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Archaeological Watching Brief and Geoarchaeological Assessment Report

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61 St Aldate's, Oxford

Archaeological Watchin Brief Report and Geoarchaeological Assessment

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Summary

In September 2010, Oxford Archaeology South (OAS) undertook an archaeological field investigation at a proposed new student accommodation building at the site of 61 St Aldate's, Oxford. The Site lies just off the Grandpont, one of the principal historical crossing points over the River Thames. The purpose of the work was to provide baseline data regarding the preservation of archaeological and palaeoenvironmental remains at the site.

A watching brief was maintained on all intrusive works associated with the removal of the existing building remains. A number of trenches were excavated for new services and to removed existing ones. Two foundation pits for a lift shaft and crane base were also monitored. In addition two geoarchaeological boreholes were undertaken on the site in order to mitigate the impacts of piling and to assess the geoarchaeological potential.

No significant archaeological features or deposits were identified during the watching brief. The service trenches revealed a sequence of modern building rubble overlying thick post medieval land make-up deposits, on to a moderately well preserved floodplain sequence. With the exception of the ground piles, the impact of the development will be confined mostly to the post medieval reclamation deposits. The trenches only went deep enough to investigate the upper alluvial sequence. Only the boreholes were able to record the full alluvial sequence to Pleistocene gravels.

The two boreholes produced a 3.4m deep Holocene sequence of organic silts and alluvium overlying Pleistocene gravel and sealed by up to 2m of post medieval land reclamation deposits. The results of the fieldwork would suggest the site was reclaimed from the 11th century associated with the construction of the Grandpont, and then late experienced significant ground raising activities in the post medieval period. Prior to this the site may have been too wet for occupation and frequently prone to waterlogging and flooding.



61 St Aldate's Street, Oxford

Archaeological Watching Brief Report and Geoarchaeological Assessment

1 INTRODUCTION

1.1 Location and scope of work

- 1.1.1 In September 2010 Oxford Archaeology South (OAS), were commissioned by Vinci Construction Ltd on behalf of Quion Estates to undertake an archaeological watching brief, archaeological excavation (as required) and geoarchaeological boreholes on the site of a proposed student accommodation building at 61 St Aldate's, Oxford.
- 1.1.2 The Site is located along Grandpont, the historical river crossing over the River Thames. The area is considered to have high potential to contain important archaeological and palaeoenvironmental remains.
- 1.1.3 The work was undertaken as a condition of Planning Permission, 07/01253/FUL and 09/02215/FUL following recommendations made by the City Archaeologist. The work was carried out in accordance with the procedures and methods outlined within the written scheme of Investigation (OA 2010).

1.2 Geology and topography

- 1.2.1 The Site is located at 61 St Aldate's, Oxford (SP 51400566), at the confluence of the Trill Mill Stream and River Thames. The River Thames lies to the south and the Trill Mill stream to the north (Figure 1). Immediately to the east is St Aldate's Road, which was one of the main crossing points over the River Thames.
- 1.2.2 The area of proposed development currently consists of a building, formerly the Apollo public house, with open space and outbuildings behind. This property was under demolition at the time of writing. The site has been levelled and currently the ground level is 56.65m OD.
- 1.2.3 The geology of the site is mapped as Thames floodplain gravels overlain by alluvial silts (BGS Sheet 236 1:50,000). A more detailed discussion about the floodplain and channel development is laid out in "Oxford Before the University" (Dodd, 2003) and is outlined briefly in section 1.4.

1.3 Archaeological and historical background

- 1.3.1 A comprehensive study of the origins and development of Oxford to the end of the 12th century draws on evidence from excavations in the city from the 19th century to the present day (Dodd, 2003). The proposed development lies in a block of land located to the south of the historic walled core of Saxon and Medieval Oxford.
- 1.3.2 The archaeological potential of the site was considered to be high. Archaeological deposits may have survived beneath the building, and these would have potential for improving our understanding of the Thames crossing area from prehistory through to the creation of the medieval and post-medieval town.



Prehistoric Period

- 1.3.3 A Late Beaker settlement and burial excavated at The Hamel (Palmer, 1980) utilised a gravel island to the west of the site, and artefacts found during previous excavations in the vicinity do indicate the proximity of prehistoric occupation sites upstream and downstream of the site. Amongst the other sites identified on the floodplain in recent years are those at Yarnton (Hey, in prep) and Kings Weir Barrows (Bowler and Robinson, 1980).
- 1.3.4 There is some evidence for the further utilisation of nearby gravel islands during the middle Iron Age period, particularly from the excavations at Whitehouse Road (Mudd *et al*, 1993). The settlement at Whitehouse Road conformed to a pattern of Iron Age settlement in the Upper Thames region, showing intensified occupation on the gravel terraces around the early 3rd century BC, followed by a shift or abandonment in the 1st century BC (e.g. - Farmoor, Claydon Pike etc. (Mudd *ibid.*)), possibly coinciding with the onset of the clay alluviation further discussed below (1.4.3).
- 1.3.5 In the late Iron Age, the Upper Thames Valley was a frontier zone between three different tribal groupings, the Dobunni to the west, the Atrebates to the south and the Catuvellauni to the east. A number of 'valley forts' or 'enclosed oppida' appear in the region at this time (e.g. - Dyke Hills, Dorchester) and seem to have been associated with the defence of Thames tributaries. None as yet have been identified on the Cherwell and there is as yet there is no evidence for any such defensive enclosure in Oxford.

Roman Period

- 1.3.6 Roman artefacts have also been identified during earlier excavations in the general vicinity of the site but again no structural evidence relating to Roman occupation was revealed and to date there is no evidence for any Roman town at Oxford (Henig and Booth 2000 cited in Dodd, *ibid.* p 11).

Saxon Period

- 1.3.7 Archaeological evidence for an early Saxon presence in Oxford remains very slight and no early Saxon occupation is known from the area of the medieval walled town. Archaeological evidence for mid Saxon activity is almost exclusively restricted to the south edge of the Second Gravel Terrace and the Thames crossing and beyond. It comprises evidence for settlement and activity along the line of the river crossing (Dodd, 2003 p 13).
- 1.3.8 In the middle Saxon period the site at 61 St Aldate's fronted onto a probable timber bridge of this date (Ibid 14, Fig 2.3) which is thought to have joined two islands on the river floodplain. Apart from the frontage onto the bridge, the site is likely to have been situated within the river channel at this time. A mid-Saxon summer water level of around 54 m OD is suggested (Ibid, 79; Gaz No. 91).
- 1.3.9 The late Saxon period saw increased human activity on the floodplain, including settlement – a building from the late 10th century was found at 79-80 St Aldate's (Ibid, Gaz No.94). Sedimentation was occurring at the edge of the revetted islands and in some channels, and there is evidence of flax processing from macrofossils preserved within these deposits. There was also evidence of land reclamation by dumping. The 61 St Aldate's site now fronted onto a ford with a rubble surface at +53.78m OD, which was exposed at 65 St Aldate's (Ibid. Gaz No.93). The timber bridge may have survived.



Medieval period

- 1.3.10 Land reclamation is known to have been taking place in the area of the site in the post-conquest period (and could have started earlier) with increased silting in the river channels. This in part reflects the slowing of the river flow by the construction of the stone causeway known as the Grandpont in the late 11th century. The causeway has been proven to still exist as far north as 33 St Aldate's but it is not known how much further it extended northwards. It is possible that it reached as far north as Trill Mill Stream (ibid. 86).
- 1.3.11 At 33 St Aldate's there was land reclamation soon after Grandpont was built and occupation began in the late 11th or early 12th centuries, but there was little activity other than revetment at 56-60 St Aldate's.
- 1.3.12 The early history of the 61 St Aldate's plot is not well known. In general, properties which developed along the side of the crossing were at first irregular but the frontage did become regularised as shown in Dodd 2003, Fig 3.14. From the later 12th century there was a radical change and a number of new properties were built in stone.
- 1.3.13 Number 61 St Aldate's (south-west No.6 in Salter's survey in 1928; see Fig 3.14 in Dodd 2003) belonged to Abingdon Abbey. It lay between St Aldate's and a back stream (from Blackfriars Mill). It was later to become a public house, The Apollo.
- 1.3.14 At number 65 St Aldate's, just to the north, 13th century floors were found at a level of around +55.80m OD (Durham 1984).

