-Enfield rifle.
- 5.7.4 RF<1> comprises two fragments of driving band, made of brass, from differing types of exploded anti-aircraft projectiles. The smaller fragment, at 35mm in height, derives from a 40mm Bofors shell, while the larger piece, at 50mm in height can be traced to a 3.7 inch shell. Both date from the Second World War and relate to the interception of German air raids.

5.8 Other metalwork by Trista Clifford

5.8.1 Context [001] contained a fragmentary iron plate weighing 66g. The object is not identifiable or intrinsically datable. Also recovered were seven lead waste pieces including strip and sheet fragments with a total weight of 110g. They are not dateable. The metalwork has been recorded for the archive and is recommended for discard.

5.9 The CBM by Trista Clifford

5.9.1 Five CBM fragments weighing 124g were recovered from the topsoil [001]. The small assemblage includes red brick in a sandy fabric with sparse to moderate organic voids of late post medieval – modern date (34g) and a small modern brick fragment (8g), together with modern roofing tile in two different iron rich, calcareous fabrics (82g). The assemblage has been recorded on pro forma archive sheets and digitally for the archive. It is recommended for discard.

5.10 Geological Material by Luke Barber

5.10.1 A small assemblage of stone was recovered from the site. None of the pieces show signs of human modification but all appear to be water-worn and frequently exhibit traces of marine burrowing organisms.

5.10.2 Context [001] produced a worn cobble fragment (410g) of fine blue-grey non-calcareous sandstone with quartz seams. The source of this stone type is uncertain but it could easily have arrived naturally to the area via longshore drift. Context [005] produced two worn slabs (2065g) of buff medium-grained calcareous Tertiary sandstone with ferruginous pellet inclusions, two worn pieces (264g) of grey coarse fossiliferous calcareous Tertiary sandstone (also with ferruginous inclusions) and two pieces (264g) of fine/medium-grained dull orange calcareous Tertiary sandstone with marine burrow. The latter may well be Bognor Rock from the London Clay.

5.5.3 Whatever the case, all of these Tertiary sandstones are likely to be naturally local to the area. Residue <2> from context [009] produced an additional four pieces of stone weighing 286g. All the fragments are from the same type of friable medium/coarse-grained grey Tertiary sandstone. The type has a few ferruginous clay pellet inclusions and is obviously from the same source as those noted in [005].

5.11 Animal Bone by Gemma Ayton

5.11.1 A small assemblage of animal bone was recovered by hand-collection and from whole earth samples. The assemblage contains 20 fragments of bone from contexts [005] and [009] and samples <2> and <3>. The specimens have been provisionally identified as cat, bird and herring. Sample <2> also contains three small fragments of unidentifiable, cremated bone.

6.0 THE ENVIRONMENTAL SAMPLES by Lucy Allott

6.1 Introduction and Methodology

6.1.1 Four samples were taken from deposits [008], [009], [006] & [005] within feature [004], a T-shaped clay and stone-lined 'trough', to recover environmental remains and establish whether the samples could assist in providing evidence for its function. Samples were processed in a flotation tank and the flots and residues were retained on 250µm and 500µm meshes respectively and air dried. The residues were passed through graded sieves (8, 4 and 2mm) and each fraction sorted for environmental and artefact remains (Table 9). The flots were viewed under a stereozoom microscope at x7-45 magnifications and their contents recorded (Table 8).

6.1.2 Macrobotanical remains were identified with reference to modern comparative material and published reference atlases (Cappers *et al.* 2006, Jacomet 2006, NIAB 2004). Nomenclature used follows Stace (1997).

6.2 Results

6.2.1 Environmental remains were uncommon, although a few cereal grains, legumes and charred weed seeds were recovered (Table 10). These macrobotanical remains were fragmented and their surfaces pitted which has restricted their potential for identification. Small fragments of charcoal are evident in several of the samples although these are also infrequent. Although evidence for significant burning was noted during excavation, environmental remains in the samples contribute very little to the understanding of the burning event/s and any fuel used had been cleared from the feature.

