

Savile House, Music Practice Rooms, New College, Oxford



Addendum 2 to Evaluation Report

oxfordarchaeology

southsouthsouth
February 2015

Client: Austin Newport Ltd

Issue No: Draft
OA Job No: 6023
NGR: SP 5172 0671



Client Name: Austin Newport Ltd
 Client Ref No:
 Document Title: Savile House, Music Practice Rooms, New College, Oxford
 Document Type: Addendum 2 to Evaluation Report
 Issue/Version Number: draft
 Grid Reference: SP 5172 0671
 Planning Reference:
 Site Code: OXNSM14
 Invoice Code: OXNSMEV
 Receiving Museum: Oxfordshire County Museum Service
 Museum Accession No: OXCMS: 2014.203
 OA Job number: 6023

Issue	Prepared by	Checked by	Approved by	Signature
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Document File Location X:\o\Oxford New College Savile House Music Room\Report
 Graphics File Location \\Samba-1\invoice codes i thru q\O_codes\OXNSMEV
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Savile House, Music Practise Room, New College, Oxford

Addendum to Archaeological Evaluation Report

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and Illustrated by Lucy Gane

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Figure 1: Profile across bank



Summary

In September 2014, Oxford Archaeology (OA) undertook an archaeological evaluation and topographical survey of the 17th century civil war defences at Savile House Music Practise Rooms, New College, Oxford (SP 5172 0671, OA 2014)

This was followed in November 2014 by an additional topographical and auger survey of the defensive bank requested by the Oxford City Council (OCC) Archaeologist. The results of this survey were presented in an addendum to the original report, and confirmed that the composition of the bank was predominantly a re-deposition of the loessic subsoil which overlies the second (Summertown-Radley) gravel terrace upon which Oxford sits.

During the original evaluation, OSL (optically stimulated luminescence) samples were also taken and the result of the dating of one of these samples is the subject of this second addendum to the original report.

The evaluation revealed the sand gravel of the second (Summertown-Radley) gravel terrace, which appeared to slope gradually from south to north and had been truncated by a single undated post hole. The fill of the post hole and the natural gravel were directly overlain by a series of deposits associated with an earth bank which formed part of the inner civil war defences constructed around Oxford in the 17th century. The composition of the deposits which created the bank was predominantly a re-deposition of the loessic subsoil which overlies the gravel terrace, overlain by a very compacted layer of re-deposited sand and gravel. This differed from the composition of the rampart of the more substantial outer defensive circuit recorded at Manor Place to the east of the site, although it was very similar to evidence recovered for the composition of another section of the inner bank during groundworks for the construction of The New Oxford University Clubhouse on the east side of Mansfield Road. The topographical and stratigraphical evidence from the evaluation indicated that an earlier feature in the landscape - represented by the re-deposited loess - may have influenced the location of the inner defences, and possibly been incorporated into them when a ditch was excavated to the north of the feature and the resulting spoil used to raise the top of the bank - as represented by the compacted sand and gravel.

The results of the dating of one of the OSL samples from the re-deposited loess suggested a date of 880-1045 for the deposition of the original bank material, which strongly suggested that this interpretation is correct. The interpretation of the origin and function of this feature is rather more circumspect.



1 INTRODUCTION

1.1 Location and scope of work

- 1.1.1 Following consultation with the archaeologist at Oxford City Council (David Radford), Oxford Archaeology (OA) was commissioned by Austin Newport Ltd to undertake the excavation of two trial trenches and a topographical survey at New College music practise rooms, Savile House, Mansfield Road (OA, 2014a). Following on from the results of the evaluation, an additional topographical and auger survey of the defensive bank was requested by the Oxford City Council (OCC) Archaeologist, David Radford and was the subject of an earlier addendum to the evaluation report (OA, 2014b). OSL (optically stimulated luminescence) samples were also taken during the evaluation, and the results from the dating of one of these are the subject of this second addendum to the original report.
- 1.1.2 The work was undertaken in advance of a planning application for a proposed extension to the existing building. An assessment of the heritage resource at the site was produced by Dr Roland Harris (Harris 2014), and this also outlined the design of the proposed development and proposed a mitigation strategy which was designed to minimise the impact of the latter upon the former.
- 1.1.3 The site lies on the line of an earthwork which is shown on contemporary drawings as the inner bank of the northern section of the defensive circuit constructed around Oxford during the English civil war. The archaeological investigations were designed to further inform any potential mitigation strategy. The trenches were located on the line of the bank to assess the date and level of survival of the feature, in addition to the elevation of any pre-existing archaeological horizons which may be impacted on by the proposed development.