1.4 Geoarchaeological background

- 1.4.1 The buried alluvial sequences in the immediate vicinity of the Site have previously been considered in some detail. Excavations at numerous sites along the line of St Aldate's have revealed a complex sequence of channel fills and island deposits relating to both the main Thames channel and the Trill Mill Stream to the north.
- 1.4.2 The surface of the late Devensian gravels (the 1st Gravel Terrace or Floodplain Terrace) varies considerably in the area and topographic high points are known to exist at the head of the River (+54.00m OD) and the western part of Blackfriars (+54.21m OD). In the vicinity of the Police Station, and at 65 St Aldate's, elevations are lower at +53.40m OD. A steeply incised channel at 33 St Aldate's probably marks the line of the final Devensian proto-Thames channel. Augering of this channel failed to reach the bottom but it was found to be peat filled below 52.50m OD. Peat deposits were also found directly above the gravel at 56-60 St Aldate's, a little to the north, between +53.00m and +52.40m OD. The peat is undated but is thought to have accumulated during the early to middle Holocene. At this last site, detailed assessment revealed palaeoenvironmental preservation to be poor in the peat, the abundance of rootlets suggesting it formed slowly in shallow water. Wood fragments from alluvium sealed beneath what was thought to be an early fording point, recorded during the excavation of the BT Tunnel (the junction of St Aldate's and Thames Street), produced a radiocarbon date of 7530-6700 cal BC (OxA-4354).
- 1.4.3 During the late Bronze Age or early Iron Age the rising water table resulted in the accumulation of minerogenic silt clays, with more organic deposits lying over the surface of the gravel at higher elevations. A radiocarbon date of 1010-400 cal BC (HAR-209) was obtained from organic silt above the gravel at Linacre, and a similar deposit was recorded at 79-80 St Aldate's where the gravel lay at +53.70m OD. Seeds were well preserved in this deposit and included aquatic plants and plants of seasonally exposed mud such as golden dock and pale persicaria. Molluscs were also preserved



and included flowing water species as well as the articulated valves of river pea mussels (*Pisidium spp.*). Organic deposits infilling the Trill Mill Stream produced similar results and were dated to 800-260 cal BC (HAR-5342). Although *Phragmites* reed swamp spread extensively across the area, not all the floodplain was drowned during this period. Areas of drier ground remained at Blackfriars and the Head of the River, as well as further south at Whitehouse Road.

- 1.4.4 During the Roman and early Saxon periods an increase in the sediment load of the river, due to agricultural intensification, led to the accumulation of thick deposits of minerogenic alluvium that rapidly infilled the floodplain area around St Aldate's. At 79-80 St Aldate's the alluvium was recorded up to +54.75m OD and at Trill Mill +54.55m OD. Seasonally inundated alluvial islands probably formed in the lower-lying areas where sediment became trapped around the roots and stems of *Phragmites*.

1.5 Acknowledgements

- 1.5.1 OA would like to thank Simon Prendergast and Ashley Hopkins of Vinci Construction Ltd. The watching brief was maintained by Ian Cook and Steven Leech. The borehole survey was undertaken under the guidance of Carl Champness, who also produced this report. The Project was managed by Dave Wilkinson.



2 WATCHING BRIEF AIMS AND METHODOLOGY

2.1 Aims

2.1.1 The main aim of the archaeological field investigations was to record and understand archaeological deposits that would be affected by the proposed development. This also included the deeper alluvial sequence which is to be affected by ground piling. An examination of the site sequence can provide information on past environments, diet, river regime and vegetation. The work also aimed to place these results in their appropriate sedimentary context and to disseminate these results to the widest possible audience, both specialist and general.

2.2 Specific Objectives

2.2.1 The specific objectives of the archaeological work were:

- (i) To gain an understanding of the development of the 61 St Aldate's plot from the Saxon period to the Medieval and post-Medieval periods, with particular reference to revetment of the natural island in the floodplain, land reclamation, and subsequent construction.
- (ii) To gain an understanding of the use of the plot through these periods through study of the finds and environmental data, with particular reference to evidence for craft, industrial or domestic activities.
- (iii) To understand the stratigraphic and palaeoenvironmental sequence of deposits underlying those which will be impacted on by the development.

2.3 Scope of works

2.3.1 The footings of the existing building were removed on site by mechanical excavator, to around +55.8m OD. The existing ground slab and at least some of its underlying make-up were also removed by mechanical excavator. A number of trenches were excavated for new services and to remove existing services, to around +55m OD (Figure 2: Trenches 1-3). A foundation pit for a lift shaft base (Trench 4) measuring about 2.6m square and to 0.50m depth was also excavated. A foundation pit for a crane base (Trench 5) was excavated to +55.15m OD.

2.3.2 Two boreholes were also undertaken prior to foundation piles being drilled into the site for the new building. The borehole aimed to help mitigate the impact of the piles on the important underlying alluvial sequence on the site. The boreholes were drilled using a Terrier percussion rig and taken down to the top of Pleistocene gravels. A continuous sequence of undisturbed core samples were retrieved from each location. These were monitored on site by a geoarchaeologist and located relative to the National Grid and Ordnance Datum.

2.4 Archaeological Monitoring

2.4.1 The archaeological monitoring undertaken at the site observed the removal of the existing foundations and the digging of the service trenches. These sections were recorded prior to any backfilling of the trenches.

2.4.2 In addition the crane base was excavated under archaeological supervision. A toothed bucket was used for the very hard (eg rubble or concrete) deposits of low or no archaeological significance, elsewhere a standard toothless ditching bucket was used.



2.4.3 Recording of the trenches followed standard procedures and protocols as outlined in the WSI (OA 2010) and IFA guidelines.

2.5 Geoarchaeological sampling

2.5.1 Two boreholes were taken at targeted locations across the site in order to investigate and sample the deeper floodplain alluvial sequences. The primary purpose of the work was to record the stratigraphy in detail and retrieve samples suitable for sediment description, palaeoenvironmental assessment and dating work. The borehole locations took into account the data retrieved from recent geotechnical investigations undertaken by Structural Soils in February 2010. These sampling locations were targeted on the proposed ground piles and were designed to help mitigate their impact. However their locations needed to be changed in the field due to access and health and safety considerations on site.

2.5.2 Following completion of the fieldwork the cores were transported back to OA premises where they were extruded, logged and photographed. The sediments were described according to Jones *et al* 1999, to include information about depth, texture, composition, colour, clast orientation, structure (bedding, ped characteristics etc) and contacts between deposits. Each deposit was recorded according to depth below borehole ground level (bgl). Note was also made of any visible ecofactual, or artefactual inclusions e.g. pottery, daub or charcoal fragments.

2.5.3 The lithological data was correlated into sedimentary units and then compared with the stratigraphic model proposed for St Aldate's (Robinson in Dodd 2003). The borehole results are discussed in relation to this model.



3 RESULTS

3.1 Introduction and presentation of results

- 3.1.1 The results presented in the main text of this report provide a detailed overview of the findings of the archaeological monitoring works and geoarchaeological sampling. A comprehensive listing of individual trench descriptions and related context data can also be found in Appendix A. The representative trench sections are reproduced in Figure 3 and borehole sequence in Figure 4.
- 3.1.2 A decimal numbering system was employed to ensure that contexts (individual archaeological records of features and deposits) recorded during the watching brief could be easily correlated. Due to the close proximity of the trench sequences and the consistency of the deposits, single context numbers were used for the same deposits represented between trenches. For example, a single context number (1000) was used to refer to the land reclamation deposits that was identified across the site. Only where there was some question over the origins of the deposits were different context numbers assigned.
- 3.1.3 All recovered finds and samples are recorded in the specialist reports in Appendices B and C, with a summary also provided in the detailed trench descriptions (see Appendix A). The trench descriptions also contain the dimensions of both the trenches and the deposits within and, where appropriate, the relevant dating.

3.2 General soils and ground conditions

- 3.2.1 As has been noted in the wider evaluation area, the geology of the site has been investigated in a number of previous studies. The trenches were dug through thin deposits of modern building rubble and thicker land make-up deposits, onto a moderately well preserved floodplain sequence. The service trenches only went deep enough to investigate the upper alluvial sequence. Only the boreholes were able to reach the full depth to Pleistocene gravels.
- 3.2.2 Parts of the site were not accessible during the ground work monitoring due to the limited excavation works on the site. In particular the area of the Grandpont crossing to the very east of site, could not be investigated due to the preservation of the former Apollo public house building. Health and safety issues over the unsupported building remains meant that the area surrounding the building also could not be accessed.

3.3 General distribution of archaeological deposits

- 3.3.1 No significant archaeological features or deposits were identified during the watching brief at the Site or within the borehole samples. A more detailed discussion of the stratigraphy of the watching brief trenches and the boreholes appears below:

3.4 Trenches 1-3 (Figure 3)

- 3.4.1 Three of the trenches came down on to a sequence of land reclamation deposits (context 1000) and did not reach the alluvial deposits known to underlie the site. These deposits were mixed firm greyish brown with frequent tile and occasional pottery inclusions. They ranged in thickness between 0.30 m and 0.8 m within the trenches, although the base was not reached in Trench 2.
- 3.4.2 The pottery assemblage recovered from these deposits would suggest they were laid down in stages throughout the post medieval period to present.



