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LAND AT ALFORD CLOSE, SANDHURST, BERKSHIRE: A GEOARCHAEOLOGICAL TRIAL PIT

Prepared for Cotswold Archaeology

Nick Watson

ARCA
Department of Archaeology
University of Winchester
Winchester
SO22 4NR
http://www.arcauk.com

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01	26/01/17	E	Nick Watson	N.M.Watson		
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Summary

A geoarchaeological Trial Pit was dug by machine to c.*2m below ground level (BGL) in the flood plain of the River Blackwater at Sandhurst, Berkshire, to explore the nature of the geology. The weathered top of Pleistocene sands and sub angular flint gravels sub-cropped at 0.65m BGL. This unit was overlain by a heavily mottled yellowish grey sandy silt/clay alluvium. A dark brown sandy topsoil capped the sequence. The water table registered at ground surface. BGS data record the presence of Pleistocene sands and gravels at a depth of 5m BGL.*

1 INTRODUCTION

1.1 On January 20th 2017, at the request of Cotswold Archaeology, ARCA visited the Alford Close site (site code ALF17) at Sandhurst, Berkshire, to investigate the geology and provide a context for near surface features revealed in archaeological trenches.

1.2 The site is located on level ground in fields west of Alford Close on the flood plain of the River Blackwater. It is centred on NGR SU 83245 61406 at an elevation of *c.*59m OD. The river rises *c.*12 km to the south near Aldershot and flows along a well developed valley flanked by extensive river terrace deposits. The economic potential of the sand and gravel deposits of the Blackwater Valley was the subject of a NERC report by Clarke *et al* in 1979.

1.3 The British Geological Survey (BGS) map (1:50,000, 2013) the site as lying on superficial deposits of alluvium composed of clay, silt, sand and gravel laid down in the Holocene Epoch (11.5ka – present day). Underlying the alluvium is the Windlesham Formation formed of sand, silt and clay and dated to 34 to 56Ma in the Palaeogene Period (BGS 2017). Extensive River Terrace 2 deposits of sand and gravel are mapped *c.*120m north of the site and were formally present *c.*180m to the south before they were quarried out after the Second World War (Clarke *et al* 1979).

2 METHODOLOGY

2.1 A Trial Pit was excavated by machine in trench 26 to an approximate depth of 2m BGL. The water table was very high and the sections began to collapse within several minutes of their exposure. The deposits were examined in the arisings and logged from a safe distance from the Trial Pit according to standard geological criteria (Tucker 2011; Jones *et al.* 1999; Munsell Color 2000).

2.2 To complement the data from the Trial Pit, the BGS borehole records were searched: two BGS trial pits are located within the fields under investigation and four boreholes and four trial pits in Alford Close (Based upon records provided by British Geological Survey (NERC); BGS 2016). These boreholes and trial pits will be discussed below with the results from the geoarchaeological Trial Pit.

3 RESULTS

3.1 The stratigraphy of the Trial Pit was recorded as follows:

Depth m	Unit	Description
0-0.30	1	10 YR 3/1 Very dark grey silt/clay with frequent fine sand-sized mineral grains (approaching a sandy clay). Frequent orange iron oxide mottles and frequent fine roots. Very rare sub angular fine pebble-sized flint clast. (Topsoil). Sharp boundary to:
0.30-0.65	2	10 YR 5/8 Yellowish brown and 10 YR 4/1 Dark grey fine sandy clay with fine and evenly distributed mottles (50%). (Alluvium). Diffuse boundary to:
0.65-1.50	3	10 YR 5/8 Yellowish brown, poorly sorted fine to medium matrix supported gravel of sub angular to sub rounded flint clasts. Matrix of fine to coarse sandy clay. Large areas of more intense mottling, 10 YR 6/8 Brownish yellow. (Weathered top of channel gravels). Sharp boundary to:
1.50- >2	4	10 YR 5/1 Grey, interbedded, fine to coarse clayey sands and poorly sorted, clast supported gravels of granular to cobble-sized sub angular to sub rounded flint clasts. (Reduced, water logged channel gravels)

Table 1. Description of the deposits.

3.2 Unit 4 represents interbedded sandy silt/clays and clast supported flint gravels that were deposited in channels under a high energy braided river system during the Late Glacial. Climatic amelioration at the beginning of the Holocene resulted in a stabilisation of the land surface and an end to channel gravel aggradation. The growth of plants reduced the supply of sediment and milder winters caused stream flow energy to fall. There was also a shift from surface to ground water drainage following the melting of the permafrost. On the site, mineralogenic fine grained alluvium (Unit 2) aggraded across the flood plain of the River Blackwater. The uppermost 1.5m of the sedimentary sequence (Units 2 and 3) is heavily oxidised as a result of redox reactions driven by a fluctuating water table that oxidise the ferric iron compounds in

the clay to their ferrous state and colour it orange/brown. This is a diagenetic process (i.e. it is post depositional) that affects the original sedimentary chemical characteristics and not the mode of deposition. Where the sediment is permanently saturated deeper in the sequence (Unit 4), anoxic conditions persist that result in a bluish grey colour possibly caused by the presence of the mineral vivianite (hydrated iron phosphate).

3.3 Two BGS trial pits are located on the site: SU86SW253 *c.*40m northeast of the geoarchaeological Trial Pit and SU86SW256 *c.*100m southwest. Four BGS boreholes and four BGS trial pits are located in the housing estate south of Alford Close.

