WATCHING BRIEF ON A NEW SEWER PIPE BETWEEN HAMBROOK AND NUTBOURNE, WEST SUSSEX

Between NGR 478715 106895 to 477827 1055494

Chichester District Council

Project No. 2581

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By Deon Whittaker MA.

Archaeology South-East
Units 1 & 2
2 Chapel Place
Portslade
East Sussex
BN41 1DR

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

website: www.archaeologyse.co.uk

Summary

A Watching Brief was maintained during the construction of approximately 3.5 kilometers of pipeline easement through roads and fields from Hambrook to Nutbourne, west of Chichester, West Sussex. Topsoil stripping took place in fields to a width of between nine and fifteen meters and to an average depth of 200mm. Archaeological levels were not exposed during the topsoil stripping. Pipeline easements were dug, under supervision, to sufficient depth to expose natural deposits. Ploughsoil finds were generally post — medieval although probable Early Neolithic lithic material was recovered.

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1 Introduction

- 1.1 Archaeology South East (ASE), a division of University College London Field Archaeology Unit (UCLFAU), have been commissioned by 4 Delivery Limited to undertake an archaeological watching brief during groundwork associated with the installation of a new sewer between Hambrook and Nutbourne, West Sussex (between NGR 478715 106895 to 477827 1055494)
- 1.2 Although the scheme itself did not require planning permission, 4 Delivery Ltd are committed to completing such schemes with high regard to local heritage and environmental issues. As part of this commitment, consultation with the Chichester District Archaeologist, Chichester District Council (CDC) has been undertaken.
- 1.3 This consultation revealed a high potential for exposing archaeological remains/finds during the course of this scheme. Consequently, the Chichester District Archaeologist recommended that an archaeological watching brief should be maintained during intrusive groundworks.
- 1.4 The British Geological Survey Sheet 316 shows the site predominantly lies on Brickearth, with Raised Beach Deposits and Alluvium present at the western end of the route in proximity to the Ham Brook.
- 1.5 A Method Statement was produced by Neil Griffin (2006), Project Manager of Archaeology South East, for an archaeological watching brief of the site. The stated aim of the work was to:

'monitor the excavation of new groundworks in order to ensure that any features, artefacts or ecofacts of archaeological interest exposed and affected by the groundworks are recorded and interpreted to appropriate standards..'

1.6 The on-site work was undertaken by Deon Whittaker between the 5th September 2006 and 28th February 2007. The project was managed by Neil Griffin (Project Manager) and Jim Stevenson.

2 Archaeological Background

2.1 The pipeline route passes close to a number of known archaeological sites/findspots as recorded on the Chichester District Sites and Monuments Record, including a number of late post-medieval brickworks, Roman coins and prehistoric flint artefacts. A Roman Road passes through Nutbourne from Chichester and the current alignment of the A259 is thought to approximately preserve its route.

3 Aims

- 3.1 The general objective of the archaeological work was to monitor the groundworks in order to ensure that any features, artefacts or ecofacts of archaeological interest exposed and affected by the excavations are recorded and interpreted to appropriate standards.
- 3.2 A specific aim was to monitor the groundworks on the A259 for evidence of a Roman road which is believed to follow the approximate route of the current road.

4 Archaeological Methodology – General

- 4.1 The following intrusive groundworks were monitored.
 - Easement strip
 - Topsoil stripping associated with the temporary compounds
 - Excavation of service trenches
 - Any other significant intrusive groundworks
- 4.2 All intrusive excavations not in roads were monitored until it became clear beyond reasonable doubt that no archaeological remains were present (e.g. once excavation reaches undisturbed natural). Intrusive excavation in roads was monitored on an intermittent basis, but with particular consideration for any groundwork that might reveal deposits associated with the route of the known Roman Road as described above.
- 4.2.1 All machine excavations were undertaken with a machine equipped with a suitably sized toothless bucket wherever practicable.
- 4.2.2 Where archaeological remains were encountered, machine excavation ceased to allow the remains to be investigated further.
- 4.2.3 The surfaces revealed were inspected. Any archaeological structures or features revealed were to be recorded in plan and section as appropriate (see below).
- 4.2.4 The main contractor allowed the archaeological contractor reasonable time and resources to undertake any inspection or recording required. If significant remains were encountered the County Archaeologist was to be immediately informed and further mitigation measures would be agreed.
- 4.2.5 All archaeological features and deposits were recorded using the standard context record sheets used by UCLFAU. Archaeological structures, features and deposits exposed or excavated were planned

in relation to the trench and the trench planned onto a copy of the Ordnance Survey map not smaller than 1:2500 scale by means of total station or taped offsets from known points and levelled with respect to OD. A full colour digital record of work in progress and significant features was kept and is included in the archive.