- 3.4.3 These deposits reached a maximum depth of 2m (+53.65m OD) within borehole OABH2, indicating some truncation of the natural alluvial sequence has occurred on the site, which is known to survive at +55.0m OD.

3.5 Trenches 4-5 (Figure 3: Plates 1 and 2)

- 3.5.1 A similar sequence of modern building rubble (1003) and land reclamation deposits were identified within these trenches overlying a buried stabilised alluvial surface (1001 and 1002). The alluvial surface deposits were dark brownish grey silty clay with frequent root disturbance and signs of oxidation. Only the very top of the alluvial sequence was identified and the base of these deposits were never reached within the trenches.
- 3.5.2 The stabilised surface deposits produced two pot sherds and a small piece of mortar, dating to the early post Conquest period. Frequent charcoal and rare animal bone were also noted from these deposits.
- 3.5.3 A concrete wall foundation was also found to have been dug into the southern end of Trench 5 associated with a modern building rubble backfill (1003). This truncated the upper land reclamation deposits within this trench.

3.6 Borehole summary

- 3.6.1 Based on the results of the borehole survey a sequence of commonly occurring lithological deposits were identified within the two boreholes. These were correlated into stratigraphic units in order to aid the interpretation of the changing sedimentary environment and to more easily compare with other recorded sequences in the area.
- 3.6.2 A site cross-section was produced and appears as Figure 3. This is based on the deposits identified within the two targeted boreholes and the previous geotechnical investigations.
- 3.6.3 The following stratigraphic sequence was identified in borehole samples in order of deposition:

Stratigraphic units

- I. Sandy gravels
- II. Reed peat/organic deposits
- III. Silty clay alluvium
- IV. Upper stabilisation deposits
- V. Land reclamation deposits
- VI. Modern building rubble deposits

- 3.6.4 Assignment of individual lithologies to stratigraphic units is based on texture, nature of inclusions and sedimentary contacts. However, it should be noted that the correlations are based on only a limited number of sample locations and consequently may not be wholly representative of the entire site sequence. Localised sedimentary sequences can often occur in fluvially active environments due to different variations in topography and localised sedimentation patterns.

3.7 Pre-Holocene deposits

Sandy gravels

- 3.7.1 The basal sandy gravels were reached in the two targeted boreholes. These deposits were encountered at a depth between 3.30m bgl in OABH1 (+53.33m OD) and 3.46m



bgl in OABH2 (+53.17m OD). They comprised loose light yellowish brown fine to medium well-sorted sub-rounded sandy gravel, with inter-stratified beds (30-40mm) of moderately firm yellowish fine sand. These sediments are likely to have accumulated within high-energy braided stream channels during the last glaciation (Devensian). The bedded character of the deposits reflects seasonal fluctuations in the river discharge. Any archaeological finds recovered from these deposits are likely to have been the subject of significant reworking.

- 3.7.2 The surface of the gravel essentially defines the topography of the early Holocene landscape. The previous sub-surface models proposed for St Aldate's (Robinson in Dodd 2003) indicates that the site lies at the edge of a channel cut and within a broad wider floodplain sequence.
- 3.7.3 The floodplain area between the two main channels of the Trill Mill Stream and the main Thames channel is thought to contain a complex sequence of gravel islands and smaller channels, which led to the development of a mosaic of different wetland environments on the floodplain during the early Holocene.
- 3.7.4 The gravel elevations appear to be relatively consistent across the site, although there is a general trend for lower elevations from north to south, towards the river. The elevations recorded are consistent with those recorded along St Aldate's.

Holocene sedimentary sequence

Organic deposits

- 3.7.5 A fibrous organic silt was encountered just above the surface of the gravels between 2.62m bgl and 1.66m bgl (+53.25m and +54.0m OD). These deposits average about 0.64m in thickness and contained frequent plant inclusions and snail shells. They were found to contain frequent Mollusca typically found in aquatic (including flowing water) and marshy environments. These deposits are similar in nature to the Iron Age reedswamp deposits identified previously along St Aldate's.
- 3.7.6 The botanical and molluscan evidence both point to shallow water and marsh, within a reed swamp environment. These deposits therefore appear to represent a rise in the water-table during the Iron Age and Saxon periods, which created a drowned landscape over much of the lower elevations of the floodplain. This would have resulted in islands being created on the high elevations of the floodplain that may not have been submerged until later in the Holocene. These islands appear to have been attractive locations for human activity and appear to have aided in traversing the floodplain.

Silty clay alluvium

- 3.7.7 The overlying bluish grey silty clay accumulated between 1.66m and 2.42m bgl over the organic silts. These deposits represent periods of overbank alluviation associated with increased flooding and floodplain sedimentation. They were on average about 0.80m thick.
- 3.7.8 This relationship would indicate that most of the clay alluviation occurred in the Roman and early medieval periods, prior to the reclamation of the floodplain. Increased arable agriculture on the upper slopes of the catchment has been cited by Robinson as the most likely cause for extensive alluviation and seasonal inundation of the Oxford floodplain (Robinson and Lambrick 1984; Robinson 1992).

Stabilisation horizon of the upper alluvium

- 3.7.9 A series of upper organic rich dark greyish brown silty clay deposits was identified between 1.00m and 1.90m in depth (+55.14m OD and +54.45m OD). These deposits also contained reddish mottling and small angular pebbles. Small fragments of pottery and mortar, with rare charcoal inclusions, were also noted in the trenches.
- 3.7.10 The medieval pottery from these deposits would indicate a drying out of the site possibly as a result of deliberated drainage of the area using an interconnected network of drainage ditches. This may have been part of the initial stages of floodplain reclamation, which later involved significant ground raising activities on the Site.

Land reclamation deposits

- 3.7.11 A series of medieval and post medieval ground make-up deposits was present across the Site overlying the upper alluvium. These deposits varied in thickness from between 2.0m in the west to 1.35m in the east. They consisted of layers of mixed sand, silty sand and gravel, with frequent coarse inclusions and stone.

These deposits represent ground raising activities of a similar nature to those identified previously within the Oxford floodplain at Blackfriars and across much of St Aldate's. These deposits have been dated to the late medieval and post medieval periods, associated with a major phase of ground levelling activity on the floodplain marshes.

3.8 Finds summary

- 3.8.1 A total of 19 sherds of pottery weighing 72 g. were recovered from the land reclamation deposits (1000) and the top of the alluvial sequence (1001). These are medieval and late post-medieval in date. As the quantity of pottery involved here is small, it is catalogued, described and spot-dated in the summary table below:

Context	sherds	weight	Ware	Date
1000	1	8g	Creamware jug or cup	c1770-1830
1000	2	-		16th Century
1001	2	29g	East Wiltshire ware (Fabric OXAQ)	C 1150-1300
1001	14	35g	medieval Oxford ware include OXAQ.	OXY, c 1070-1300

- 3.8.2 A single fragment of mortar with a wood impression on one side, weighing 13g, was also recovered from the upper alluvial context (1001) within Trench 4.

3.9 Environment samples

- 3.9.1 Two bulk samples were taken during the watching brief to assess the environmental potential of the sequence from the upper stabilised alluvial deposits (1001) and (1002).
- 3.9.2 Context <1001> contained abundant charcoal, many pieces of which were greater than 2mm in size and are therefore potentially further identifiable. Molluscs were common in this sample, and rare fish vertebrae (notably herring, *Clupea harengus* and eel (*Anguilla anguilla*) and heavily abraded fragments of mammal bone were also noted.



Three charred weed seeds were observed, one example each of three different species, and a fragment of hazel (*Corylus avellana*) nutshell. A moderate number of cereal grains, mostly wheat (*Triticum* sp.) were present, although these were often poorly preserved and included many indeterminate and fragmented grains. No cereal chaff was observed. The sample showed little evidence of being waterlogged, with preserved seeds limited to a few examples of elder (*Sambucus* sp.).

- 3.9.3 Context <1002> also contained frequent, potentially identifiable charcoal. Molluscs were particularly common in this sample, and several fish vertebrae (from herring) were noted. Several charred wild/weed seeds were present, as were dried out waterlogged elder (*Sambucus* sp.) seeds. Charred cereal grain was common, the majority being wheat, including examples of bread wheat (*Triticum cf. aestivum*), with a smaller quantity of barley (*Hordeum* sp.) also present. No cereal chaff was observed.
- 3.9.4 Samples from the borehole have not been formally assessed, but show good potential for palaeoenvironmental reconstruction. In particular the lower organic units may preserved evidence of early prehistoric deposits associated with early / mid Holocene channel.