3.4 SU86SW253 records 0.7m of Made Ground overlying 0.9m of 'very soft green brown clayey sand' that in turn overlies 'medium dense green gravelly sand' (BGS 2016). In this sequence the fine grained alluvium, Unit 2 of the geoarchaeological Trial Pit, has been truncated and the channel sands and gravels were proven to 2.9m BGL

3.5 SU86SW256 records 1.5m of 'loose brown clayey sand that overlies 'dense blue gravelly sand' (BGS 2016). This record is very similar to the sequence in the geoarchaeological Trial Pit although the weathered sediments (Units 2 and 3) have been recorded as one deposit. The channel sand in this trial pit is proven to a depth of 2.2m BGL.

3.6 Boreholes drilled south of Alford Close record the blueish grey gravels to sub-crop between 1.10m BGL in SU86SW271 and 1.70m BGL in SU86SW270. The distinction between the flood plain alluvium (Unit 2) and the weathered top of the channel sands and gravels (Unit 3) is not recorded. Three boreholes record peat and roots at 3.2m BGL in SU86SW270 and SU86SW271, and at 3.7m BGL in SU86SW269. The lithology descriptions do not indicate beds of peat, simply an occurrence, for example in SU86SW271, 'Dense dark green/grey slightly silty gravelly sand with peat and roots' (BGS 2016). The borehole terminated before bedrock was reached and a maximum depth for the channel sands and gravels was 5m BGL.

4 CONCLUSIONS

4.1 The Holocene fine grained alluvium (Unit 2) is recorded to a depth of 0.65m BGL (the topsoil has developed within it) and it is underlain by channel deposits of sand and flint gravel that were

laid down in the late Pleistocene. Archaeological features could be expected to be cut into or be buried by Unit 2, and cut into Unit 3. Although human groups were present at the time of the deposition of the channel gravels the braid plain would have been an unattractive landscape for occupation and the potential for evidence of activity is low. This being said, human occupation in the Mesolithic period *after* the deposition of the sands and gravels – Units 3 and 4 – has been found 3km west at Eversley Quarry. Surface scatters of flints and cores have been dated from 9800-9400 to 6690-6500 BC and were associated with peat alongside an old river channel (Sarah Wyles pers. comm. 2017).

5 ACKNOWLEDGEMENTS

5.1 ARCA would like to thank Adam Howard and Sarah Wyles of Cotswold Archaeology, and Dr Eleanor Standley of the University of Oxford for their help with this work.

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7 FIGURES

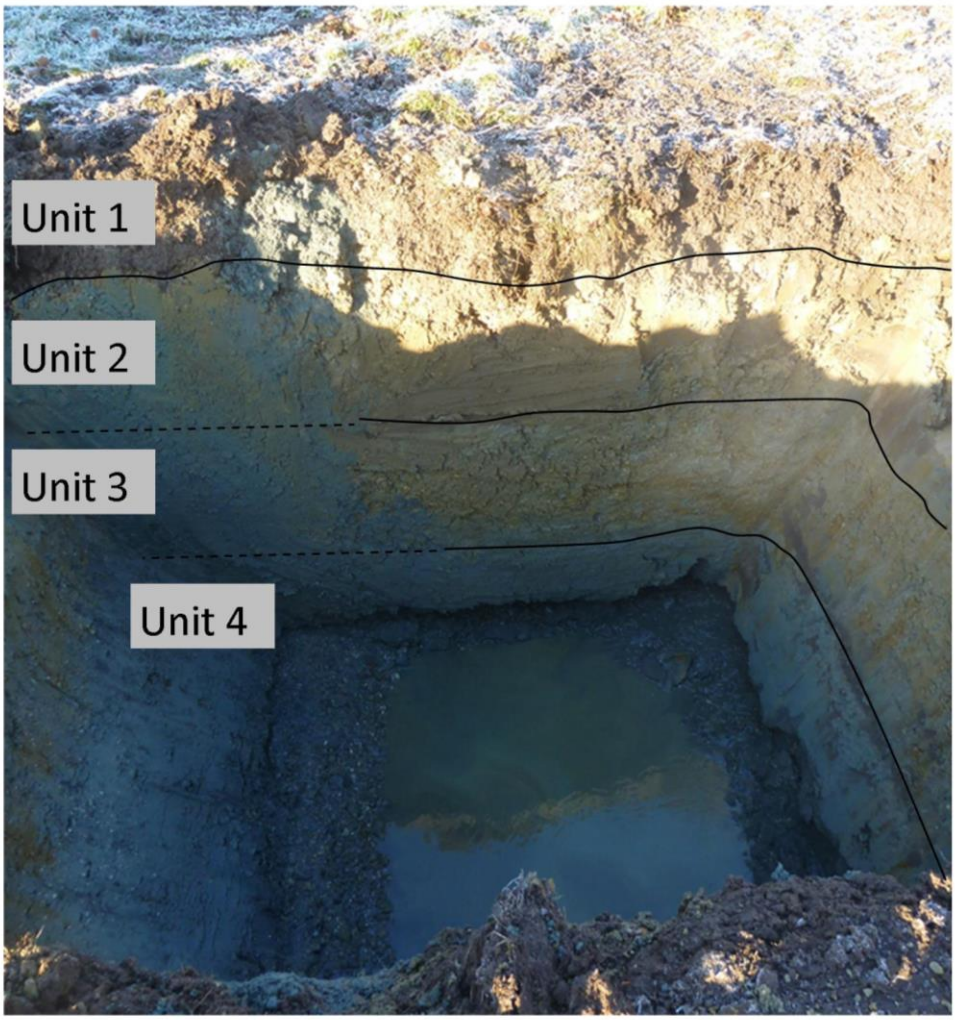

Figure 1. Geoarchaeological Trial Pit in Trench 26. View to the west. The depth of the Trial Pit is 2m. For details of the stratigraphy see Section 3 and Table 1.