1.2 Geology and topography

- 1.2.1 The proposed development site lies between the Cherwell and the Thames (Isis), near the edge of the second (Summertown-Radley) gravel terrace, and a short distance west of the first (flood plain type) terrace, overlying Oxford clay and Kellaway beds (BGS map sheet 236).
- 1.2.2 The site is situated on the north edge of the historic centre of Oxford, and lies at approximately 62m OD.

2 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

2.1 Introduction

- 2.1.1 An Archaeological Assessment and Mitigation Strategy has been prepared by Dr Roland B Harris for this project (Harris, 2014), which details the archaeological and documentary background of the site. It summarizes the history of the site as evidenced by documentary and cartographic sources and by previous archaeological investigations on the site and in the vicinity. The archaeological and historical background from this document are also reproduced in the evaluation report (OA, 2014a).



3 AIMS AND METHODOLOGY

3.1 Specific aims and objectives

3.1.1 The specific aims and objectives of the OSL sampling was to assess:

- evidence for the date of the original deposition of the material forming the feature shown on contemporary sources as part of the civil war defences around the city.

3.2 Methodology

3.2.1 The sample was collected by David Peat on the 22d of September 2014 and was part of a series of three samples (OSL 1, 2 and 3) taken from the south facing section in Trench 2 (OA, 2014, Fig. 4). The three samples were given field codes SHO14-01, SHO14-02 and SHO14-03 and assigned to laboratory codes X6663, X6664 and X6665. These were collected from contexts 205, 206 and 209 respectively.

3.2.2 The specific aim of the analysis of the OSL samples was to attempt to establish a date for the deposition of the primary element of the bank. Consequently, Sample 2 (SH014-02/X6664) was selected for initial analysis as this was taken from the stratigraphically earliest deposit which could definitively be interpreted as part of the earthwork.

3.2.3 The dating of sample OSL 2 and a summary of the information pertaining to the analysis is presented in the Appendix A.



4 DISCUSSION

4.1 Reliability of field investigation

4.1.1 The sand sized quartz extracted for OSL dating presented good signal characteristics including good sensitivity, low thermal transfer, low variability between multiple measurements as well as good recycling and negligible infrared signals indicative of feldspar contamination. From a technical point of view, there appeared to be no reason to question the veracity of the OSL age estimate nor the corresponding error margin (J-L Schwenninger, Head of Luminescence Dating Laboratory, University of Oxford, pers. comm.).

4.2 Discussion of results from evaluation trenches

The following section (4.2) is a reproduction of the discussion for the original evaluation report - all figures and references can be found in that document. This will be followed by further discussion of the results in the light of the results from the OSL sample analysis (4.3).

The gravel terrace

4.2.1 During the 1992 works at the Hand's Building site, the natural gravel was encountered at 60.30m OD (approximately 0.7m below ground level) and was overlain by an "earlier subsoil", which may well have represented surviving *in-situ* loess. The level of the lawn within the Fellows garden of Mansfield College to the north of the bank was at 60.9m - 60.98m OD (Fig. 5). Consequently, allowing for c 0.7m of topsoil and potentially surviving loess within the Fellows garden, the anticipated top of the gravel at 60.2m OD to 60.28m OD would be broadly consistent with that from the Hands Building site. As the gravel in the trenches c 4m to the south of the lawn was encountered at 60.58m OD, this perhaps indicates a slight topographical incline from north to south.

4.2.2 The fact that the top 0.2 - 0.3m of the natural gravel (100/209) appeared to be "dirtier" than the underlying deposits (107/210) is likely to be a result of material permeating through the upper element of the gravel from the overlying deposit (103/206). The lack of *in-situ* loess directly overlying the gravel (which was seen to the east (OA, 2003) and possibly the west (OAU 1992)) is likely to be the result of the original subsoil having been disturbed (see below), which is probably the origin of this process.