3.10 Radiocarbon dating

- 3.10.1 Two sample for radiocarbon dating were submitted from the top and bottom of the basal organic deposit from borehole 2 at 3.17-3.20m and 3.39-3.42m bgl in depth. A collection of waterlogged seeds (*Oenathe aquatica*, *Menyanthes trifoliata* and *Nuphar lutea*) from the possible reedswamp deposit helped date the first effects of rising water-levels on the floodplain to between 1185±30BP (cal. AD 720-950 at 95.4%: SUERC-34314) and 1215±30 BP (cal. AD 690-890 at 95.4%: SUERC-34313) (Appendix D). This is consistent with the accumulation of similar reedswamp deposits identified along St Aldate's. Elsewhere in Oxford, the floodplain organics are believed to have started to accumulate from the late Iron Age, but what is becoming increasingly clear is that some areas of the floodplain were not submerged until later, in the middle to late Saxon periods.



4 DISCUSSION

4.1 Reliability of field investigation

- 4.1.1 Overall, the results of the field investigations were reliable, particularly in demonstrating the thickness of land reclamations deposits on the site and the character of the underlying alluvial sequence. With the exception of the ground piles, the impact of the development will be confined mostly to the post medieval reclamation deposits. No significant archaeological features or deposits were identified within the site. However, there is always a possibility that isolated features may survive within these deposits or within the upper alluvial sequence.
- 4.1.2 The fieldwork also identified a degree of truncation of the natural alluvial sequence across parts of the site. This will have affected the preservation of any archaeological features and recovery of artefactual evidence present within the site. Beyond this the modern disturbance observed at the site was confined to the top of the reclamation deposits. Only the removal of the buried building services appears to have had any significant impact upon archaeological preservation at the site, and in particular on the surface of the alluvial sequence.

4.2 Evaluation objectives and results

- 4.2.1 The fieldwork results were able to address the research aims identified in the project design. The following paragraphs discuss these in more details:
- (i) The fieldwork indicated that the site was part of a former floodplain sequence that was reclaimed during the medieval and post medieval periods. It occupied a channel edge environment that was active up until the post-conquest period. No evidence of crafts or floodplain activity was identified within the buried alluvial sequence, possibly indicating that the area may have been too wet and prone to flooding during the pre-conquest period.
 - (ii) The finds and environmental evidence has allowed a broad chronological sequence to be applied to the Site's sedimentary sequence. This has allowed for a sequence of floodplain development to be discussed, outlining the major changes and environmental conditions on the site. No evidence of earlier craft, industrial or domestic activities were identified within the sequence.
 - (iii) The environmental and hydrological sequence recorded on the Site has been correlated with the previous studies undertaken along St Aldate's (Figure 5).

4.3 Interpretation

- 4.3.1 The results of the fieldwork at 61 St Aldate's have provided sufficient detail to be able to interpret the sequence of floodplain development and changing conditions present at the Site. The sequence is discussed in more detail below and illustrated in Figure 6.

Prehistoric period

- 4.3.2 The elevations of the basal gravels identified on the site were between +53.17m - +53.33m OD and would suggest that this sequence was not within, but at the edge of the early prehistoric channel sequence previously identified between 56 St Aldate's and the BT Tunnel 1 excavations. This is on the edge of an undated peat filled channel identified between +52.40m and +53.00m OD during the excavations along 56-60 St Aldate's (Durham 1984). A layer of limestone rubble was also identified to the south within BT



Manhole 1, which is believed to represent a possible mid Bronze Age ford over this channel. No evidence of this crossing was identified within this sequence, but geotechnical borehole SSBH1 did record lower gravel elevations at +52.0m OD to the west of the Site, possibly indicating a sloping gravel surface to the south and east.

- 4.3.3 It is clear that water-levels were significantly lower in the early Holocene than in the present day due to factors like greater woodland coverage and lower sea-levels. The floodplain may therefore have been relatively dry through much of the early prehistoric period with only areas of localised flooding. Evidence of extensive prehistoric landscape features have been previously identified on the floodplain at Port Meadow (Atkinson, 1942) and Binsey (Rhodes, 1949). This activity was based on dry land soils that developed on top of the floodplain gravels and were preserved under later accumulations of organic silts and alluvium.

Roman and early Saxon period

- 4.3.4 The onset of the silt clay alluviation may have started to occur locally over parts of the site reflecting increasing flooding and accumulation of alluvial silt during the Roman and Saxon periods. Sites such as Gravelly Guy, Farmoor and Drayton, show that alluviation was well under way in the Roman period, and organic preservation at Mingies Ditch and Port Meadow suggest a continuing rise in the water-table after the Iron Age occupation. Similar evidence at Drayton shows that the Roman water-table was much higher than it had been in the late Neolithic.
- 4.3.5 The rising groundwater on the floodplain started to create seasonally flooded islands and began to define areas of permanent water that were to later develop into the Trill Mill Stream, the Blackfriars Stream and the Shire Lake Stream.
- 4.3.6 It appears that Roman and early Saxon activity may have moved off the floodplain floor at this time and up on to the higher ground and gravel islands as a response to the increased flood frequency on the floodplain. Evidence of prehistoric activity on the floodplain islands has been discovered at BT Tunnel 1, along St Aldate's, where a rubble track or causeway was identified at +53.95m OD.

Mid to Late Saxon

- 4.3.7 Evidence of mid Saxon activity and settlement have been recorded along the length of St Aldate's associated with the construction of the mid Saxon timber bridge. During the middle and late Saxon periods several major engineering projects appear to have taken place torevet the banks of the floodplain islands and create more definite edges to the channels. This also coincided with evidence for increased industrial and craft activity at the edge of the floodplain, which included activities such as flax retting.
- 4.3.8 The organic silts recorded on the site between +53.25m and +54.0m OD correspond to similar organic deposits recorded along St Aldate's, associated with a significant rise in ground water flooding from the late Iron Age and Saxon periods. These deposits probably represents the onset of a drowned floodplain environment, with large areas of reedswamp dissected by multiple river channels. Nowhere in the Upper Thames has stratified alluvial clay been observed earlier than the middle Iron Age.
- 4.3.9 The pebble inclusions recorded within the overlying upper silt clay alluvium may also indicate increased channel activity during the late Saxon period or the proximity of gravel dumps within the floodplain. Alluviation was still occurring on the site and there was no evidence to suggest that this area was being used at this time. The presence of



continued gleyed conditions within the sequence and absence of signs of drying out, may suggest the site remained predominantly wet during this period.

Post Conquest

- 4.3.10 The post-Conquest period saw the reclamation of much of St Aldate's following the construction of the stone causeway and bridges of the Grandpont at the end of the 11th century. The archaeology of the Grandpont and roadside tenements is discussed in detail elsewhere (Durham 1977; 1984). The stabilisation of the upper alluvial surface recorded within the Site sequence would indicate that the area was significantly less prone to flooding and may have been actively drained between the late 12th -14th centuries. The site would have been situated within a large floodplain island during the medieval period, centred in the area of the present St Aldate's Police Station. Multiple channels still dissected the floodplain into islands of dry land linked by various bridges.
- 4.3.11 The deposition of the land reclamation deposits on the site would indicate a continuation and possibly an intensification of the reclamation of the floodplain during the post medieval period. The ground level of the site was significantly raised above the level of flooding and had encroached and in-filled the medieval channel towards the southern edge of the site. Timber and brick buildings appear to occupy the site from the post medieval period to present.

4.4 Significance

- 4.4.1 In general the sequence does not differ significantly from the sequences recorded along St Aldate's and conforms well with the proposed model of floodplain development presented by Robinson (Dodd 2003). The value of the sequence is therefore its ability to provide further supporting evidence for the existing interpretation of the development of St Aldate's and the wider Oxford floodplain sequence.
- 4.4.2 The only slight variation of the sequence to the model is the elevation of the organic silt deposits and the sloping gravel elevations to the south. This sequence appears to represent an interface zone between the floodplain and the pre-conquest St Aldate's channel and therefore may contain evidence of earlier channel edge deposits. At present this channel remains undated and any chance to date this sequence would add significantly to our understanding of the wider floodplain sequence.