- 4.2.6 Modern features or features of late 19th century dates were not recorded. A palaeo-environmental sampling strategy was set out in the specification brief prepared by Neil Griffin before the commencement of work (Griffin 2006). Bulk samples were collected as appropriate, the value of the material assessed and the results included below.
- 4.2.7 A metal detector was used on the surface of the machined area and over the spoil heaps. Due to Health and Safety considerations no trenches were entered by ASE staff if excavated beyond a safe working depth.
- 4.2.8 The CDC Archaeologist was kept informed of progress so that he could monitor the archaeological work as necessary. The CDC Archaeologist reserved the right to access the site in order to monitor progress at his discretion, but this was agreed with the main contractor in advance.

4.3 Archaeological Methodology – Compound and Topsoil Stripping / Working Platform Easements

- 4.3.1 The approximately 3 kilometres of easements (figure 2.) were monitored during excavation. Initially the topsoil stripping was monitored on a full time basis in Areas A, B and for the northern and southern-most portions of Area C (see fig. 2), until it became clear that there was a very limited chance of archaeology being present due to the shallow nature of the topsoil strip. By agreement between Archaeology South-East, CDC and 4D site management a more flexible monitoring system was agreed for the remaining areas, whereby the supervising archaeologist would attend in the morning to review the previous days stripping, on the proviso that stripped areas would not be tracked across until the archaeologist had given an 'all clear'.
- 4.3.2 Where excavation was begun in a new field or if the character of the ground changed, the archaeologist remained in attendance until fully satisfied that no archaeological remains were likely to be revealed. The surface of the areas due for stripping and the immediately adjacent plough soil was inspected visually and metal detected to further elucidate the character of any potential archaeological remains.

- 4.3.3 4D site management further agreed to contact ASE should any archaeological remains be uncovered or in the event that the natural/archaeological layers become exposed, and to suspend any further excavation in the area pending the archaeologist's attendance. To this end, the attending archaeologist briefed the contracting ground workers accordingly.
- 4.3.4 Area A was stripped of 50mm of topsoil, to form a compound 20m x 20m (see Figure 2). A shallow test pit was requested to establish topsoil depth and stratigraphy.

4.4 Archaeological Methodology - Pipe Trenches

4.4.1 Due to the thin subsoil and alluvium deposits a system of pre-stripping was agreed between ASE, CDC and 4D site management. This involved stripping the potential archaeological deposits under supervision in advance of the full pipe trench excavation. The pre-stripping was carried out with a ditching bucket of appropriate width. This enabled long sections of pipe route to be investigated in one visit without the usual safety issues of deep excavations, reducing potential interruption to the pipe laying process and allowing more time for the investigation of any archaeological remains.

5 RESULTS

- 5.1 The site was broken down into five areas A E, plus the excavations on the A259. Figure 2 provides the overall view of the pipeline route.
- 5.2 Contexts (see Table 1) & Descriptions

Table 1 Contexts

Context No	Context Type	Area
01	Topsoil	Α
02	Topsoil	В
03	Subsoil	В
04	Topsoil	С
05	Subsoil	С
06	Topsoil	D
07	Subsoil	D
08	Natural	D
09	Topsoil	E
10	Subsoil	E
11	Ditch Cut	D
12	Primary Ditch Fill	D
13	Secondary Ditch Fill	D
14	Tarmac	A259
15	Concrete	A259
16	Tarmac	A259
17	Made Ground	A259
18	Type 1	A259
19	Made Ground	A259
20	Clay & Gravel	A259
21	Chalky Clay & Gravel	A259
22	Natural	A, B, C
23	Natural	E
24	Tarmac	A259 Tr2
25	Flint Gravel & Sandy Clay	A259 Tr2
26	Sandy Silt Redeposit	A259 Tr2
27	Silty Clay Redeposit	A259 Tr2
28	Natural	A259 Tr2
29	Modern Service Cut	A259 Tr2
30	Service Cut Backfill	A259 Tr2