Features pre-dating the bank

4.2.3 A single undated post-hole was recorded in Trench 1. In isolation this is of limited significance, although results from earlier excavations in the vicinity (OA 2008) do suggest that the site lies in an area that has a high potential to contain evidence for Prehistoric (Neolithic to Bronze Age) ritual and funerary activity, and also lies adjacent to the known Romano-British settlement site excavated in advance of the construction of the Institute of American Studies (Booth and Hayden 2001) and at the new Chemistry Research Building (Bradley et al 2005)

4.2.4 In the immediate environs of the site, the 1992 trenching in advance of the construction of the Hand's building revealed two pits beneath the "earlier subsoil" to the north of the 17th century ditch. These were undated, but may indicate settlement activity pre-dating the agricultural use of this land indicated by the majority of the cartographic sources.



Composition of the rampart deposits

- 4.2.5 The composition of the bank itself comprised a mixed deposit immediately overlying the gravel (103/209), overlain by a layer of almost exclusively re-deposited loess (104/206) which was in turn overlain by a very compacted layer of re-deposited sand and gravel (105/205).
- 4.2.6 Additionally, following on from the evaluation on the site of the New University Clubhouse in 2001 (OA 2001), OA carried out a watching brief during the groundworks. This included excavations for a staircase in the southern part of the site which involved excavating a c 3.5m wide trench across the line of the defensive ditch, and also revealed the northern scarp of the bank (Plate 3). This clearly shows that the bank is predominantly composed of re-deposited loess, and the report also records that the top of the bank appeared to have been capped with gravel. This is consistent with the composition of the bank recorded during the recent works.
- 4.2.7 Although the groundworks for the late 19th - early 20th century construction of Savile House had truncated the top of the bank, it survived to a greater height to the west of the bike shed. Although the deposit at the top of the sequence in Trenches 1 and 2 (106/204) produced some 19th century artefactual material, this may have been as a result of disturbance during the truncation. Consequently, it is possible that this deposit may have originally have formed part of the bank - particularly given the similarity between the composition of this deposit and that recorded within the augered borehole. However, this deposit was not recorded during the 2003 works (OA 2003), although a "topsoil" layer was seen to overlies the upper fills of the ditch along the southern edge of the feature.
- 4.2.8 Excavations across the rampart and ditch of the more substantial outer defences at Manor Place to the east of the site (Wessex Archaeology, 2012) revealed a sequence of interleaving layers of re-deposited gravel and clay. This was interpreted as "*.....an intentional design to allow the various bands of relatively loose unconsolidated gravel to be 'bound' by the clay into a more stable viable structure.*" (Wessex Archaeology, 2012, p.7). This is of a clearly different construction to the stretch of the inner defences investigated at Savile House and further to the east beyond The King's Mound (OA, 2003).
- 4.2.9 The bank itself produced very few finds, but the datable material which was recovered included a sherd of residual Roman greyware and a rim sherd from a medieval Oxford ware thumbled cooking pot dating between 1075 and 1300 from Deposit 206. A sherd of Brill Boarstall ware from the same deposit in Trench 1 (104) is likely to date from 1300-1625.
- 4.2.10 Although neither of the medieval sherds was particularly abraded, and both seemed relatively well stratified within the re-deposited loess deposit, it is feasible that these two sherds could potentially have been intrusive due to the presence of fairly large roots in Trench 1 and the 19th century soakaway in Trench 2, and the relatively small size of the sherds (both weighing around 10g).

Interpretation of rampart deposits

- 4.2.11 The lack of in-situ loess overlying the natural gravel perhaps suggested that the topsoil had been stripped prior to the creation of the bank, and it is possible that the mixed deposit (103/209) represented a layer of trample created during the construction process.



