Geoarchaeology

ARCA

August 2015

Report Number: 1516-4

HIGHLANDS FARM, HENLEY-ON-THAMES, OXFORDSHIRE: GEOARCHAEOLOGICAL BOREHOLE SURVEY

Prepared for Cotswold Archaeology

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Version	Date	Status*	Prepared by	Author's signature	Approved by	Approver's Signature
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*I – Internal draft; E – External draft; F - Final						

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SUMMARY

This report is a geoarchaeological assessment of strata sampled in six boreholes drilled at Highlands Farm, Henley-on-Thames, Oxfordshire.

Bedrock of the White Chalk Subgroup was encountered at between 74.99m OD and 73.47m OD. Gravels of the Anglian Black Park Gravel Member overlay the bedrock and outcrop between 78.09m OD and 76.42m OD. Outside the old Quarry area the Black Park Gravel Member was recorded in five boreholes. Within the Quarry made ground overlay the Chalk in the sixth borehole. The thickness of the Gravel Member was between 2.3m and 3.7m. An area of maximum thickness is believed to lie south of the old Quarry.

The Black Park Gravel Member is assessed as being of high archaeological potential and low palaeoenvironmental potential. No artefacts were recovered from the borehole cores.

1. INTRODUCTION

1.1 In August 2015 and at the request of Cotswold Archaeology on behalf of their client CgMs Consulting, ARCA managed a geoarchaeological borehole survey at Highlands Farm, Henley-on-Thames, Oxfordshire (henceforth 'the site'). The survey was carried out to investigate the nature of the sub surface deposits in advance of a planning application for the residential redevelopment of the site to be submitted to the local planning authority South Oxford District Council, as outlined in the Written Scheme of Investigation (WSI Project 770252) (Cotswold Archaeology 2015).

1.2 This document assesses the stratigraphic sequence beneath the site. It is arranged as follows: first a brief account is provided of the geographical, geological and methodological background; secondly the borehole lithostratigraphy is described in detail; thirdly an assessment of the potential of the deposits sampled in the boreholes to address the questions outlined in Section 1.9 is presented. A bibliography and appendices containing borehole stratigraphic logs complete the document.

1.3 The site is approximately 7.3ha in size (NGR SU 7424 8133) and is located on the plateau of a spur of the Chiltern Hills about 2 km west of the River Thames. A belt of arable land separates the site from the urban conurbation of Henley-on-Thames. The site is a brownfield site on and around the old workings of a gravel extraction quarry. The quarry itself has been partially backfilled and lies at *c.*75m OD. The surrounding hard standing and landscaped verges are slightly higher lying at *c.*76.6m OD and occupied by brick buildings of the farm and old quarry, and wooden cabins. The topography dips sharply to the west along the western boundary otherwise it is fairly flat lying.

1.4 The British Geological Survey (BGS) map the site as lying on superficial deposits of the Black Park Gravel Member (BPGM) laid down in the Anglian stage of the Middle Pleistocene between 480,000-425,000 BP. The lithology of the gravel member is described as "Horizontally stratified, matrix-supported gravel with thin tabular cross-bedded sand channels. Gravel assemblage is characterised by abundant angular flint (75-89%), sparse rounded flint (3-9%), sparse vein quartz (4-10%) and sparse quartzite (1-6%)" (BGS 2015). The thickness of the gravel is described to range from one to six metres with an average of three.

1.5 The underlying bedrock is undifferentiated Chalk of the Lewes Nodular Chalk Formation, Seaford Formation and Newhaven Formation and form part of the White Chalk Subgroup. These formations date from Turonian to Campanian Ages 93.9-73.1 my BP of the Late Cretaceous Epoch (BGS 2015).

1.6 The BGS map the western extent of the BPGM running approximately parallel to the western margin of the entrance road onto the site. This corresponds to the dip in slope towards the western boundary caused by a re-entrant dry valley exposing the Chalk. Further west and off the site, the gravel continues on the far side of the bifurcated valley head.

1.7 The site includes Highlands Farm Palaeolithic Site a scheduled monument (SM No. OX 254). The scheduled site is 150m by 24m and was discovered in 1895 in the quarry face. It has yielded several thousand Palaeolithic artefacts of Clactonian/Acheulean typology located in a palaeochannel of the Thames known as the Caversham Ancient Channel, and is the sole, accessible exposure of the deposits. (Henley Site Capacity Assessment September 2011 p10; Cotswold Archaeology 2011 p3 and 4; Hey and Hind 2014; McNabb 2007).