5.2.1 **Area A -** Area A comprised a 20 metre sq. area, topsoil stripped to provide a compound. **Context 01** was a firm, light orangish grey, topsoil. 200mm deep with rare spots of iron panning and occasional smears of ceramic building material (cbm), this deposit lay directly upon

Brickearth natural. The finds are summarised in the text below.

- 5.2.2 **Area B Context 02** came from Area B (9m x 550m in total) directly north of Area A and was similar to **Context 01** except for its friable consistency, with occasional flint fragments present. Any finds are summarised below.
- 5.2.3 **Context 03** was occasionally exposed during the stripping of a 9 m x 18m area of area B. This comprised a plough-scarred, deposit of firm friable, greyish orange, slightly clayey silt. Depth was up to 100mm with occasional flint fragments.
- 5.2.4 **Area C Context 04** was similar to **Context 01** exposed during the strip of a 15m wide easement (Area C see figure 2), approximately 400m long, west and south-west of Area A. It consisted of a firm, light orangish grey, topsoil, 200mm deep with occasional flint fragments and 19th century cbm.
- 5.2.5 **Context 05** was occasionally exposed during the strip of a 15m wide easement (Area C). It comprised a plough-scarred deposit of firm friable, greyish orange, slightly clayey silt. Depth was up to 100mm with occasional flint fragments and iron panning.
- 5.2.6 **Area D Context 06** was a topsoil deposit from the far west of the site (see figure 6) Area D. Approximately 15m x 800 m of dark brown mottled dark orangish grey soil. Differed from other topsoils with its dark colour and very common weathered flint fragments.
- 5.2.7 Context 07 was a subsoil deposit of the eastern side of Area D (see Figure 6). Orientated north south this 15m x 800 m deposit underlies Context 06, and at its southern-most end, produced a spread of probable Early Neolithic worked flint. The collection area was approximately forty metres in length and was collected in four, ten metre sections. The first two sections A and B producing nineteen pieces of worked flint.
- 5.2.8 **Context 08** was a natural deposit of firm friable, orange mottled grey, slightly clayey silt. This deposit underlay **Contexts 07** and **11**.
- 5.2.9 **Context 11** was the cut of a north south orientated linear (see figures 3 & 4). The cut was a 600mm deep, steep, straight sided concavity with a sharply rounded base. The top of the cut was very disturbed with no visible subsoil although the upper fill was indistinguishable from **07**. Cut directly into the natural **08**, the cut was filled by **Contexts 12** and **13**.
- 5.2.10 **Context 12** was a 200mm thick primary fill of light grey brown, fine clayey silt of friable malleable consistency without inclusions. No archaeological remains were recovered.

- 5.2.11 Context 13 lay above Context 12 and was a 200mm thick deposit of light orange brown, sandy silt of friable consistency without inclusions. Containing three pieces of fire cracked flint, no other archaeological remains were recovered.
- 5.2.12 **Area E Context 09** is a topsoil deposit, dark grey brown in colour containing occasional fragments of abraded flint and 20th century brick.
- 5.2.13 **Context 10** is a 70mm thick deposit of light brown grey, fine, slightly clayey silt subsoil. Malleable in consistency, it contained occasional sub-angular flint fragments up to 50mm in maximum dimension. Plough scars were visible on the surface of this deposit.
- 5.2.14 **Context 23** comprised the natural for Area E and was a natural deposit of firm friable, orange mottled grey, slightly clayey silt. This deposit underlay **Context 10**.
- 5.2.15 **Contexts 14 21 & 24 30** comprised modern deposits relating to the A259 road works carried out. Only in Trench 2 (see Figure 2) was any natural deposit observed, otherwise various layers of tarmac and ballast, made ground with lenses of local subsoil / natural redeposit were observed. All contexts were disturbed by numerous service cuts and backfills.
- 5.2.16 **Context 22** comprised the natural for Areas A, B and C and was a natural deposit of firm friable, orange mottled grey, slightly clayey silt. This context was only exposed in small patches and contained occasional inclusions of iron pan.
- **6.0** The Finds by Elke Raemen
- 6.1 A small assemblage of finds was recovered from the excavations. A summary can be found in Table 2 below.
- 6.2 All of the pottery recovered was from topsoil and subsoil deposits and is of 19th century date. These include pieces of glazed red earthenware, pearlware, English stoneware, white china and blue transfer printed china. Area C topsoil (4) contained two pieces of glazed red earthenware, two fragments of blue transfer printed china and a piece of green transfer printed china.
- 6.3 The ceramic building material (CBM) also dates to the 19th century. Again, the majority is from the topsoil and subsoil. A total of seven brick fragments were recovered. These are all medium to hard fired with sparse fine sand-tempering and occasional chalk inclusions to 1mm. The height of two fragments can be measured at 66 mm. Both pieces