4.5 Recommendations

- 4.5.1 The two radiocarbon dates from the top and bottom of the organics silts overlying the gravel on the site have helped confirm that these are part of the reedswamp organics of Iron Age and Saxon origins and not part of the earlier channel identified at the edge of the site. No further work is therefore recommended on the boreholes samples, in order to avoid needlessly duplicating the results of previous palaeoenvironmental work along St Aldate's.
- 4.5.2 This work has helped to confirm the correlation of the deposits with the sedimentary model for the area and ensure that any further palaeoenvironmental assessment may not necessarily add significantly to our understanding of the wider floodplain sequence.



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APPENDIX A. TRENCH DESCRIPTIONS AND CONTEXT INVENTORY

Trench 1						
General description				Orientation		E-W
Trench devoid of archaeology. Came down on to reclamation deposits.				Avg. depth (m)		0.7
				Width (m)		2.0
				Length (m)		8
Contexts						
context no	type	Depth (m)	Elevation (m OD)	comment	finds	date
1000	Layer	0.7	55.32	Reclamation deposits	-	Post medieval
Trench 2						
General description				Orientation		E-W
Trench devoid of archaeology. Came down on to reclamation deposits.				Avg. depth (m)		2
				Width (m)		2
				Length (m)		37.70
Contexts						
context no	type	Depth (m)	Elevation (m OD)	comment	finds	date
1000	Layer	2	54.16	Reclamation deposits	-	Post medieval
Trench 3						
General description				Orientation		E-W
Trench devoid of archaeology. Came down on to reclamation deposits.				Avg. depth (m)		1.2
				Width (m)		2
				Length (m)		7
Contexts						
context no	type	Depth (m)	Elevation (m OD)	comment	finds	date
1000	Layer	1.2	54.21	Reclamation deposits	-	Post medieval
Trench 4						
General description				Orientation		E-W
Trench devoid of archaeology. Consists of modern building rubble and reclamation deposits overlying a buried alluvial surface.				Avg. depth (m)		1.2
				Width (m)		3
				Length (m)		3
Contexts						
context no	type	Depth (m)	Elevation (m OD)	comment	finds	date
1000	Layer	0-0.2	56.14	Building Rubble	-	Modern
1000	Layer	0.20-0.94		Reclamation deposits	-	Post medieval
1001	Layer	0.94-		Upper alluvial surface	-	Medieval



		1.20				
Trench 5						
General description					Orientation	E-W
Trench devoid of archaeology. Consists of modern building rubble and reclamation deposits overlying a buried alluvial surface.					Avg. depth (m)	2.2
					Width (m)	4
					Length (m)	4
Contexts						
context no	type	Depth (m)	Elevation (m OD)	comment	finds	date
1003	Layer	0-0.80	56.35	Construction rubble	-	Modern
1000	Layer	0.80-1.80		Reclamation deposits	-	Post medieval
1002	Layer	1.80-2.20		Upper alluvium	-	Medieval



APPENDIX B. FINDS REPORTS

B.1 Pottery

By John Cotter

Introduction and methodology

- B.1.1 A total of 19 sherds of pottery weighing 72 g. were recovered from 2 contexts. This is medieval and late post-medieval date. As the quantity of pottery involved here is so small, it will be catalogued, described and spot-dated in the summary report below rather than producing a separate spreadsheet catalogue as well as a report.

Context (1000): Spot date c 1770-1830

- B.1.2 1 sherd (8 g.). Body sherd of Creamware jug or cup. Fresh condition.

Context (1001): Spot date c 1150-1300

- B.1.3 2 sherds (29 g.) plus 14 sherds (35 g. from sieving). The two hand-excavated sherds are in East Wiltshire ware (Fabric OXAQ). A flint and limestone gritted sandy ware. One is a reduced dark grey body sherd, the other is an oxidised handle of crescent section, probably from a jug. This has thumbled decoration along its raised upturned edges and distinctive rectangular groups of deeply combed decoration down the back. The latter is characteristic of several late 12th- to 13th-century pottery industries. Both sherds are in a fairly fresh condition. The fourteen small sieved sherds include OXAQ. as above, also glazed and unglazed sherds of medieval Oxford ware (OXY, c 1070-1300) which extend the dating to c 1300. A residual sherd of 11th-12th century Cotwolds-type ware (OXAC) is also present.

- B.1.4 No further work on this assemblage is recommended.



APPENDIX C. ENVIRONMENTAL REPORTS

C.1 Environmental samples

By Julia Meen

Introduction

- C.1.1 Sample <1> was taken from context (1001), a medieval alluvial soil. This was a dark olive grey sandy clay with abundant mineral concretions. 19L was processed for the recovery of charred plant remains (CPR). Sample <2> was taken from context (1002), thought to be alluvium or garden soil. This was an olive brown clay loam with distinct patches of bluish grey. 26L was processed for the recovery of CPR and a 1L sub-sample was taken to assess the waterlogged potential of the deposit.

Methodology

- C.1.2 Samples were processed for the recovery of CPR by water flotation using a modified Siraf style flotation machine. The flots were collected on a 250µm mesh and the heavy residue sieved to 500µm, and both were dried in a heated room, after which the residue was sorted by eye for artefacts and ecofactual remains. The flot was scanned for charred plant remains using a binocular microscope at approximately x15 magnification. For sample <2>, a 1 litre sub-sample was hand-floated for the recovery of WPR and the flot and the residue were collected separately on 250µm meshes and stored in water-filled containers in cold storage, with the 9L of sediment retained in case further analysis is required. The waterlogged flots was scanned for WPR and insects using a binocular microscope at approximately x15 magnification. Identifications were made without reference to Oxford Archaeology's reference collection and therefore should all be seen as provisional. Nomenclature for the plant remains follows Stace (1997).

RESULTS

Bones and artefacts from the sample residues

- C.1.3 From sample <1>, a medieval garden soil, several pieces of pottery were retrieved, alongside a fragment of daub with a wood impression on its surface. A moderate quantity of mammal bone, a phalanx of cat/hare-type size, and a small piece of coal, were also present in this sample. Sample <2>, thought to be alluvium or garden soil, also contained a moderate quantity of mammal bone, but produced no other artefacts. Charcoal was present in both samples.

Charred plant remains

- C.1.4 Sample <1> contained abundant charcoal, many pieces of which were greater than 2mm in size and have potential for identification. Molluscs were common in this sample, and rare fish vertebrae (herring, *Clupea harengus* and eel, *Anguilla anguilla*) and heavily abraded fragments of mammal bone and were also noted. Several charred wild seeds were observed, one example each of three different species, and a fragment of hazel (*Corylus avellana*) nutshell. A moderate number of cereal grains, mostly wheat (*Triticum* sp.) were present, although often were in a poor state of preservation and included many indeterminate fragmented grains. No chaff was observed.
- C.1.5 The CPR flot from sample <2> also contained a charcoal assemblage which should be of



sufficient size in terms of both number of items and of charcoal diameter to allow identifications to be made. Molluscs were common in this sample, and a couple of fish vertebrae was noted (herring). Several charred wild/weed seeds were present, as well as dried out waterlogged elder (*Sambucus* sp.) seeds. Cereal grain was common, the majority being wheat cf. bread wheat (*Triticum cf. aestivum*), with a smaller quantity of barley (*Hordeum* sp.) also present. No cereal chaff was observed. This flot also contained a large quantity of modern root. In addition to the material observed in the flot, charcoal was retrieved from the heavy residues, with a fragment of hazel (*Corylus avellana*) nutshell also retrieved. The WPR flot for sample <2> was also dominated by charcoal, and as observed in the charred flot, molluscs were very common. The sample showed little evidence of being waterlogged, with waterlogged seeds limited to a single example of elder (*Sambucus* sp) – a tough coated seed likely to survive drying. A single charred grain of bread wheat (*Triticum aestivum*) was observed in the material scanned.