1.8 In 2012, the engineering consultants Hydrock investigated the site to assess ground and groundwater conditions. Thirty five boreholes were drilled including both cable percussive and window sample, and twelve machine and eight hand dug pits were excavated. From the data four cross sections were drawn south to north across the site and the made ground was mapped (Warrington 2013). Data from the Hydrock survey are reported here where they furnish a better understanding of the nature and extent of the sub surface deposits in accordance with the WSI below (section 1.9).

1.9 The WSI (Cotswold Archaeology 2015, p.5) states that the aims and objectives of the borehole survey were:

1.9.1 To determine the amount of modern disturbance in areas known to have been affected by quarrying and in those areas not known to have been affected so.

1.9.2 To determine the level of disturbance that modern use of the site may have caused.

1.9.3 To identify the presence and depth of the Black Park Gravel Member and evaluate the potential for evidence of Lower Palaeolithic archaeology.

1.9.4 And in general, to record the extent, condition, character, quality and date of any archaeological deposits recovered in the boreholes on the site that would help to plan any further archaeological intervention.

1.10 This report therefore addresses the aims described above and, it is hoped, will help inform an assessment of the significance of the Palaeolithic archaeology on the site.

2. METHODOLOGY

2.1 Six boreholes were positioned within the site with the welcome advice of Dr Francis Wenban Smith, Principal Research Fellow in Archaeology, University of Southampton. There was a proviso that one borehole should test the old quarry for remaining gravel deposits (Figure 1). Effort was taken not to repeat the Hydrock locations and minimise interference with traffic (the western half of the site is occupied by small businesses based in the cabins and farm house buildings).