are from the topsoil. Roof tile fragments are of a hard fired fabric with sparse fine sand-tempering, rare chalk inclusions to 1 mm and rare/occasional iron oxide inclusions to 2 mm. A small number of red earthenware land drain fragments were also recovered from the topsoil in Area B (2).

- 6.4 Three plain clay pipe stem fragments were recovered. A single fragment from Area C topsoil (4) dates to the early 18th century and two from the topsoil in Area E (9) date to the later 17th century and the 18th 19th centuries.
- 6.5 A small assemblage of metalwork was also found, all from topsoil deposits. The assemblage includes a copper alloy flat button with traces of silver gilt, dating to the late 18th to mid 19th century. A heavy iron horse shoe fragment, dating to the 18th to 19th century and a wooden knife handle with iron scale tang and copper alloy rivets, possibly dating to the 20th century, were also recovered. A possible iron fire grate fragment and an iron rod fragment were recovered from Area B.
- 6.6 A copper halfpenny of George III dating from 1770 to 1775 was recovered from the surface in Area C. Two green glass beer bottle fragments, one with "...H..." embossed on the body, were recovered from the surface as well. These date to the 19th to early 20th century.
- 6.7 Two pieces of clinker dating to the 19th to early 20th century came from the topsoil. In addition, a possible piece of lower greensand was recovered from the Area A topsoil (1), while a fossiliferous piece of Wealden sandstone was recovered from the subsoil in Area D (7). Finally, a fragment of an upper valve of an oyster shell fragment was recovered from the topsoil in area B (2).

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Table 2. Quantification of Finds

140100	HULD	Ourne																
Context	Pot	Wt (g)	СВМ	Wt g)	Shell	Wt (g)	Flint	Wt (g)	FCF	Wt (g)	Stone	Wt (g)	Fe	Wt (g)	СТР	Wt (g)	Cu Alloy	Wt (g)
Area A [1]	12	52	101	694			1	2	2	10	1	22					2	16
Area B [2]	2	24	43	112	1	8			1	8			3	650				
Area C [4]	5	54							3	36			1	10	2	4		
Area D [7]									3	138	1	5820						
Area D [7]a							9	48										
Area D [7]b							10	694										
Area D [8] surface			1	120	1	46												
Area D [13]									3	64								
Area E [2]													1	22	1	6		
Area E [10]a			1	20			4	170	4	120								
Area E [10]b			1	28					1	42								
Area E [10]c							2	390	5	610								
Area E [10] b							7	610	2	66								

6.9 The Flintwork from Nutbourne, West Sussex by Chris Butler

6.9.1 A small assemblage of 26 pieces of worked flint weighing 1.12kg was recovered during the work, and is summarized in Table 4. This was recovered from the topsoil (Area A) and subsoil (Areas B & E). The flint raw material comprises a number of different types, including three pieces of Bullhead Flint, an unusual occurrence of this material in West Sussex. In addition there are two pieces of un-worked fire-fractured flint weighing 46gms.