- 4.2.12 If this is the case, then the likely interpretation of the re-deposited loess (104/206) and overlying compacted gravel (103/209) is that they represent upcast from the fronting ditch to the north which has been used to construct the bank. This is consistent with the interpretation of the composition of the bank at the New University Clubhouse (OA, 2003).
- 4.2.13 However, a number of factors may suggest that this stretch of the civil war defences is utilising a pre-existing feature in the landscape:
- the elevation of the gravel recorded in 1992 (60.30m OD) and during the recent trenching (60.58m OD) - together with the results of topographical survey - may indicate a north-south incline in the natural topography. This incline appeared to be even more pronounced in the elevation of the gravel at the New University Clubhouse, which was at c59.27m OD to the north of the ditch and c59.92m at the base of the bank. (6m to the south).
 - the location and orientation of the bank broadly corresponds with a field boundary shown on a 1578 plan of the city by Ralph Agas (Fig. 6). To the west of the site, Agas' plan also shows an intersection with a north-south aligned field boundary which corresponds with a change in alignment of the later defences shown by David Loggan in 1675 (Fig. 7) and the later alignment of Love Lane (Fig. 8), which follows the line of this section of the defences. The presence of pre-existing field boundaries may explain the survival of the defensive bank in these locations, as opposed to the almost complete destruction of the more substantial outer defences (Harris, 2014).
 - the composition of the majority of the bank is not consistent with material being upcast from a ditch dug primarily through gravel to the north, as it is predominantly composed of re-deposited loess.
- 4.2.14 Consequently, an alternative interpretation is that the field boundary shown by Agas may actually correspond with a lynchet which has subsequently been incorporated into the civil war defences, and that the mixed deposit directly overlying the gravel is potentially an agricultural re-working of the loess.
- 4.2.15 Lynchet is a term used generally to describe a stepped break in slope that is / has been used in arable cultivation. Lynchets are variously formed, and some are deliberately constructed to form a bank on a slope to prevent soil run-off, against which soil then accumulates forming a stepped effect. Others form naturally at defined field edges (for example at a hedgeline) where run-off / creep, and the plough in the field above deposits soil, and the plough in the field below denudes the soil from beneath the bank. (Dan Bashford, pers. comm.)
- 4.2.16 This would account for the fact that the main body of the bank excavated in Trenches 1 and 2 was primarily comprised of re-deposited loess, which may represent soil from further up the natural slope to the north accumulating against a defined field boundary.
- 4.2.17 The very compacted gravel overlying this deposit may represent upcast from the ditch seen during the 1992 trenching, which has been used to consolidate and raise the existing lynchet - with the overlying deposit which was encountered in the auger possibly representing a further layer of 17th century (or later) landscaping of the top of the rampart.
- 4.2.18 Although sparse and possibly residual, the dating evidence recovered from the re-deposited loess may also support the suggestion of an earlier - perhaps 14th century - feature. Further indication of an earlier date for the field system implied by Agas' map



could possibly be indicated by the sinuous nature of the east-west path through the cultivated plots to the rear (north) of the tenements shown on the later plan by Loggan (Fig. 7 and Harris, 2014, Fig. 2). Sinuous alignments of ridges and headland boundaries between different orientations of ridge and furrow are characteristic of some open field cultivation, and reflect the direction of the plough-team as they prepared to turn at the end of a strip. Although very tenuous, it is possible that this is the origin of the alignment of this path.

- 4.2.19 Other indications for an earlier feature on the alignment of the inner defences is referenced in the report on the 1992 trenching (OAU, 1992), which refers to observations made during the construction of Keble College squash courts where the eastern end of the bank meets what is now St Cross Road. These found that *"no ditch was seen"* and that *"[t]his was surprising because the fronting ditch was normally the source of material to construct the bank and was an integral part of the defences.....[i]t may transpire that this particular bank was formed by heaping up material from a plough headland or some other existing feature."*
- 4.2.20 Although a ditch clearly exists in the location of Mansfield College Fellows garden, this is further evidence that the inner defences may have followed the orientation of existing features in the landscape.