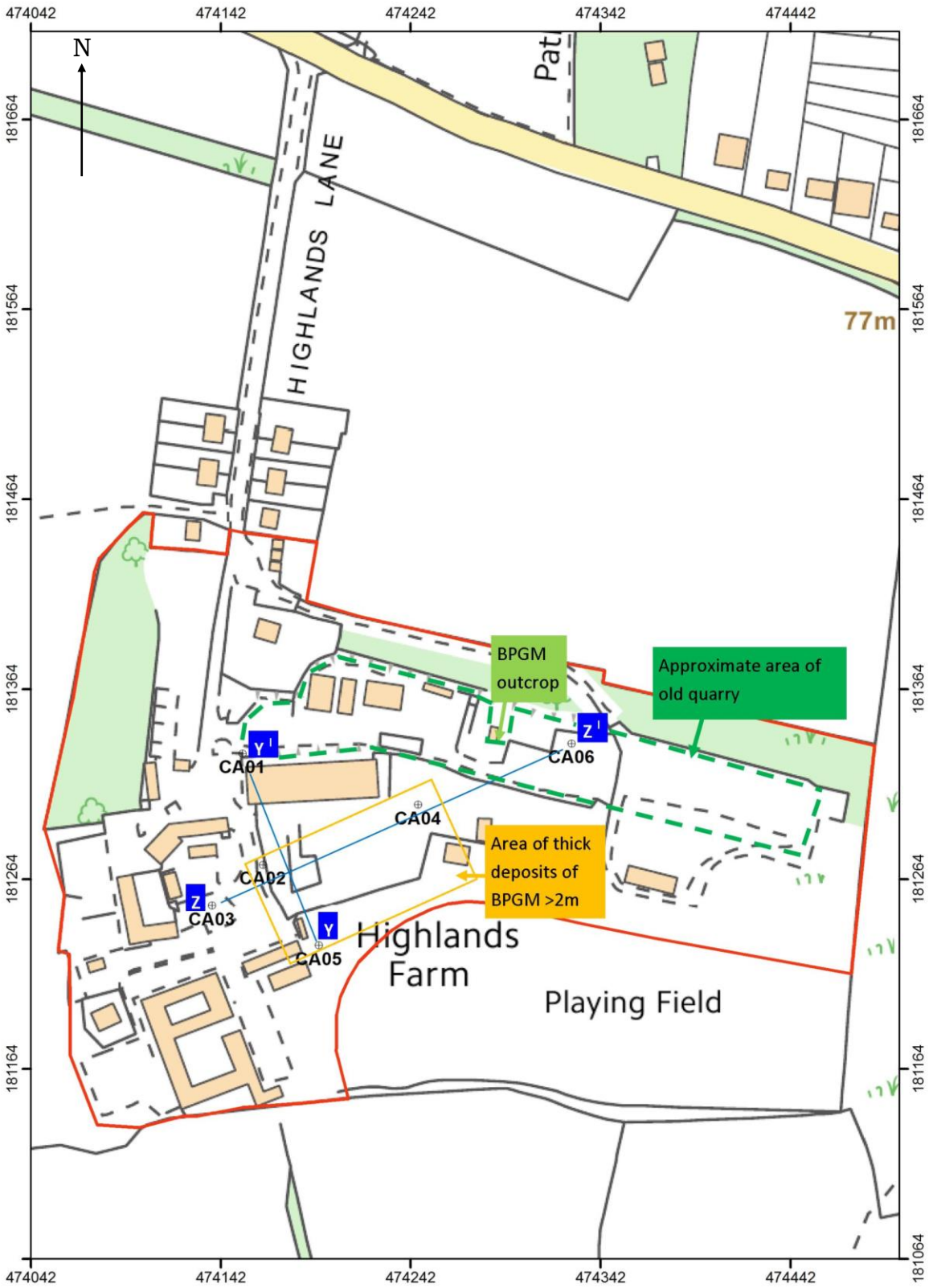

Figure 1. Site plan. Borehole locations CA01-CA06. Sections Y-Y^{I} and Z-Z^{I}. Site boundary in red.

2.2 A Pioneer rotary drilling rig operated by a crew of two was used to drill each borehole. Near-undisturbed continuous samples were recovered by dynamic sampling. The sample cores were

retained in 100mm plastic liners, 1.5m long sealed at both ends and returned to Geotechnical Engineering's warehouses for logging by ARCA. The first 1.2m (the pit) of the boreholes was dug by hand by the drilling crew under supervision by an ARCA staff member using a long handled crow bar and a post shovel. Hand excavation is necessary to avoid drilling through services. If services are found then the borehole is moved several metres and the operation repeated. To avoid cross contamination and maintain the integrity of the borehole sides, steel casing is inserted on each run. After completion of the drilling the borehole is backfilled with bentonite pellets, an environmentally safe and inert material used universally to fill ground water boreholes.

2.3 Sediments recovered in the drilling were photographed and described at Geotechnical Engineering's warehouses using standard geological criteria (Tucker 2011; Jones *et al.* 1999; Munsell Color 2000). Sediment recovered during pit excavation on site was similarly recorded and searched through for artefacts.

2.4 Borehole locations were surveyed to Ordnance Survey NGR and Ordnance Datum observed using dGPS Smartnet by ARCA.

2.6 Lithological descriptions were combined with positional information within a RockWorks database (RockWare 2013). The RockWorks software was then used to plot the cross sections presented in Figures 2 and 3. A higher level ranking of lithological units into formal lithostratigraphic units (Made ground, Black Park Gravel Member and White Chalk Subgroup) was assigned to the data and is displayed in the figures.

2.7 The archive from the site is stored at the University of Winchester. It consists of digital records: photographs of the cores, RockWorks database entries and lithological descriptions. No material samples were retained nor were any artefacts recovered. The borehole cores are stored for a limited time (one month in the first instance from 11/08/15) at Geotechnical Engineering Ltd., Centurion House, Olympus Park, Quedgeley, Gloucester GL2 4NF.

3. BOREHOLE STRATIGRAPHY

3.0.1 Three lithostratigraphic units were distinguished at the site. These are reviewed below in chronological order (Figures 2 and 3).

3.1 White Chalk Subgroup

3.1.1 Half a metre and more of White Chalk Subgroup was drilled to ensure that *in situ* bedrock had been reached. The unit was a 10 YR 8/3 Very pale brown, medium hard homogenous chalk, cracked and fissured in part through the drilling process. Rockhead was either horizontal or sharply angled. The Chalk subcrops marginally higher in the centre west of the site with a maximum of 74.99m OD in CA02 (the intersection of the two cross sections). It is lowest in the south at 73.47m OD in CA05. With a difference of *c.*1.5m in relative height across the six boreholes – a distance of approximately 200m – no general trend from the horizontal is apparent. This is in agreement with the four Hydrock cross sections; although section C-C^{l} maps the rockhead with a very slight dip to the south of about 1m over 311m.

3.1.2 The Hydrock survey encountered two locations with unexpected thicknesses of gravel in the old quarry: Hydrock BH06 (section B-B^{l}) which encountered 15m of gravel fill beneath *c.*2m of made ground, and WS09 and BH07 (section A-A^{l}) close to the eastern boundary of the site where deposits greater than 3m are estimated. These features were interpreted as solution hollows (Warrington 2013, p.7) and none were encountered by the current survey even though CA06 was within several metres of BH06.

3.2 Black Park Gravel Member

3.2.1 The Black Park Gravel Member (BPGM) was present in boreholes CA01 to CA05 lying unconformably over the Chalk and immediately below the modern topsoil. The thickness of the deposit is between *c.*2.30m in CA01 and *c.*3.70m in CA05. The maximum thickness of the BPGM appears to lie on a broad transect from CA05 and CA02 in the south west, to CA04 in the south centre of the site. The minimum is found to the west and north. The Hydrock survey records no BPGM in the north west of the site (HDP1 section C-C^{l}).