Table 3. The Flintwork

Type	Number
Hard hammer-struck flakes	5
Soft hammer-struck flakes	2
Soft hammer-struck blades	5
Fragment	1
Blade fragments	3
Bladelet fragments	1
Shattered pieces	2
Cores	4
Hammerstone	1
Total	26

- 6.9.2 This small assemblage comprises entirely debitage, apart from the single small hammerstone. The debitage comprises a mix of hard and soft hammer-struck flakes and soft hammer-struck blades, some of which have evidence of platform preparation. There are also a small number of flake and blade fragments, together with a bladelet fragment. One blade and a blade fragment have evidence for possible utilisation along one lateral edge.
- 6.9.3 The four cores comprise a single two-platform flake core, two threeplatform flake/blade cores, and a small multi-platform flake/blade core. The three latter cores all exhibit evidence of platform preparation.
- 6.9.4 The flintwork recovered at Nutbourne, especially that from Area D, is consistent with flintwork found in Early Neolithic contexts. Although it can often be difficult to distinguish between flintwork from the Early Neolithic and Mesolithic periods, due to the lack of specific diagnostic pieces, in this case the morphology of the cores and other debitage suggests an Early Neolithic date. The presence of Bullhead flint is unusual, as this raw material occurs naturally in the Thames Basin, although it would perhaps be possible for nodules to have been moved south in previous glacial periods. However, Bullhead flint has been noted in East Sussex, where pieces have been identified on a number of sites, and it has a tendency to occur specifically in the Early Neolithic

- where it was often utilized for blade-based implements, and may therefore perhaps have been traded.
- 6.9.5 This assemblage is too small for further study in isolation. However, it is of some interest, and in the event of further pieces being recovered during future work it would be worthwhile undertaking further research.

6.10 Environmental Samples by Lucy Allott

- 6.10.1 Two samples were taken from contexts [12] and [13] (ditch fill deposits) to establish evidence for environmental remains within archaeological deposits and to assist in obtaining datable material.
- 6.10.2 Samples were processed using tank flotation and the flots and residues were retained and dried prior to sorting. The flots and residues contained small amounts of environmental and archaeological remains (Table 2) including charcoal fragments, unidentifiable bone fragments, ceramic buildings materials, iron based industrial debris and fire cracked flint.
- 6.10.3 Due to the small and fragmentary nature of the environmental remains recovered the samples provide no potential for further work. No finds were hand collected from context [13] although sample <2> has confirmed the presence of remains that are comparable with those found in other contexts (see finds report below). No dating evidence was obtained from the samples.

Table 4: Flot and residue quantification (* = 0-10, ** = 11-50) and weight (g)

Sample No.	1		2		
Context No.	12		13		
	Flot	Residue	Flot	Residue	
Volume	<5		<5		
Total Weight	2g		2g		
Uncharred %	90		70		
Sediment %	5		20		
Charcoal >4mm		*/2		*/2	
Charcoal <4mm	**	*/<2	**	**/2	
Bone		*/<2		*/<2	
CBM				*/2	
Ind debris		*/4		**/8	
FCF		*/22		**/12	

7 Discussion

- 7.1 The current requirement for addition drainage in this area suggests that there may be a history of poor drainage. Poor drainage may have subjected the fields (Areas A, B and C) to periods of inundation and made them marginal zones. Alternatively, the absence of significant subsoil, the existence of plough furrows and the thin topsoil often with high silt content suggests that any archaeological deposits may have been ploughed out. The general lack of surface finds that pre-date the late post-medieval period may support this suggestion.
- 7.2 Area D has produced some prehistoric remains in addition to residual worked flint from across the site. The concentration of worked flint in the south west corner of area D may be the result of a lack of plough activity in this corner.
- 7.3 The trenches examined on the A259 (Trenches 1 & 2) did not provide any evidence of the Roman Road recorded as passing through this area. Figure 2 shows that the current road is curved, leading to the possibility that the Roman road has been missed, possibly built upon by later settlement. Alternatively the depth and degree of disturbance by modern services may have obliterated any traces of roman road construction.
- 7.4 The presence of fire cracked flint in the upper fill (Context 13) of the linear cut Context 11 suggests a prehistoric date although the material may be residual. Context 11 is the sole archaeological feature noted. Any significance due to it's proximity to the spread of Early Neolithic material is not known.
- 7.5 The process of pre-stripping in advance of pipe trench digging by the client turned out to be a successful way of minimising the impact of archaeological investigation upon the client's programme of works and meant that the archaeological work could progress without pressure and risk from proximity of pipe-laying works.