6.3 Discussion

6.3.1 The lack of strong evidence for cereal crops, fuel and other botanical material supports the hypothesis that this T-shaped feature was not used as a corn drier and the small quantities of botanical remains that are present are more likely incidental inclusions.

6.3.2 Numerous pieces of fire cracked flint and briquetage with plant impressions were recovered from these sandy deposits (see finds report for details of the assemblage). The plant impressions in the clay are long and narrow and morphologically reminiscent of grass stems.

6.3.3 Deposits [008] and [005] also produced flecks of white vitrified and vesicular substance reminiscent of fuel ash slag, an incidental slag that can be produced during burning at high temperatures when alkaline fuel ash comes into contact with a silica rich clay (Keys 2012) or when wood or other plant fuels rich in silica are burnt (EH 2011). Fuel ash slags were common at Stanford Wharf nature reserve salt making sites (Keys 2012) and micromorphological analysis of these has determined that they derive from ash from phytolith-rich monocotyledonous plants (Macphail *et al.* 2012) rather than wood ash. Unfortunately the lack of significant quantities of either wood or monocotyledonous plant remains in the samples from West Wittering makes it difficult to determine the origin of the fuel ash slags.

Sample Number	Context	Context / deposit type	Sample Volume litres	Charcoal >4mm	Weight (g)	Charcoal <4mm	Weight (g)	Burnt bone 4-8mm	Weight (g)	Fishbone and microfauna	Weight (g)	Other (eg ind, pot, cbm)
1	008	Lower fill of trough	30			*	<2					Briquetage**/1546g - Slag */<2g - FCF **/328g
2	009	Lower fill of trough	20			*	<2	*	<2	*	<2	Briquetage */232g - FCF ***/588g - Stone */290g
3	006	Lower fill of trough	10							*	<2	Briquetage **/238g - FCF**/242g - Slag */<2g
4	005	Upper fill of trough	10	*	<2							Pottery */4g - FCF**/266g

Table 9: Residue quantification (* = 1-10, ** = 11-50, *** = 51-250, **** = >250) and weights in grams

Sample Number	Context	Weight g	Flot volume ml	Volume scanned	Uncharred %	Sediment %	Charcoal >4mm	Charcoal <4mm	Charcoal <2mm	Crop seeds charred	Identifications	Preservation	Weed seeds charred	Identifications	Preservation
1	8	38	115	115	15	75			*	*	Cerealia frags (7), <i>Triticum</i> sp. (3)	+	*	Poaceae (1)	+
2	9	14	50	50	15	75			*	*	Cerealia frags (3), cerealia (2)	+	*	<i>Vicia/Lathyrus</i> sp. (2)	+
3	6	20	70	70	20	70			*	*	Cerealia frags (10)	+			
4	5	44	140	140	30	65			*	*	cf. <i>Triticum</i> sp. (1)	+			

Table 10: Flot quantification (* = 1-10, ** = 11-50, *** = 51-250, **** = >250) and preservation (+ = poor, ++ = moderate, +++ = good)

7.0 DISCUSSION AND CONCLUSIONS

7.1 Prehistoric

7.1.1 The later prehistoric, possibly Bronze Age element within the flintwork assemblage can probably be regarded as the expected 'background level' that can be found at almost every location on the Lower Coastal Plain and within the littoral zone. Recent work at Medmerry Managed Realignment scheme, near Selsey, West Sussex has identified an extensive Bronze Age landscape including farmsteads, burnt mounds, ponds, field systems and trackways (ASE in prep.).

7.2 Roman

7.2.1 The T-shaped feature [004]/[013], probably dating to between AD120-150 was similar in shape to a corn dryer but somewhat smaller. The lack of strong evidence for associated cereal crops and other botanical material argues against the corn dryer interpretation. Furthermore, although extension [013] might on first impression be seen as a stoke-hole or flue, the lack of *in situ* burning contradicts this view.