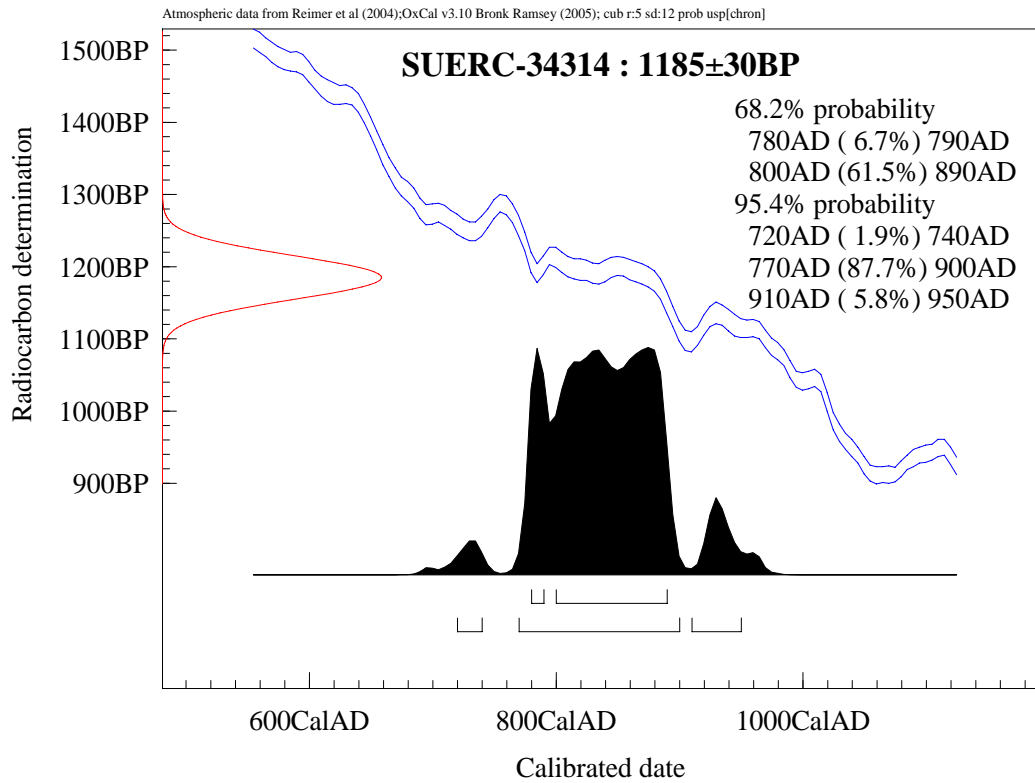
Snails

- C.1.6 Both samples contained abundant freshwater snails, as would be expected owing to the site's proximity to the River Thames.

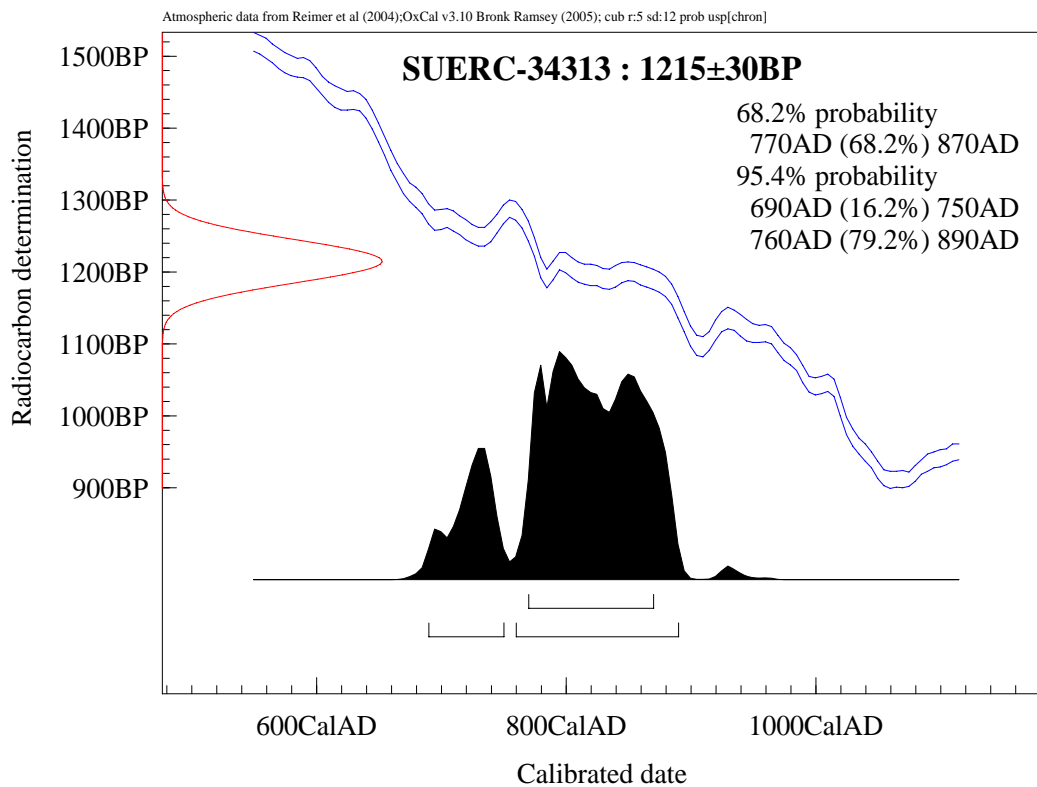
APPENDIX D. RADIOCARBON DATES

Calibration Plots:

OX61STA10 3.17-3.20m

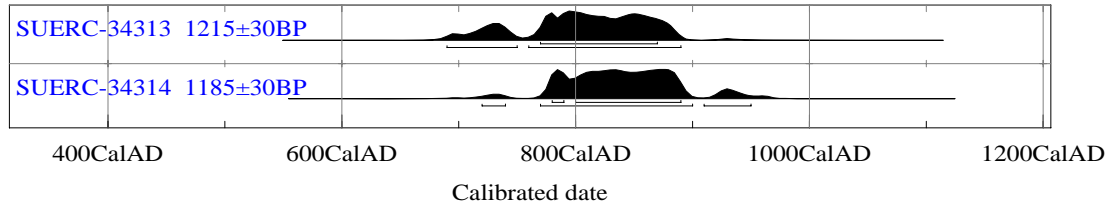


OX61STA10 3.39-3.42m





Atmospheric data from Reimer et al (2004); OxCal v3.10 Bronk Ramsey (2005); cub r:5 sd:12 prob usp[chron]





APPENDIX E. SUMMARY OF SITE DETAILS

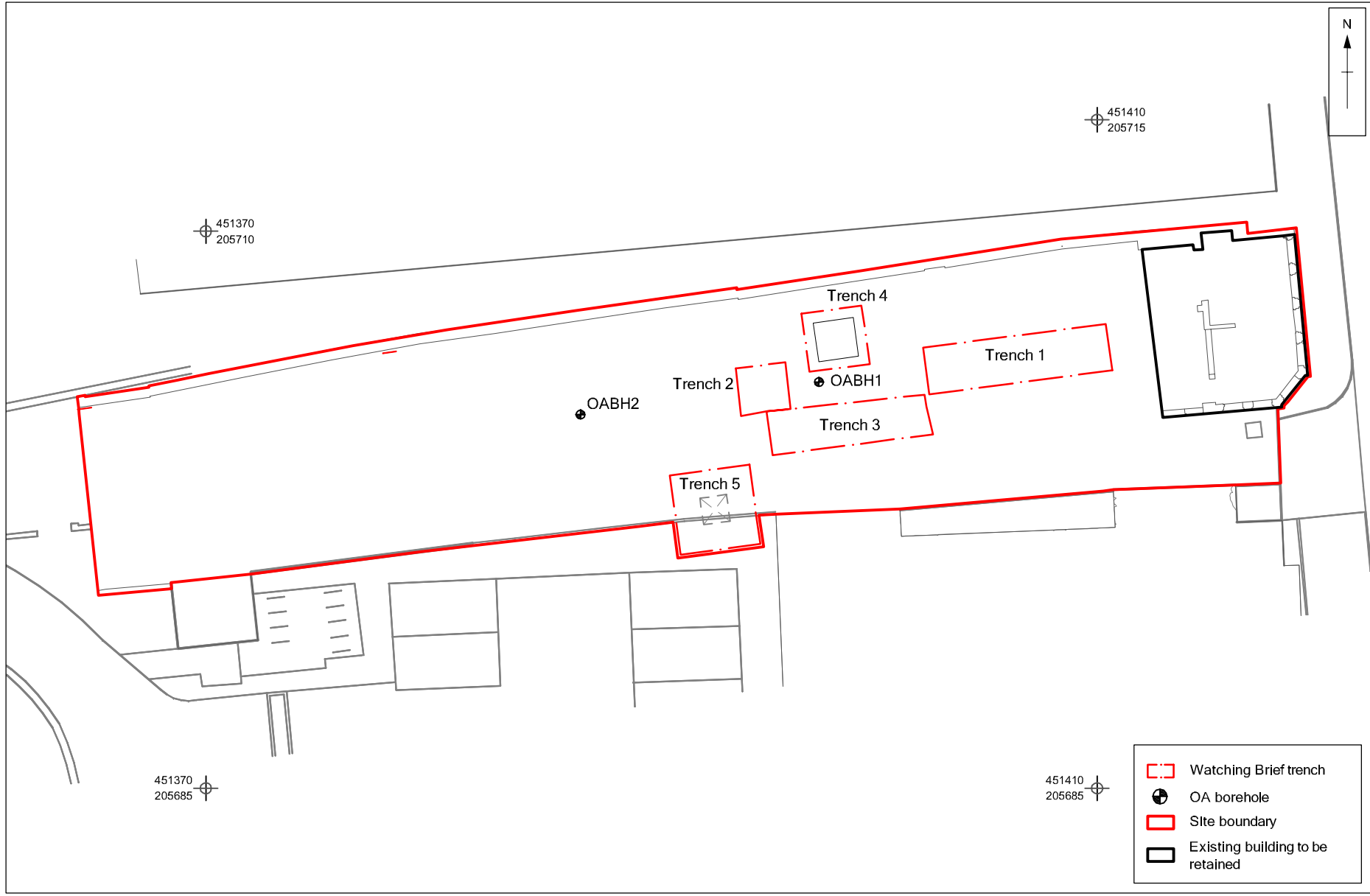
Site name:	61 St Aldate's, Oxford
Site code:	OXSTAF10
Grid reference:	SP 5140 0566
Type:	Watching brief and borehole sampling
Date and duration:	September 2010
Area of site:	125m x 8m
Summary of results:	The fieldwork indicated that the site was part of a former floodplain sequence that was reclaimed during the medieval and post medieval periods. It occupied a channel edge environment that was active up until the post-conquest period. No evidence of archaeology or floodplain activity was identified within the sequence, possibly indicating that the area may have been too wet and prone to flooding during the pre-conquest period.
Location of archive:	The archive is currently held at OA, Janus House, Osney Mead, Oxford, OX2 0ES, and will be deposited with the Oxford County Museum in due course, under the following accession number: OXCMS:2010.59