8 **Acknowledgements**

Thanks are due to 4D Ltd. for commissioning the work, and to James Kenny the Chichester District Archaeologist for his help and advice during the project.

9 **Bibliography**

Griffin, N. 2006. New Sewer Between Nutbourne and Southbourne, West Sussex - Archaeological Watching Brief: Written Scheme of Investigation. Ditchling, Archaeology South-East / UCLFAU.

Archaeology South-East

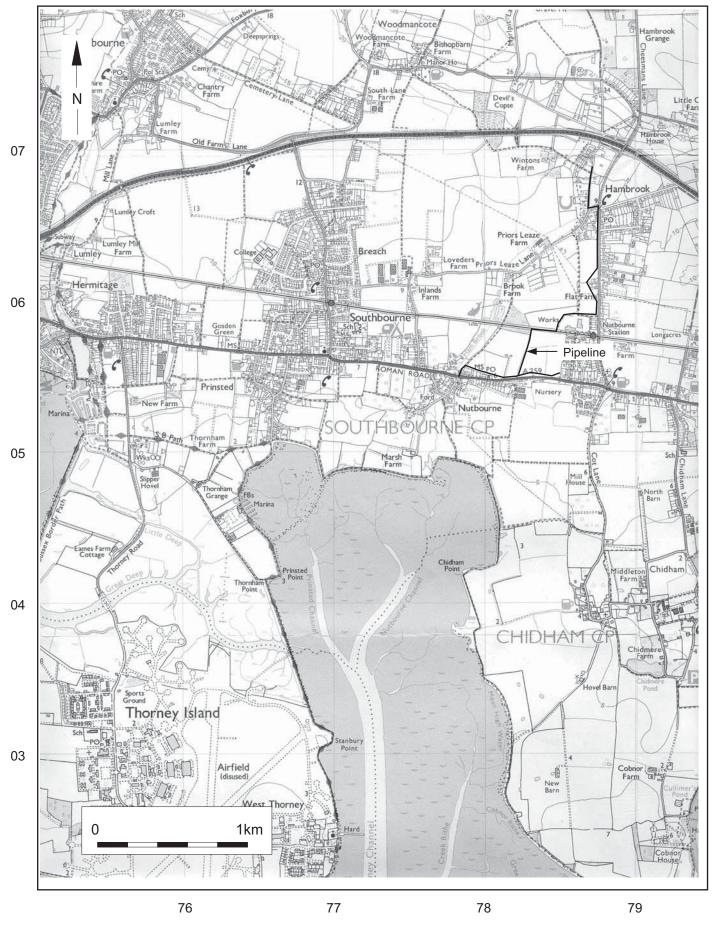
New Sewer Between Nutbourne and Southbourne, West Sussex