7.2.2 A remnant of *in situ* clay lining survived within the eastern part of [004], suggesting that it may have once been lined throughout. The stone-lined extension [013] might be interpreted as an inlet channel that perhaps fed seawater from a nearby tidal source into [004]. Given the presence of a significant quantity of diagnostic briquetage, together with its location beside a tidal creek, it seems very likely that feature [004]/[013] was associated with salt-working. In this scenario, it is likely that the smaller western section of [004] behind wall [012] was a boiling pit (perhaps clay-lined), while the larger eastern section served as a settlement/evaporation tank. The suggested clay lining within the eastern part of [004] might then be interpreted as having been intended to create a watertight cistern. This combination of boiling pit and settlement tank has been recorded on an extensive LIA/Roman salt-working site at Lydd, Kent (Priestley-Bell in prep.). The generally very good state of preservation of the salt-working features identified at Lydd allowed a relatively detailed model of the Late Iron Age/early Roman salt making process to be constructed as follows:

- i) Brine was placed in clay-lined settlement tanks to remove sediment and to increase the salt concentration through evaporation.
- ii) The concentrated liquor was placed in boiling vessels set on three or more (usually four) pedestals within clay-lined boiling pits; the pedestals were set on flattened circular bases of green clay; green clay pinch props were placed between the side of vessel and boiling pit to prevent rocking.
- iii) Salt crystals were probably ladled off during boiling and the boiling vessel continually topped up with more liquor.
- iv) The damp salt was placed in open fabric drying vessels, which may have been placed over slow fires, in order to produce salt cakes. These drying vessels may have subsequently served as packaging during the transport of the salt.

7.2.3 However, the main problem when directly comparing the features from the current site with those at Lydd is the small size of the proposed 'boiling pit'. A fire in the base of the pit could not have been maintained without first removing the vessel containing the liquor and there seems no easy means of removing spent fuel and ash.

7.2.2 Whatever the exact details of the process carried out in feature [004]/[013], it was almost certainly related to salt-working. All the Roman SMR references in the DBA study area, with the exception of the possible Roman Road relate to coin findspots or cremation burials; feature [004]/[013] is the first direct evidence for salt-working or indeed any Roman industrial activity in the area.

7.3 The walkover and historic buildings survey

7.3.1 As part of the fieldwork, an initial walkover of the site and subsequent historic buildings recording on a sluice was undertaken. The full reports for these pieces of work are appended in appendices 1 and 2.

7.3.2 In brief, the walkover survey concluded a tide mill may have been located where a current sluice is situated but no evidence of this could be found on site. The possibility was highlighted that buried deposits relating to the foundations of the mill may survive. A World War II Decoy Airfield Runway was also noted in a field immediately south of the site.

7.3.3 The historic buildings recording undertaken on the sluice further refined the initial recording completed in the walkover survey.

7.4 Conclusions and consideration of research aims

7.4.1 The general aim of the project was successfully completed in that the archaeological remains present on site were identified and their character and extent considered. In addition, the specific research aim which required the potential for the survival of the medieval tidal mill to be assessed was also successfully completed, initially by the walkover survey and also during monitoring of construction works in its vicinity and historic building recording. No trace, however, of this tidal mill was identified.

7.4.2 The last specific research aim was to examine the potential for survival of a 'wide variety' of archaeological deposit along the route of the access road / compound. This aim was successfully completed, flint scatters, predominantly of Mesolithic or Neolithic origin, with a Bronze Age, element and a salt working feature (saltern) of Roman date being identified and recorded.

7.4.3 The archaeological watching brief, walkover survey (Appendix 1) and Historic Building Recording (Appendix 2) carried out during the construction of the seawall have proven to be a successful project, identifying archaeological remains, of Bronze Age and Roman date and further enhancing our wider understanding of the site through the walkover survey and Historic Buildings Recording.

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ACKNOWLEDGEMENTS

ASE would like to thank the Environment Agency and Jacobs Engineering for commissioning the work and for their assistance throughout the project, and James Kenny, the Chichester District Archaeology Officer for his guidance and monitoring.