3.2.2 In the old quarry the BPGM appears to be absent. There is, however, a small outcrop at 71.11m OD that divides the quarry and has a building against it to the west (Figure 4).

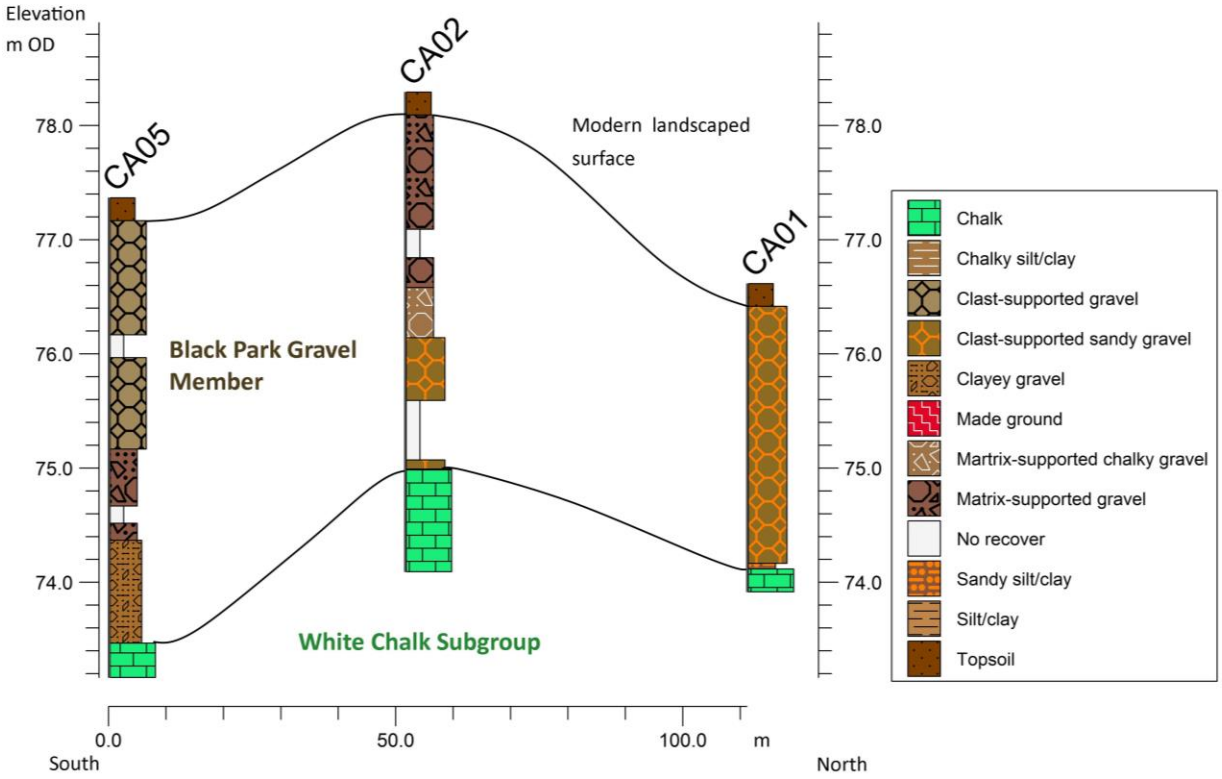

Figure 2. Section south to north Y-Y^{I}. Vertical exaggeration x20.