4.3 Interpretation following analysis of OSL sample

Origin of the sampled deposit

- 4.3.1 The OSL date estimate of 880-1045 is obviously consistent with the interpretation of the bank at Savile House as an earlier feature in the landscape which has been incorporated into the north-eastern part of the 17th century defensive circuit around the city.
- 4.3.2 Although the origin of this feature remains uncertain, there is compelling evidence to suggest that it was linear in nature rather than a discrete earthwork. The similarity in the composition of the bank at Savile House to that at the New University Clubhouse to the east; the lack of a fronting ditch at Keble College squash courts; and not least the field boundary in the same location and on the same alignment which is shown by Agas in 1578 - all suggest an earlier linear feature running parallel to the northern defences of the late Saxon burh c250m to the south.
- 4.3.3 Whilst acknowledging that there was a possibility that the dated sediment represented reworked earth from an older deposit which later became incorporated into a younger type of earthwork, Dr Schwenninger (Head of Luminescence Dating Laboratory, University of Oxford) considered this to be unlikely unless the sediment was removed at night or a very large lump of intact material was dug up and dumped elsewhere as a coherent mass of sediment with no chance of exposure to daylight. Additionally, contrary to what would be expected from a man made deposit such as an artificial bank, the OSL measurements showed no clear evidence of partial bleaching and from this point of view the accuracy of the OSL age estimate was considered to be sound. Therefore, it would appear that the sediment has been fully reset at deposition in line with what one would expect from well exposed in-situ natural sediment, characteristically of fluvial or alluvial origin (J-L Schwenninger, pers. comm.).
- 4.3.4 Consequently, the most likely origin for this deposit would seem to be a gradual accumulation of material, potentially at the boundary between two furlongs of ridge and furrow (a furlong referring to a field with furrows running on the same orientation (Hall,



2010). This may imply the formation of a lynchett as described above (4.2.15), although this feature is more commonly associated with steeper slopes.

4.3.5 Alternatively, it is possible that the feature represents the formation of a headland - where two furlongs on a perpendicular alignment meet, and the soil accumulated at the end of the ridges (heads) is smoothed out to create the first ridge of the adjacent field (in this case the one to the north).

4.3.6 However, if this were the case it is likely that there would be a horizontal interface between the re-deposited loess at the base of the sequence (104/206) and the overlying re-deposited gravel (105/205) revealed within the evaluation trenches. As this interface in fact slopes from north to south (Fig. 1), it is perhaps more likely that the feature formed at a joint boundary between two furlongs abutting end-to-end with the ridges running on a north-south orientation. This would be more likely to create a double row of heads forming a humped boundary between the two furlongs (Hall, 2010).

4.3.7 The following two paragraphs are taken from an article on Medieval Field Systems by David Hall in *British Archaeology* (Hall, 1998):

"The origin of open-field ridge and furrow cultivation can be estimated from archaeological and historical data. Archaeological evidence, for example from Milton Keynes, shows that furrows cut into, and are therefore later than, features of the Middle Saxon period (say c AD850). Saxon charters of the 10th - 11th centuries - making grants of blocks of land and containing descriptions of the land's boundaries - refer to furrows and headlands, some coinciding with kinks in present-day parish boundaries, suggesting they are describing the same estates. An example, one of many, is Hardwick in Berkshire.

More remarkably, the fiscal rating of each township in the Domesday Survey can be shown to be related to the number of yardlands in the township. Invariably, wherever there is evidence to back it up, a township with a rating of say four hides would contain 40 yardlands, taking ten yardlands to the hide. A township of five hides would have 50 yardlands. This implies that field-systems were already in existence in a highly structured way before 1086. Their creation would seem, therefore, to belong to the late Saxon period in many cases."

4.3.8 Consequently, the late Saxon date for the deposit in Trench 2 is consistent with the interpretation of an early linear feature forming a boundary between two fields of ridge and furrow, which is still a field boundary in 1578 when it is shown as such by Agas. This is presumably still a substantial enough boundary in the mid 17th century to be utilised as part of the inner line of earthworks around the northern part of the defensive circuit between the Cherwell to the east and the Thames to the west.