HER Summary Form

Site Code	WWC11					
Identification Name and Address	West Wittering Flood Defence, near Chichester, West Sussex					
County, District &/or Borough	Chichester, West Sussex					
OS Grid Refs.	SZ 7740 9828					
Geology	superficial Brickearth cover with localised outcrops of marine gravel					
Arch. South-East Project Number	5174					
Type of Fieldwork	Eval.	Excav.	Watching Brief X	Standing Structure	Survey	Other
Type of Site	Green Field X	Shallow Urban	Deep Urban	Other Coastal		
Dates of Fieldwork	Eval.	Excav.	WB. 20 th Sept. 2011 – 19 th Oct. 2011	Other	Historic Assessment	Landscape
Sponsor/Client	Jacobs on behalf of the Environment Agency					
Project Manager	Jon Sygrave					
Project Supervisor	Greg Priestley-Bell					
Period Summary	Palaeo.	Meso.X	Neo.X	BA X?	IA	RB X
	AS	MED	PM	Other X Modern		
<p>Summary</p> <p><i>Archaeology South-East (ASE) was commissioned by Jacobs Engineering to carry out an archaeological watching brief during groundworks associated with the construction of a seawall on Chichester Harbour at West Wittering, West Sussex. The work revealed remains from three periods: later prehistoric, Roman and post-medieval/modern. Prehistoric remains comprised scatters of worked and fire-cracked flint from the topsoil, together with a small assemblage of residual material from a Roman feature. The character of the assemblage was mixed, and suggested a predominantly Mesolithic or Neolithic origin, with a later prehistoric, perhaps Bronze Age element.</i></p> <p><i>Roman remains comprised a single feature, a 'T-shaped' pit lined with stone and fired-clay. There was evidence of significant burning throughout the length of pit, but only minor burning evident within the stone-lined extension. A large quantity of fired-clay fragments including diagnostic briquetage, together with a significant quantity of Roman pottery probably dating to between AD120-250 was recovered from the fill. This structure was almost certainly a boiling pit (perhaps clay-lined) associated with salt-working.</i></p> <p><i>Post-medieval/ modern remains comprised a mixed assemblage of finds from the topsoil, including WWII shell fragments, modern cartridge cases and a lead bullet and iron fragments.</i></p> <p><i>A walkover survey of the site and Historic Building Recording on a sluice were also undertaken as part of the project.</i></p>						

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OASIS ID: archaeol6-172339

Project details

Project name	Land at West Wittering, West Sussex
Short description of the project	<p>Archaeology South-East (ASE) was commissioned by Jacobs Engineering to carry out an archaeological watching brief during groundworks associated with the construction of a seawall on Chichester Harbour at West Wittering, West Sussex. The work revealed remains from three periods: later prehistoric, Roman and post-medieval/modern. Prehistoric remains comprised scatters of worked and fire-cracked flint from the topsoil, together with a small assemblage of residual material from a Roman feature. The character of the assemblage was mixed, and suggested a predominantly Mesolithic or Neolithic origin, with a later prehistoric, perhaps Bronze Age element.</p> <p>Roman remains comprised a single feature, a 'T-shaped' pit lined with stone and fired-clay. There was evidence of significant burning throughout the length of pit, but only minor burning evident within the stone-lined extension. A large quantity of fired-clay fragments including diagnostic briquetage, together with a significant quantity of Roman pottery probably dating to between AD120-250 was recovered from the fill. This structure was almost certainly a boiling pit (perhaps clay-lined) associated with salt-working.</p> <p>Post-medieval/ modern remains comprised a mixed assemblage of finds from the topsoil, including WWII shell fragments, modern cartridge cases and a lead bullet and iron fragments.</p> <p>A walkover survey of the site and Historic Building Recording on a sluice were also undertaken as part of the project..</p>
Project dates	Start: 20-09-2011 End: 19-10-2011
Previous/future work	Yes / Not known
Any associated project reference codes	5174 - Contracting Unit No.
Any associated project reference codes	WWC11 - Sitecode
Type of project	Recording project
Site status	None
Current Land use	Grassland Heathland 4 - Regularly improved
Monument type	KILN Roman
Monument type	EARTHWORKS Uncertain