Scale 1:12,500

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Figure 1: Site location



CHECKED BY: MB 15.10.2010

Figure 2: Trench and borehole locations

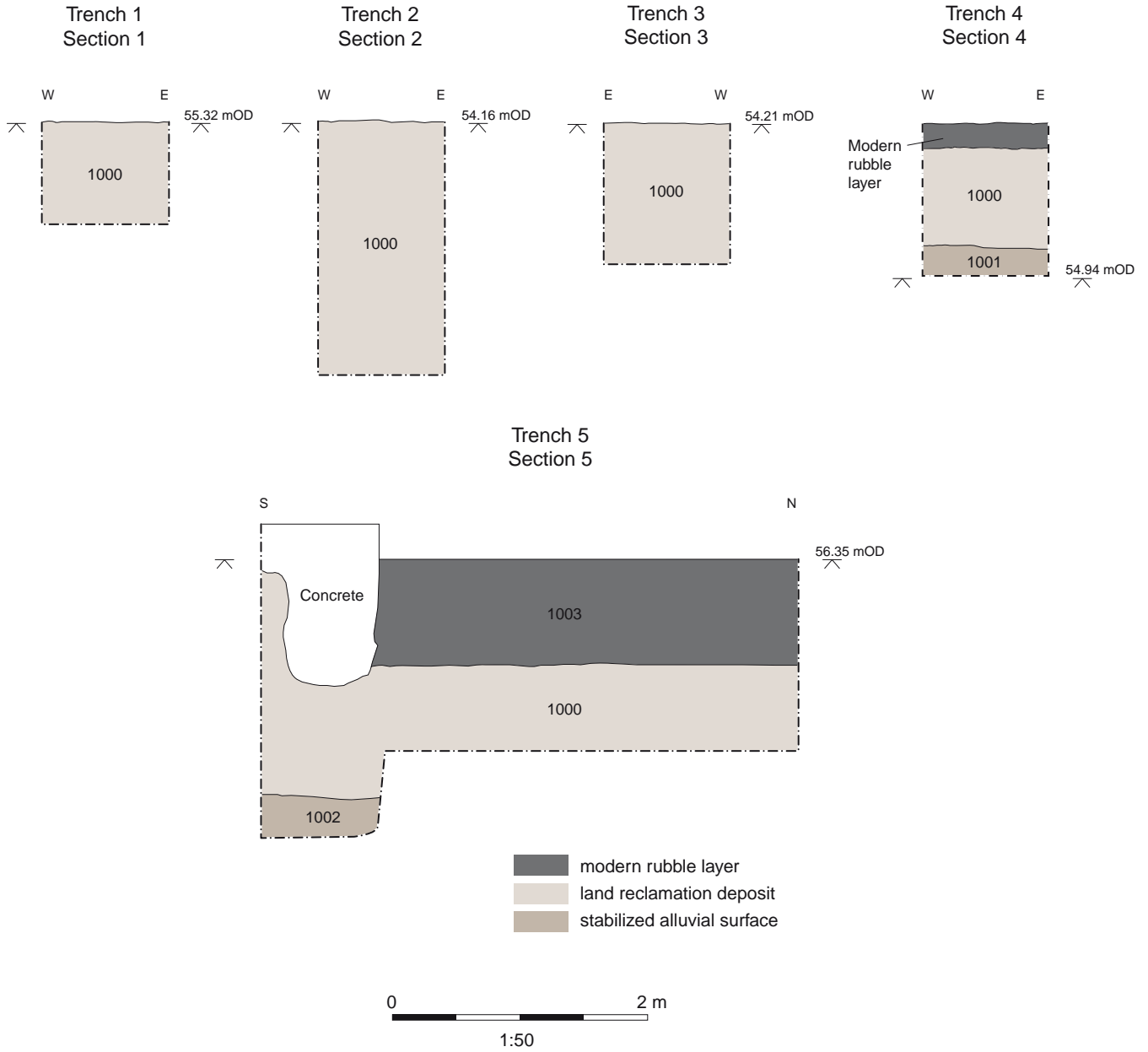


Figure 3: Trench sections

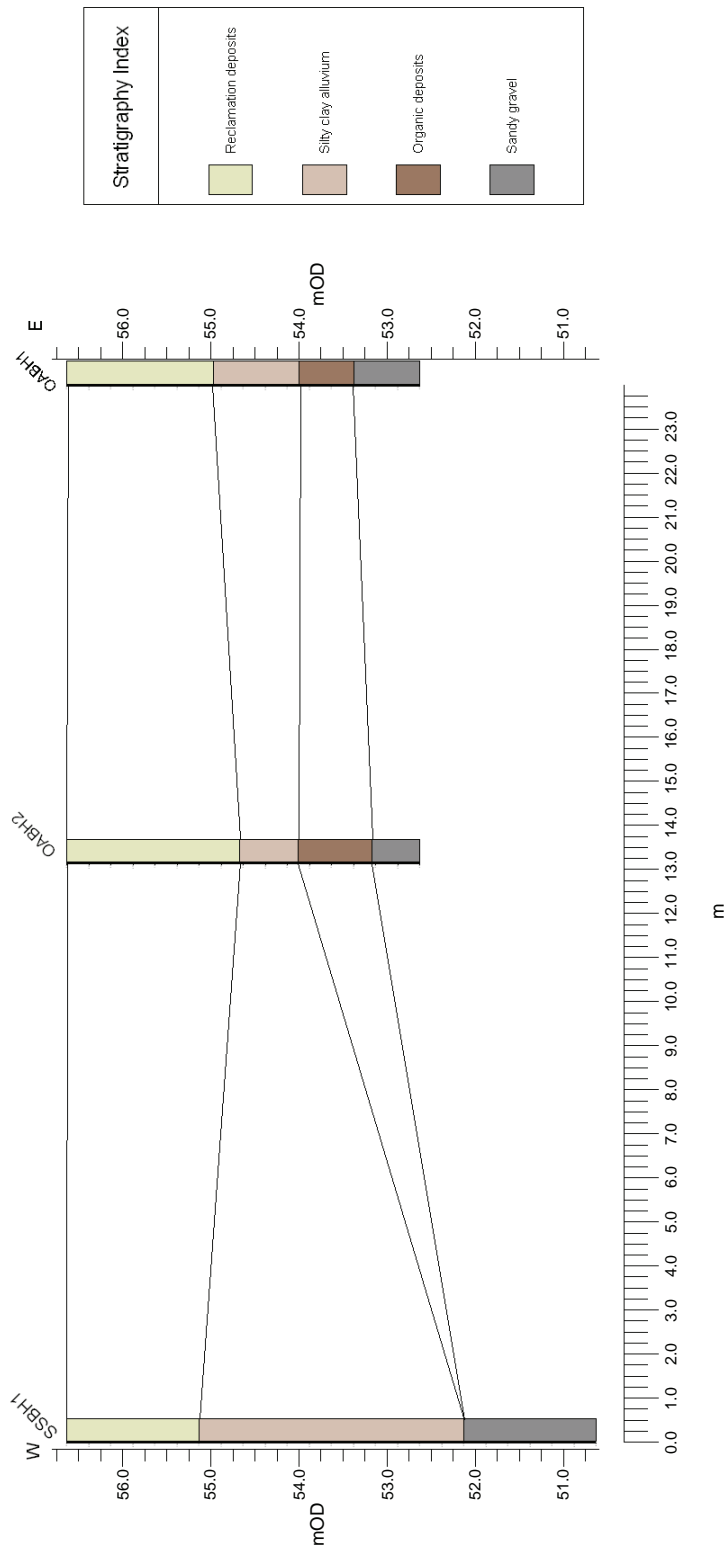


Figure 4: Site cross-section

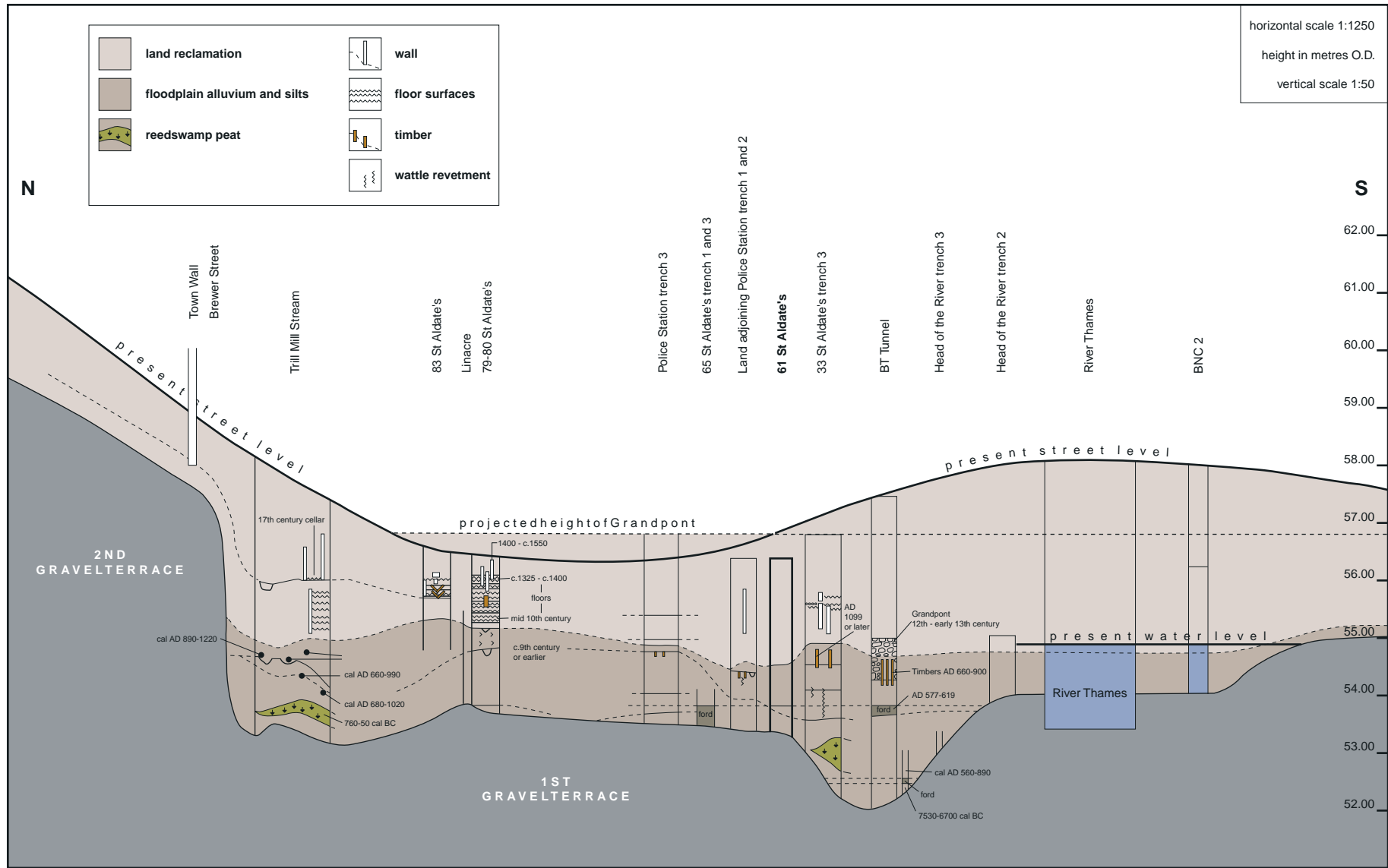