**APPENDIX A. SUMMARY OF OSL DATING RESULTS****Results**

4.3.9 The results are based on luminescence measurements of sand-sized quartz (180-255µm) extracted from the sample using standard preparation techniques including, wet sieving, HCl (10%) treatment to remove carbonates, HF treatment (48%) to dissolve feldspathic minerals and heavy mineral separation with sodium polytungstate. Measurements were made in a Lexsyg Research luminescence reader (Richter et al 2013) fitted with a novel type of ring source to enable uniform irradiation (Richter et al 2012). Blue light stimulated UV emissions (375nm) were detected through a Hoya U340 and Delta BP 365/50 filter pack with a Hamamatsu H7360-02 photomultiplier tube. A SAR post-IR blue OSL measurement protocol (Murray and Wintle 2000, Banerjee et al. 2001, Wintle and Murray 2006) was used for all the measurements. Dose rate calculations are based on in situ-radioactivity measurements made with a 3' NaI field gamma-ray spectrometer (Ortec micronomad) calibrated against the Oxford blocks (Rhodes and Schwenninger 2007) as well as on the concentration of radioisotopes (potassium, thorium and uranium) within the sample itself. The latter were derived from elemental analysis by ICP-MS/AES using a fusion sample preparation technique. The OSL age estimate includes an additional 4% systematic error to account for uncertainties in source calibration and measurement reproducibility. Dose rate calculations are based on Aitken (1985). These incorporated beta attenuation factors (Mejdahl 1979), dose rate conversion factors (Guerin et al. 2011) and an absorption coefficient for the water content (Zimmerman 1971). The contribution of cosmic radiation to the total dose rate was calculated as a function of latitude, altitude, burial depth and average over-burden density based on data by Prescott and Hutton (1994).

Field code	Lab. code	Burial depth (cm)	Water content (%)	Palaeodose (Gy)	Dose rate (Gy/ka)	Age estimate (years before 2015)
SH014-02	X6664	101	8.02	176±0.07	1.68±0.09	1050±80

Table of results: Summary of the optical stimulated luminescence (OSL) dating

Details of the OSL dating and radioactivity data

Sample field code SH014-02

Laboratory code X6664

Archaeological context Context 206

De (Gy) 1.76

Error (includes 4 % calibration error) 0.07

Grain size

Min. grain size (µm) 180

Max grain size (µm) 255



External gamma-dose (Gy/ka)	0.59
error (10%)	0.06

Measured concentrations

standard fractional error	0.05
% K	0.87
error (%K)	0.04
Th (ppm)	7.50
error (ppm)	0.37
U (ppm)	1.60
error (ppm)	0.08

Cosmic dose calculations

Depth (m)	1.01
error (m)	0.10
Average overburden density (g.cm ³)	1.90
error (g.cm ³)	0.10
Latitude (deg.), north positive	52
Longitude (deg.), east positive	1
Altitude (m above sea-level))	60
Cosmic dose rate (μGy/ka)	0.186
error	0.023

Moisture content

Measured (%)	8.02
Moisture (water/wet sediment)	0.08
error	0.03
Total dose rate, Gy/ka	1.68
error	0.09

AGE (years before 2015) 1050**error 80**

**APPENDIX B. BIBLIOGRAPHY AND REFERENCES**

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APPENDIX C. SUMMARY OF SITE DETAILS

Site name: Savile House, Music Practice Rooms, New College, Oxford
Site code: OXNSM14
Grid reference: SP 5172 0671
Type: OSL samples - addendum to evaluation report
Date and duration: 1 Day in September 2014

Summary of results: In September 2014, Oxford Archaeology (OA) undertook an archaeological evaluation and topographical survey of the 17th century civil war defences at Savile House Music Practise Rooms, New College, Oxford (SP 5172 0671, OA 2014)

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The evaluation revealed the sand gravel of the second (Summertown-Radley) gravel terrace, which appeared to slope gradually from south to north and had been truncated by a single undated post hole. The fill of the post hole and the natural gravel were directly overlain by a series of deposits associated with an earth bank which formed part of the inner civil war defences constructed around Oxford in the 17th century. The composition of the deposits which created the bank was predominantly a re-deposition of the loessic subsoil which overlies the gravel terrace, overlain by a very compacted layer of re-deposited sand and gravel. This differed from the composition of the rampart of the more substantial outer defensive circuit recorded at Manor Place to the east of the site, although it was very similar to evidence recovered for the composition of another section of the inner bank during groundworks for the construction of The New Oxford University Clubhouse on the east side of Mansfield Road. The topographical and stratigraphical evidence from the evaluation indicated that an earlier feature in the landscape - represented by the re-deposited loess - may have influenced the location of the inner defences, and possibly been incorporated into them when a ditch was excavated to the north of the feature and the resulting spoil used to raise the top of the bank - as represented by the compacted sand and gravel.

The results of the dating of one of the OSL samples from the re-deposited loess suggested a date of 880-1045 for the deposition of the original bank material, which strongly suggested that this interpretation is correct. The interpretation of the origin and function of this feature is rather more circumspect.