Significant Finds	POTTERY Roman
Significant Finds	FIRE CLAY Roman
Investigation type	"Part Excavation", "Watching Brief"
Prompt	Planning condition

Project location

Country	England
Site location	WEST SUSSEX CHICHESTER WEST WITTERING Land at West Wittering, West Sussex
Postcode	PO20 8AT
Study area	0 Hectares
Site coordinates	SZ 7740 9828 50.7783584329 -0.902061504583 50 46 42 N 000 54 07 W Point
Height OD / Depth	Min: 1.00m Max: 2.00m

Project creators

Name of Organisation	Archaeology South East
Project brief originator	Environment Agency
Project design originator	Chichester District Council
Project director/manager	Jon Sygrave
Project supervisor	Greg Priestley-Bell
Type of sponsor/funding body	Environment Agency
Name of sponsor/funding body	Jacobs Engineering

Project archives

Physical Archive recipient	Local Museum
Physical Contents	"Animal Bones", "Ceramics", "Environmental", "Metal", "Worked stone/lithics"
Digital Archive recipient	Local Museum
Digital Contents	"none"
Digital Media available	"Images raster / digital photography", "Spreadsheets", "Survey", "Text"
Paper Archive recipient	Local Museum

Paper Contents	"none"
Paper Media available	"Context sheet", "Photograph", "Plan", "Report", "Section", "Unpublished Text"
<hr/>	
Entered by	Greg Priestley-Bell (gregpbell@btinternet.com)
Entered on	21 February 2014

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APPENDICES

APPENDIX 1: WALKOVER SURVEY (8th-9th March 2012)

A WALKOVER SURVEY AT SNOWHILL CREEK SEA DEFENCES, WEST WITTERING, WEST SUSSEX HISTORIC LANDSCAPE ASSESSMENT

Introduction

A site visit was made to inspect a 450m stretch of the coastline at West Wittering, West Sussex (NGR 476925 098557 – 477327 098652), to assess the potential archaeological impact of a proposed programme of enhanced flood defences (Fig. 1). The Site comprises a narrow strip of the southern shore of Chichester Harbour immediately west of the village of West Wittering, comprising an existing concrete sea-wall and associated sluice at the point where the Snowhill Creek flows into the Harbour, together with a triangular grassy area (Snowhill) to the east. An earlier desk-based assessment (Donnelly 2011) had identified this area as having archaeological potential relating to a tidemill recorded on a map of 1587. The aim of this assessment was to identify any surviving historic features relating to the mill and any other archaeological features that may be impacted upon by the proposed works.

Description of Site

The Site is 450m long and comprises five distinct character areas (Fig. 1):

Area 1

This comprises a short stretch of low wave-eroded cliff at the western end of the Site. The cliff is c. 0.8m high comprising a base layer of reddish-brown sandy alluvium containing frequent flint pebbles beneath a very pebbly topsoil c.0.5m in depth. It is covered with dense scrub vegetation and grass (Plate 1).

Area 2

This comprises a sea-wall, 0.1m high, extending as far as the sluice. It comprises a flat-topped grassy bank (with a gravel footpath on top) with a battered concrete apron on the seaward side (Plates 2 – 4).

Area 3

This is a modern sluice allowing the Snowhill Creek to flow beneath the sea-wall, but also allowing the incoming tide to flow into the marshy area behind the wall. The sluice is 9m wide, with a 0.5m thick concrete retaining wall on the Harbour side, reinforced to the north by two concrete retaining walls set into the foreshore alongside the creek – these have acted as groynes and allowed a build up of sediment and foreshore vegetation, in contrast to the clean featureless shingle fronting the sea-wall elsewhere. The marsh side is much narrower, comprising a sluice gate 1m wide and comprising large stone slabs with an iron grille over the culvert mouth. Extending to the south is a funnel-shaped arrangement of two side walls. The first 2m of these walls are made of large stone blocks, with the remaining 8m concrete. The area immediately behind the sluice comprises a deep creek channel bordered by scrub (Plates 5 – 11).