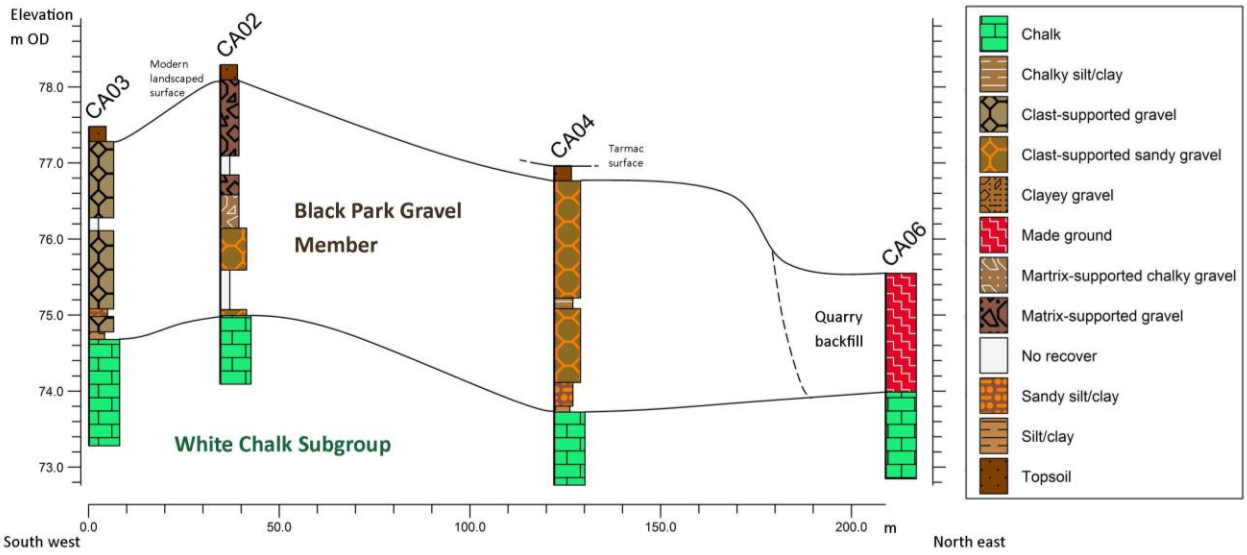

Figure 3. Section southwest to northeast Z-Z^{I}. Vertical exaggeration x20.

Figure 4 Outcrop of the Black Park Member in the old quarry overlain by concrete.

3.2.3 The Black Park Gravel Member is a 10 YR 4/6 Dark yellowish brown, very poorly sorted gravel. It can be both clast or matrix supported depending upon the fraction of silt and clay grade fines. The clasts are granular to fine cobble-sized (2 to 64+mm on the Wentworth size scale), angular to sub rounded, brown to black flint. Cobble-sized clasts are rare and no clast was large enough to fill the 100mm diameter plastic liner. Fractured flints are often patinated and occasional flint nodules are present. Present also, though very rare, are rounded, fine pebbles of white vein quartz, quartzite and chalk.

3.2.4 Interbedded in the BPGM are thin lenses (*c.*0.1-0.2m thick) of finer grade alluvium. These are medium to coarse sands and poorly sorted sandy silt/clays. They frequently contain flint granules and occasionally chalk granules. Dark brown silt/clay is recorded overlying the Chalk in CA03 and CA04. The different lithologies recorded of the BPGM frequently grade into one another making hard and fast distinctions difficult.

3.2.5 No artefacts were recovered from the BPGM.

3.3 Made Ground.

3.3.1 'Made Ground' is a term used by the British Geological Survey to encompass deposits formed as a product of human action (BGS 2014). Approximately 0.2m of modern topsoil was recorded in CA01 to CA05. To the west of the site boreholes CA01, 02, 03, and 05 were positioned on grass verges, part of the modern landscaping surrounding the offices. CA04 on the other hand, was sited within the fenced area associated with the old quarry where a decayed tarmac covered the topsoil. Within the old quarry itself backfilling to a depth of about 2m took place in around 1969 (Cotswold Archaeology 2011). CA06 confirmed the presence of backfill although it is possible that a thin veneer of gravel still exists at the base overlying the Chalk. This is suggested by the Hydrock data and the indeterminate nature of deposits retained in the core from CA06 between 1.20-1.56m BGL. It would however have been very disturbed if not completely reworked during the backfilling operations.

4 QUATERNARY STRATIGRAPHY

4.1 The Quaternary sedimentary sequence at the site began with the deposition of the Black Park Gravel Member on the braid plain of the precursor to the modern River Thames during the Anglian stage of the Pleistocene. This palaeochannel is known as the Caversham Ancient Channel. The Chalk bed is irregularly but approximately horizontal at the site and is probably punctuated by deep solution features. The lithology of the BPGM indicates that deposition took place under variable conditions of flow ranging from high energy, depositing clast supported gravels, to lower energy deposits of sand bars and overbank fines. The latter filling voids in the open skeletal gravels. No small scale cryogenic structures were recognised in the deposit.

4.2 The gravels were presumably a source of raw material for the manufacture of artefacts and a great variety of forms of handaxe have been recovered from the BMGM on the site. Late Anglian/Lower Palaeolithic hominin occupation is believed to have been lengthy (McNabb 2007 p.137).

5 REVIEW OF THE HYDROCK GEOTECHNICAL DATA AND THE CA BOREHOLES

5.1 The data will be reviewed west to east across the site based upon the 1962 Ordnance Survey map SU7481 1:2,500; the four cross sections from south to north (A-A^{I}, to D-D^{I}), and two contour maps drawn up by Hydrock (Warrington 2013 pp 29 and 30); and the two sections Y-Y^{I} and Z-Z^{I} drawn up from the CA01to CA06 borehole data.

5.2 The OS map describes the maximum extent of the quarry workings. Aside from the gravel extraction a Chalk Pit was located in the south west corner of the site, some 50m long on a north south axis and 30m wide. It has since been backfilled. BH08, section D-D^{I} , proved the depth Below Ground Level (BGL) of the made ground to be 8m before reaching the bedrock; the BPGM had been quarried out.