SMR Summary Sheet

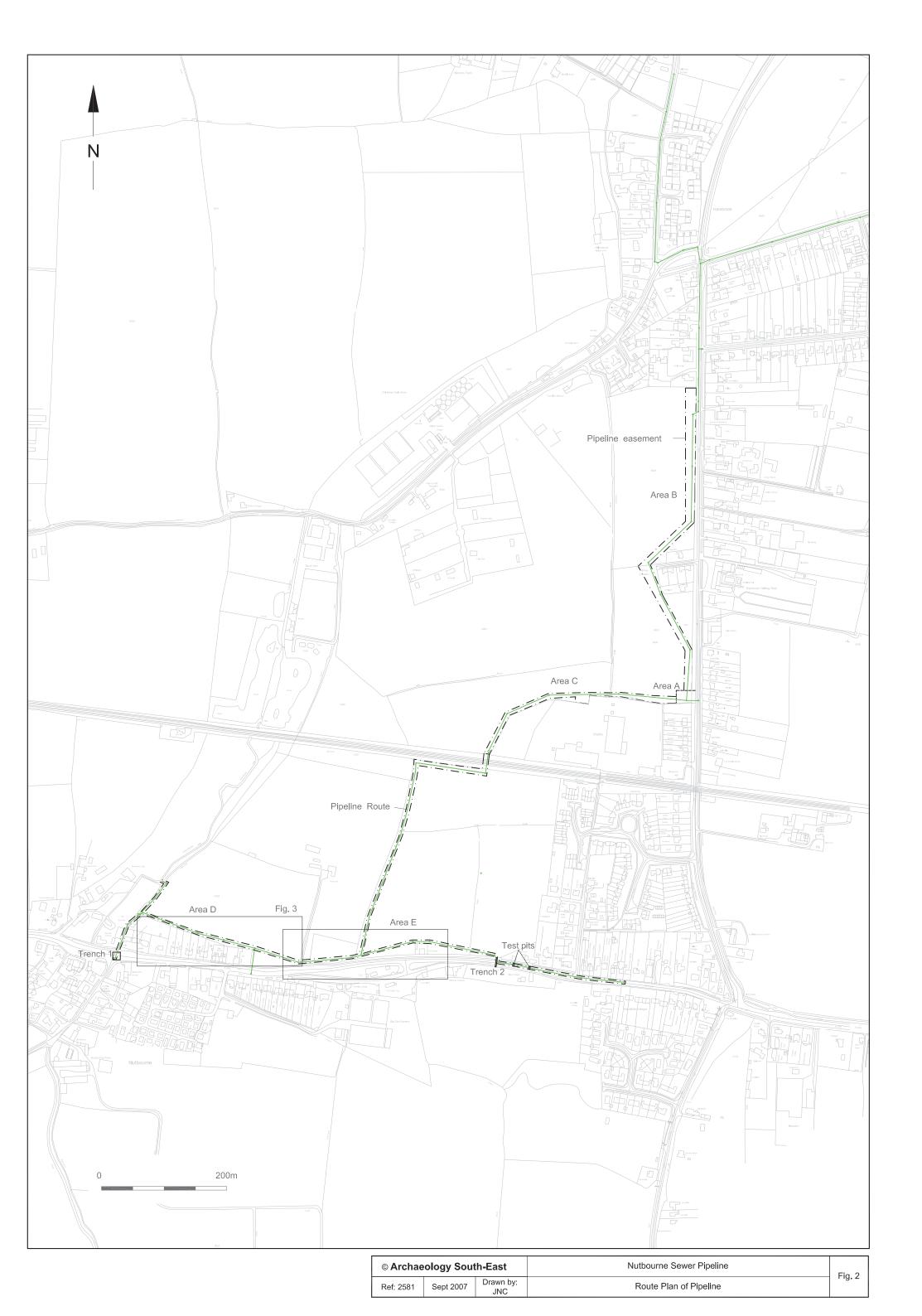
SMR Summary Sneet										
Site Code										
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County, District &/or	West Suss	sex, Chiche	ster							
Borough										
Full 12 Fig.										
OS Grid Refs.	NGR 4787	715 106895	to 477827 1	055494						
Archaeology										
South-East Proj. No.	2581									
Type of Fieldwork	Eval.	Excav.	Watching Brief ✓	Standing Structure	Survey	Other				
Type of Site	Green Field√	Shallow Urban	Deep Urban	Other						
Data a of Elaborada	E I	—	M/D	Other						
Dates of Fieldwork	Eval.	Excav.	WB.17/7/06- 7/8/06	Other						
Sponsor/Client		l	<u> </u>							
	4D Ltd. fo	r Southern \	Water Ltd.							
Project Manager										
	Neil Griffir	Neil Griffin								
Project Supervisor	pervisor									
	Deon Whittaker & Justin Russell									
Period Summary	Palaeo.	Meso.	Neo. ✓	BA	IA	RB				
	AS	MED	PM ✓	Other						

100 Word Summary.

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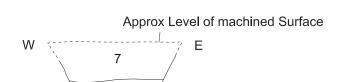


© Archaeology South-East			Nutbourne Sewer Pipeline	Fig. 1
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© Archaeology South-East		h-East	Nutbourne Sewer Pipeline	Fig. 3	
Ref: 2581 Sept 2007 Drawn by:		Drawn by: JNC	Plan Area's D and E	1 lg. 5	





⊚ Archaeology South-East			Nutbourne Sewer Pipeline	Fig. 4
Ref: 2581	Aug 2007	Drawn by: SM	Section	1 lg. 4