Area 4

This is a triangular patch of grass known as Snowhill. It borders the Harbour as a low grassy cliff up to 1m high, covered in scrub and sloping down to a line of wire gabions filled with rocks and cut into the cliff edge to act as a defence (Plates 12 & 13).

Area 5

This is the area behind the sea-wall, where a series of shallow pools/scrapes are proposed. The area is grassy with an irregular surface, although this may be partly due to the former marshland surface and partly to modern disturbance during the construction of the sea-wall (Plates 14 – 16).

Results of Survey

Tide Mill

According to the 1587 map, the tide mill appears to have been located approximately where the sluice (Area 3) now is. A thorough examination of this area was carried out, but no evidence for any historic structures pre-dating the sluice was found. The sluice itself is 9m wide, and will have involved a significant amount of disturbance to surrounding deposits during its construction. In addition, the mill does not appear on later maps of the 18th century onwards, suggesting it had gone out of use in the earlier post-medieval period. Any superstructure comprising stone or bricks may have been removed to be re-used elsewhere, while any timber supports will have had plenty of time to rot down to a level where they are likely to be buried beneath modern alluviation. Consequently, the possibility remains that buried deposits relating to the foundations of the mill may survive.

Other Features

Two possible historic features were identified, although both lie beyond the actual boundary of the Site:

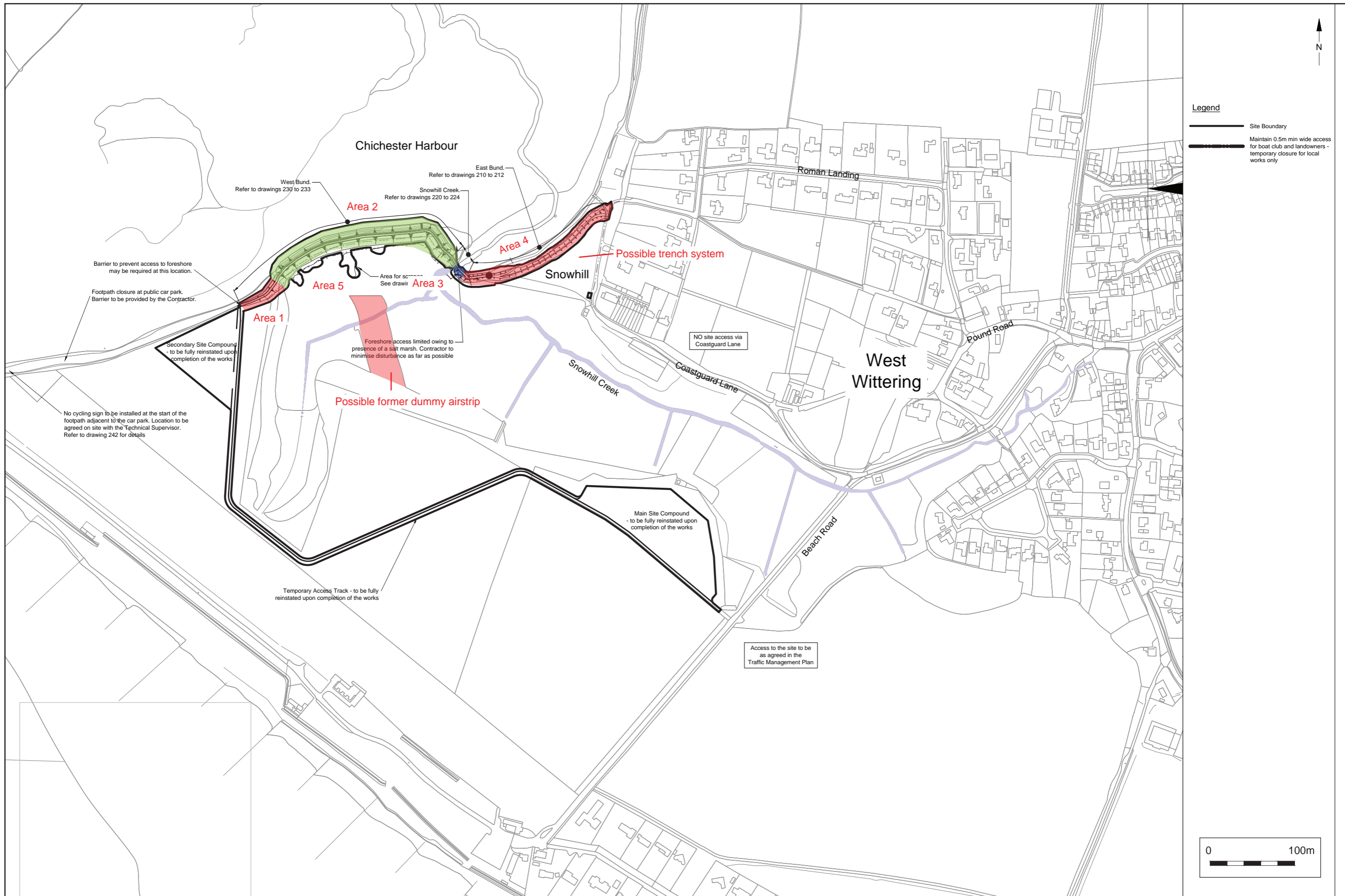
Decoy Airfield Runway

The field immediately south of the Site, between the marsh and the car park, was used during the Second World War as a decoy airfield (a K and Q site), operated by RAF Coastal Command to deflect bombing raids away from Thorney Island. It had a number of features, including dummy landing strips (Dobinson 2000). A possible remnant of one of these strips may exist in the form of a distinctly rectangular belt of grass and shingle extending into the marsh between NGR 477040 098574 and 477073 098447. It has noticeably straight edges, measures 140m in length and is 40m wide (the same width as the current concrete runways on Thorney Island) (Plate 17).



Trench System

An L-shaped linear depression, 1m wide and 23m long (overall) is situated in the centre of the green at Snowhill, 20m from the cliff edge at its nearest point. It has a distinct edge at its northern corner (NGR 477287 098602 – measured by hand-held GPS with +/-7m accuracy), extends towards the south to NGR 77288 098591, then turns towards the east to peter out in the natural slope at NGR 77302 098584. A small depression just beyond the external side of the corner may represent a small slit-trench (Plate 18). Alternatively, these features may relate to modern services.



Legend

- Site Boundary
- Maintain 0.5m min wide access for boat club and landowners - temporary closure for local works only





Plate 1: Area 1 looking, south-east



Plate 2: Area 2 looking, north-east



Plate 3: Area 2 looking, north-east



Plate 4: Area 2 looking, south-east



Plate 5: Area 3 sluice, looking south-west



Plate 6: Area 3 northern retaining wall, looking north-east

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Plate 7: Area 3 northern retaining wall



Plate 8: Area 3 northern retaining wall



Plate 9: Area 3, looking south-east



Plate 10: Area 3, inner sluice gate



Plate 11: Area 3 inner sluice gate detail



Plate 12: Area 4 gabion, looking north-east

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Plate 13: Area 4 cliff top, looking north-east



Plate 14: Area 5, looking east



Plate 15: Area 5, looking east



Plate 16: Area 5 looking west



Plate 17: Possible dummy landing strip, looking south-east



Plate 18: Possible trench system, looking south

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Project Ref: 5174	March 2014	Appendix 1 plates	
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APPENDIX 2: Historic Building Recording (24th April 2012 and 8th June 2012)

**SNOWHILL CREEK SEA DEFENCES, WEST WITTERING,
WEST SUSSEX
HISTORIC LANDSCAPE ASSESSMENT
by Maggie Henderson**

Introduction

A site visit was made to photograph a sluice at the point where the Snowhill Creek flows into the Harbour. The visit was made on the 24th of April 2012 to record the two outlets forming the sluice. A second visit was undertaken on the 8th of June 2012 after groundworks were undertaken on the temporary road surface between the two outlets. Both visits were carried out by Maggie Henderson.

Description of Site

The sluice was examined as part of a landscape character assessment carried out in March 2012 and designated Area 3 of the survey area (Appendix 1, Figure 1). The description given here is extracted from the earlier report:

A sluice is an artificial channel that enables control of the flow of water. At Snowhill Creek, the sluice enables sea water to flow beneath a concrete sea-wall into the marshy area behind the wall.