5.3 The BPGM is shown to be present 100m north of the Chalk Pit on section D-D^{I} in WS11 and HDP5. These two samples indicate that approximately 1.5m of gravel is overlain by 0.5m of made ground. Here the BPGM may lie as a soliflucted drape over the bedrock close to the break of slope marking the re-entrant dry valley. This interpretation is mirrored by the made ground AOD contour map (Warrington 2013 p. 29.) that traces the break of slope from south to north along the length of the west boundary to the site.

5.4 Section C-C^{I} records 12 boreholes and test pits from the southernmost limit of the site due north to the site entrance way. It is 311m in length and located 30m east of the west boundary. The section provides evidence for the thickness of the BPGM in the west of the site an area occupied by the brick built farm buildings and the wooden cabins. This area is landscaped with grass verges, ornamental trees and tarmacked roads. On the OS map it appears to have been unaffected by any quarrying activity.

5.5 In the south there is approximately 1m of BPGM sealed by 0.5m of made ground. The thickness of the BPGM increases to 2m in WS15 *c.*110m further north. Within the vicinity of WS15 (and BH02 that also records 2m of gravel), CA03 records approximately 2.5m of BPGM. At the centre of the section WS10 *c.*140m to WS08 *c.*170m record a slight rise in the elevation of the bedrock with a contiguous reduction in the thickness of the BPGM to about 1m. The overlying made ground varies in

thickness in this area from between 0.25m to 1m. Progressing further north WS07 and WS04 record a maximum thickness of the BPGM of slightly more than 2m at *c.*190m. The made ground at this point is thin only about 0.25m. The BPGM then thins towards the northern edge of the site where it is absent in HDP1.

5.6 Section Y-Y^{I} records the three boreholes CA05, CA02,and CA01 of the present survey. The trend of the transect is sub parallel to section C-C^{I} and about 40m to the east (figure 1.) The greatest thickness of BPGM is recorded at CA05 - 3.7m - with 0.2m of overlying made ground. This borehole lies at the southernmost end of the section. Progressing north to CA01, which lies on the edge of the west entrance to the old gravel quarry, the thickness of BPGM reduces from 3.7m to 2.3m over a distance of 110m.

5.7 Progressing east from CA02 some 90m to CA04 where approximately 3m of BPGM is recorded with 0.2m of overlying made ground. This small amount of made ground does not tally with the c.0.8m mapped by Hydrock. Immediately north of CA04, WS25 and WS26 record 1.8m of made ground BGL and this appears to mark a localised back filled feature on the south edge of the old quarry and may be associated with the 'known tank' recorded there. The OD survey map suggests that this area was part of the original quarry.

5.8 The OD Survey map indicates that the entire site east of CA04 has been affected by quarry works. Sixty metres east of CA04 and Hydrock section B-B^{I} traverses the site approximately due south to north at its narrowest point 105m in length. To the south TP12 records over 1m of made ground overlying 2m of BPGM. Over 3m of made ground is marked on the section although the test pits HDP7 and HDP8 record approximately 1m without proving a base. TP13 in the base of what remains of the present day quarry records 2m of made ground overlying the bedrock. Progressing north by 5m and a solution feature some 14m deep is recorded in BH06. Towards the north boundary of the site TP14 records over 3m of BPGM below about 0.25m of made ground. This thickness of gravel below what appears to be the base of the quarry implies that at this point extraction must have ceased. Immediately west, CA06 records approximately 1.5m of made ground overlying the Chalk and no BPGM which implies that the surface of the Chalk is very irregular. The section B-B^{I} records thickening made ground to over 2m at the north site boundary.

5.9 The last Hydrock section A-A^{I} runs parallel to the east site boundary south to north. As mentioned above in section 5.8, the OD Survey map indicates quarrying activities took place throughout this area of the site. In the south BH07 records over 2m of made ground overlying 1m of gravel. Progressing north some 20m and WS18 records a similar thickness of made ground this time over Chalk. TP18 and TP16 in the base of what remains of the present day quarry record approximately 0.25m of made ground overlying 1m of BPGM which in turn overlies the bedrock.

5.10 In summary:

5.10.1 The thickest deposit (>2m) of the BPGM appears to lie on a broad transect from CA05 and CA02 in the south west, to CA04 in the south centre of the site (marked as a yellow rectangle on figure1). The BPGM in this area is believed to be overlain by the least thickness of made ground. Whether this area could include below the warehouse to the immediate north, is unclear, however, the presence of deep back filled features appear likely as the present day quarry is approached.

5.10.2 To the west of section Y-Y^{I} the thickness of the BPGM decreases.to 1.5m in thickness at the west boundary and is overlain by 0.5m of made ground.