Location of archive: The archive is currently held at OA, Janus House, Osney Mead, Oxford, OX2 0ES, and will be deposited with the Oxfordshire County Museum Service in due course, under the following accession number: OXCMS: 2014.203

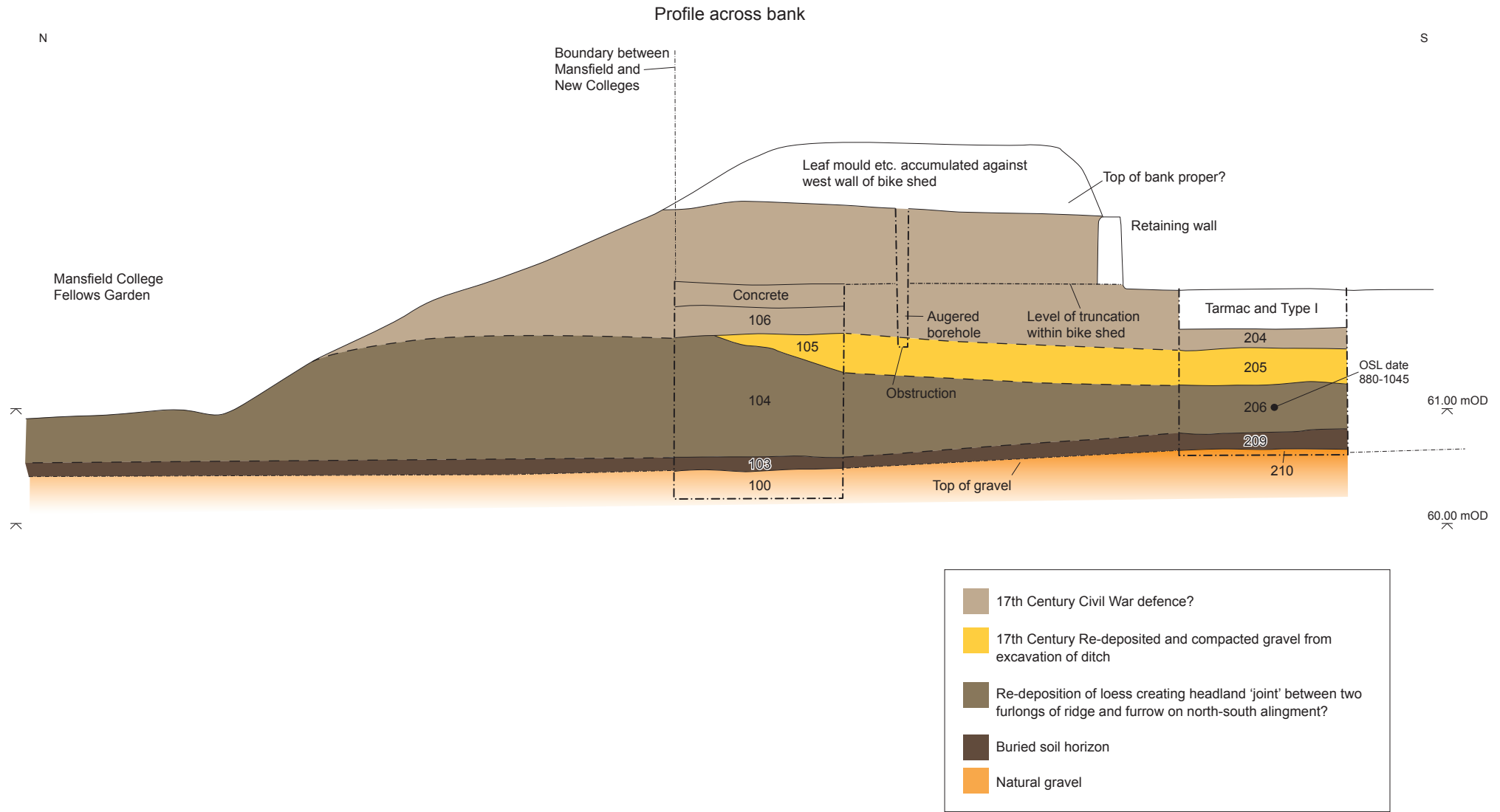


Figure 1: Profile across bank



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