The structure is 9m wide, with a 0.5m thick concrete retaining wall on the Harbour side (Plate 1), reinforced to the north by two concrete retaining walls set into the foreshore alongside the creek – these have acted as groyne and allowed a build-up of sediment and foreshore vegetation, in contrast to the clean featureless shingle fronting the sea-wall elsewhere. The culvert is screened on the Harbour side by a timber framed grille (obscured by detritus – Plate 2).

The marsh side is much narrower, more compact and lower set than that on the Harbour side. The structure comprises a sluice gate with a large stone slabs to the rear (Plate 3). The slab (although eroded and broken in places) measures 1.28 m wide and is broadly an inverted U-shaped in plan (Plate 4), each side of the U includes a recess that is 35 mm by 50 mm, with an overall height of 0.84 m stopping at a 100 mm wide ledge that extends across the base of the U. A socket is set into the top of the masonry blocks forming the sides of the U- plan feature, that to the south retains the much eroded remains of a metal post.

The masonry feature appears to have formed a housing perhaps for a gate mechanism that is no longer *in situ*. Below the ledge there is an iron grille comprising a horizontal strap with a series of round section rods welded to it. The grill acts as a filter to the flow through the culvert (Plate 4).

The funnel shape of the marsh side of the sluice is formed by the stone gate and a pair of masonry revetment wing walls 2.45 m in length that extend outwards from the gate (Plate 5). The walls are constructed of masonry blocks of an average 0.28 by 0.66 m and depth of 0.18 m. The masonry has been capped by a course of rubble within a matrix of rough-cast concrete that has also been used to cap the rubble. The wing walls were later extended, the new walls, c. 8.00 m in length were built of concrete in the same material as that used to cap

the earlier masonry walls and as such the extension may have been carried out in conjunction with repairs to the pre-existing masonry structure.

Description of Features Revealed by Groundworks to Access Road

The groundworks revealed a concrete capped, brick lined inspection chamber that had been inserted into the channel that extended between the sluice on the marsh side and the outlet within the sea-defence wall on the channel side.

The inspection chamber had been built against a former sluice gate of the same type as that still extant on the marsh side of the channel as described above. The newly discovered remains of the former eastern sluice gate (Plates 6, 7 and 8) indicate that there had been several metres between the two outlets, both of which were served by gates set into a masonry housing. The ground works also revealed a continuation of the stone-built channel wing walls, funnelling out towards the coastline, narrowing down adjacent to the former gate mirroring the layout described above for the *in situ* western sluice (Plate 9).

The inserted brick lined chamber was U-shaped in plan with three sides constructed in brick abutting the masonry wing walls of the former outlet on the harbour side of the group. The brick walls stopped short of the top of the earlier masonry ones leaving an off-set that served to support the cap of the chamber.

The subsequent construction of the concrete rendered sea defenced and groynes further to the east superseded the earlier eastern gate. It is probable that the inspection chamber was added at the same time the sea defenced were created as part of an overall programme of improvements to the water management at the site.



Plate 1: The retaining wall and culvert mouth on the Harbour side



Plate 2: Detail of the culvert mouth on the Harbour side, with timber framed grille



Plate 3: The sluice on the Marsh side



Plate 4: The stone built sluice with recessed detail in sides of slab above a narrow platform against which the iron grille has been fixed



Plate 5: The stone sluice with the shuttered concrete extensions to the wing walls and the concrete repair and capping to the original revetments.



Plate 6: The remains of the former eastern gate (right hand side) with the north masonry wall visible situated to the rear of the later concrete retaining wall

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Plate 7: A detail of the interior of the brick lined inspection chamber with the remains of the former eastern sluice gate housing still in situ



Plate 8: The north west corner of the former masonry eastern sluice gate with socket detail matching that still in situ for the west sluice gate



Plate 9: The south west corner of the in situ west sluice gate showing a similar socketed masonry support

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