Figure 5: Interpretative St. Aldates cross-section

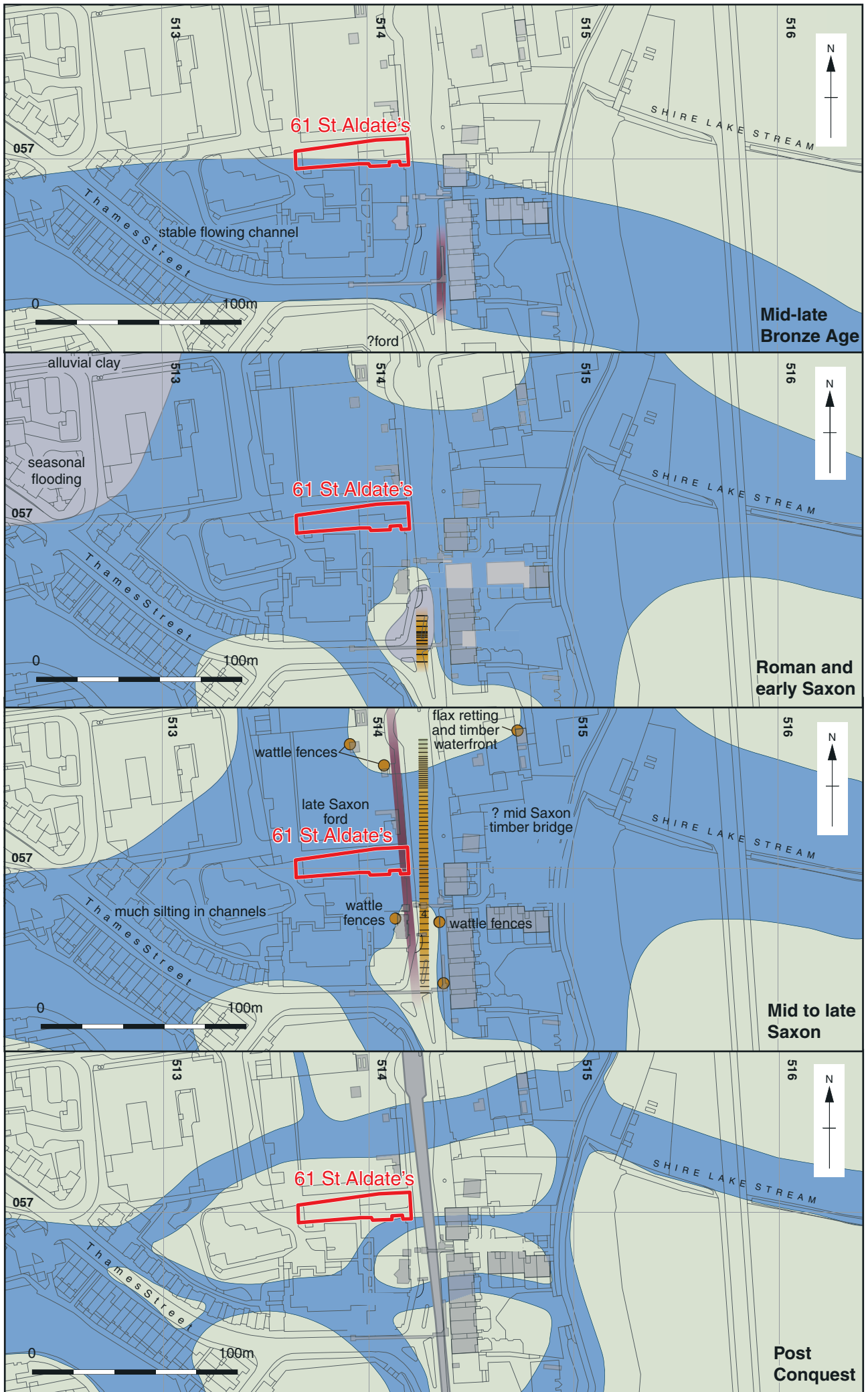


Figure 6: Sequence of floodplain development



Plate 1: Sedimentary sequence within Trench 4 (base of the Lift Shaft)



Plate 2: Sedimentary sequence within Trench 5 (Crane base)



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