5.10.3 In the southwest corner of the site there is a back filled Chalk Pit. The BPGM has been quarried away.

5.10.4 The BPGM thins out towards the northwest of the site.

5.10.5 In the present day old quarry to the north of the site the BPGM probably exits only in solution features and perhaps as a thin and recently reworked coating over the Chalk. There is evidence though of unexcavated gravel in the east of the old quarry (TP14 section B-B^{I}). There is a solitary outcrop that divides the old quarry in two.

5.10.6 In general, the entire site to the east of CA04 is recorded as disturbed by quarrying activities on the OD Survey map. The Hydrock data indicate that it has been backfilled in part and to varying depths (0.25 to >3m).

6 ASSESSMENT

6.1 The archaeological potential of the Black Park Gravel Member is assessed as HIGH on the basis of previous finds and the thickness of gravels that is believed to remain.

6.2 Deposits within the BPGM in which palaeoenvironmental evidence might be preserved have not been found. The exception is a dark brown silt/clay in CA03 overlying the bedrock at 2.70m BGL. No macroscopic plant remains were recorded, however, palynological evidence may be preserved.

6.3 This silt/clay unit is assessed as having LOW palaeoenvironmental potential. The Black Park Gravel Member as a whole is also assessed as having LOW palaeoenvironmental potential.

6.4 The Made Ground is a modern twentieth century deposit and has no archaeological nor palaeoenvironmental potential

7 ACKNOWLEDGEMENTS

7.1 ARCA would like to thank Damian De Rosa and Richard Greatorex both of Cotswold Archaeology, Nathalie Barrett and David Ashby both of the University of Winchester, Eleanor Standley of the University of Oxford, and Francis Wenban Smith of the University of Southampton for their help during the course of the project.

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APPENDIX 1: BOREHOLE LOGS

CA01	0.00	0.20	Topsoil	Topsoil
CA01	0.20	2.45	Clast-supported sandy gravel	10 YR 4/6 Dark yellowish brown, very poorly sorted, clast supported gravel. Granular to cobble-sized, angular to sub rounded clasts of brown to black flint. Rare rounded white vein quartz fine pebble. Lens of medium to coarse sand. Flint clasts of cobble size are rare. Diffuse boundary to:
CA01	2.45	2.50	Sandy silt/clay	10 YR 4/3 Brown fine sandy clay. Sharp boundary to:
CA01	2.50	2.70	Chalk	10 YR 8/3 Very pale brown chalk. (Lewes Nodular Chalk , Seaford Chalk and Newhaven Chalk Formations [Undifferentiated])
CA02	0.00	0.20	Topsoil	Topsoil
CA02	0.20	1.20	Matrix-supported gravel	7.5 YR 4/4 Brown clayey gravel. Very poorly sorted, matrix supported gravel. Granular to cobble-sized, angular to sub rounded clasts of brown to black flint.
CA02	1.20	1.45	No recover	Void
CA02	1.45	1.71	Matrix-supported gravel	7.5 YR 4/4 Brown clayey gravel. Very poorly sorted, matrix supported gravel. Granular to cobble-sized, angular to sub rounded clasts of brown to black flint. Sharp boundary to:
CA02	1.71	2.15	Matrix-supported chalky gravel	10 YR 8/2 Very pale brown matrix supported gravel of very poorly sorted granular to cobble-sized, angular to sub rounded clasts of brown to black flint. Matrix of fine sand to granular-sized particles of chalk. Sharp boundary to:

CA02	2.15	2.70	Clast-supported sandy gravel	10 YR 4/6 Dark yellowish brown, very poorly sorted, clast supported sandy gravel. Granular to coarse pebble-sized, angular to sub rounded clasts of brown to black flint. Sand fine to coarse. Rare coarse pebble-sized flint nodules.
CA02	2.70	3.22	No recover	Void
CA02	3.22	3.30	Clast-supported sandy gravel	10 YR 4/6 Dark yellowish brown, very poorly sorted, clast supported sandy gravel. Granular to coarse pebble-sized, angular to sub rounded clasts of brown to black flint. Sand fine to coarse. Rare coarse pebble-sized flint nodules. Sharp boundary to:
CA02	3.30	4.20	Chalk	10 YR 8/3 Very pale brown chalk. (Lewes Nodular Chalk, Seaford Chalk and Newhaven Chalk Formations [Undifferentiated])
CA03	0.00	0.20	Topsoil	Topsoil
CA03	0.20	1.20	Clast-supported gravel	10 YR 4/6 Dark yellowish brown, very poorly sorted, clast supported gravel. Granular to cobble-sized, angular to sub rounded clasts of brown to black flint. Rare rounded white vein quartz fine pebble. Flint clasts of cobble size are rare. Diffuse boundary to:
CA03	1.20	1.37	No recover	Void
CA03	1.37	2.40	Clast-supported gravel	10 YR 4/6 Dark yellowish brown, very poorly sorted, clast supported gravel. Granular to cobble-sized, angular to sub rounded clasts of brown to black flint. Flint clasts of cobble size are rare. Rare rounded quartzite pebble. Gradual boundary to:

CA03	2.40	2.50	Sandy silt/clay	10 YR 3/1 Very dark brown coarse sandy silt/clay intimately mixed with 10 YR 4/6 Dark yellowish brown silt/clay. Occasional granular to pebble-sized flint clast. Diffuse boundary to:
CA03	2.50	2.70	Clast-supported gravel	10 YR 4/6 Dark yellowish brown, very poorly sorted, clast supported gravel. Granular to cobble-sized, angular to sub rounded clasts of brown to black flint. Flint clasts of cobble size are rare. Sharp boundary to:
CA03	2.70	2.80	Silt/clay	10 YR 3/3 Dark brown silt/clay (?Palaeosol). Sharp and irregular boundary to:
CA03	2.80	4.20	Chalk	10 YR 8/3 Very pale brown chalk. (Lewes Nodular Chalk , Seaford Chalk and Newhaven Chalk Formations [Undifferentiated])
CA04	0.00	0.20	Topsoil	Topsoil
CA04	0.20	1.74	Clast-supported sandy gravel	7.5 YR 4/6 Strong brown, very sandy gravel of granular to cobble-sized angular to sub rounded flint clasts. Sharp boundary to:
CA04	1.74	1.88	Chalky silt/clay	10 YR 6/8 Brownish yellow compact silt/clay with occasional granular to fine pebble-sized angular chalk clasts and rare flint granules. Diffuse boundary to:
CA04	1.88	2.85	Clast-supported sandy gravel	7.5 YR 4/6 Strong brown, very sandy gravel of granular to cobble-sized angular to sub rounded flint clasts. Sharp boundary to:
CA04	2.85	3.16	Sandy silt/clay	5 YR 4/3 Yellowish red compact, fine sandy clay becomes yellower towards base. Occasional granular to pebble-sized flint clast. Diffuse boundary to:

CA04	3.16	3.24	Silt/clay	10 YR 3/3 Dark brown silt/clay (?Palaeosol). Sharp and irregular boundary to:
CA04	3.24	4.20	Chalk	10 YR 8/3 Very pale brown chalk. (Lewes Nodular Chalk , Seaford Chalk and Newhaven Chalk Formations [Undifferentiated])
CA05	0.00	0.20	Topsoil	Topsoil
CA05	0.20	1.20	Clast-supported gravel	10 YR 4/6 Dark yellowish brown, very poorly sorted, clast supported gravel. Granular to cobble-sized, angular to sub rounded clasts of brown to black flint. Flint clasts of cobble size are rare.
CA05	1.20	1.40	No recover	Void
CA05	1.40	2.20	Clast-supported gravel	10 YR 4/6 Dark yellowish brown, very poorly sorted, clast supported gravel. Granular to cobble-sized, angular to sub rounded clasts of brown to black flint. Flint clasts of cobble size are rare. Diffuse boundary to:
CA05	2.20	2.70	Matrix-supported gravel	10 YR 4/4 Dark yellowish brown matrix supported clayey gravel of granular to pebble-sized angular to sub rounded flint clasts and rare coarse pebble-sized chalk clasts.
CA05	2.70	2.85	No recover	Void
CA05	2.85	3.00	Matrix-supported gravel	10 YR 4/4 Dark yellowish brown matrix supported clayey gravel of granular to pebble-sized angular to sub rounded flint clasts and rare coarse pebble-sized chalk clasts. Diffuse boundary to:
CA05	3.00	3.90	Clayey gravel	10 YR 3/2 Very dark greyish brown silt/clay mixed with 7.5 YR 4/6 Strong brown fine sandy silt/clay with frequent granular to cobble-sized, angular to sub rounded clasts of flint. Sharp and irregular boundary to:

CA05	3.90	4.20	Chalk	10 YR 8/3 Very pale brown chalk. (Lewes Nodular Chalk , Seaford Chalk and Newhaven Chalk Formations [Undifferentiated])
CA06	0.00	1.56	Made ground	Made ground. Mixed deposits of clayey sandy gravels with brick, concrete, metal and clinker. Back filled former quarry.
CA06	1.56	2.70	Chalk	10 YR 8/3 Very pale brown chalk. (Lewes Nodular Chalk , Seaford Chalk and Newhaven Chalk Formations [Undifferentiated])