

185 PARK STREET, LONDON BOROUGH OF SOUTHWARK (SITE CODE: PKE14): GEOARCHAEOLOGICAL FIELDWORK REPORT

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INTRODUCTION

This report summarises the findings arising out of the environmental archaeological assessment undertaken by Quaternary Scientific (University of Reading) in connection with the proposed development at 185 Park Street, London Borough of Southwark (National Grid Reference: TQ 321 801; site code: PKE14; Figure 1). 185 Park Street is located on the floodplain of the estuarine Thames ca. 150m south of the modern waterfront, and ca. 600m south of the higher drier ground of the gravel terrace. This area is within the Archaeological Priority Zone of Bankside, Bermondsey, Rotherhithe, as defined in the London Borough of Southwark's Unitary Development Plan (London Borough of Southwark, 1995). The site itself is projected as being located in the Bankside Channel, a large and well documented palaeochannel alongside the River Thames (Dunwoodie, 2006; Figure 1). More precisely, the site is located towards the axis of the channel, and its confluence with the River Thames.

There are a lack of reliable borehole records in the area of the site and its surroundings, but recent archaeological/geoarchaeological investigations have been undertaken to the west, east and north of the site (Figure 2). On the neighbouring 135 Park Street site to the east (Batchelor & Young, 2009) a sequence of Made Ground (3.60 to 1.60m OD) overlying thick deposits of Alluvium and Peat (1.5 to at least -1.40m OD) is recorded; the archaeological trenches did not reach the basal river terrace gravels (the Late Devensian Shepperton Gravel). Radiocarbon dating indicates the Peat accumulated here from at least 4790-4410 (late Neolithic/early Bronze Age) to 3160-2880 cal BP (late Bronze Age/early Iron Age). To the west investigations on the Transforming Tate Modern site indicate that the Gravel surface is higher (as would be expected bearing in mind its position towards the western edge of the Bankside Channel), generally lying between -0.5 and -1m OD. (Daykin, 2009). To the north on the Empire Warehouse site towards the projected axis of the channel, three geotechnical boreholes were put down (precise positions unknown) to depths between -1.51 and -1.87m OD. At these depths, the boreholes were still in organic-rich Alluvium (Mackinder, 2008).

Investigations elsewhere in the Bankside Channel indicate that the surface of the Shepperton Gravel and the age of the infilling sediments can vary considerably, even between neighbouring sites (Figure 1). At Surrey House (Batchelor *et al.*, 2012) and 65

Southwark Street (Batchelor *et al.*, 2011c) for example, the Shepperton Gravel surface varies between -4.55m and -1.60m OD. Radiocarbon dating revealed that the main period of Peat formation at Surrey House dated from 10,130-9690 to 4840-4640 cal BP (early Mesolithic to late Neolithic), whilst at 65 Southwark Street, it was dated from 5610-5480 to 4290-4090 cal BP (early to late Neolithic). Nearby to these sites at St Christopher's House, the gravel surface was recorded at -3.50m OD and overlain by deposits dating from at least 10,650-10,250 cal BP, whilst historic records indicate it had become infilled by the late 17th Century (Turner, 2009). Further up the channel at Bear House (Young *et al.*, 2009) and Bear Lane (Tann, 2008), the basal Gravel surface was recorded as sloping downwards from north to south between *ca.* -2.8m OD and *ca.* -0.5m OD, marking the near northern edge of the channel. Here, the peat deposits accumulated from at least 4820-4570 and 3140-2870 cal BP (late Neolithic to late Bronze Age).

On the basis of the existing evidence from the Bankside Channel, it is anticipated that the river terrace gravels (the base of the channel) will be recorded at a depth somewhat deeper than that reached during the archaeological investigations at 135 Park Street (-1.40m OD; Batchelor & Young, 2009), and that the sequence infilling it may incorporate sediments dating from the Mesolithic through to Post-Medieval cultural periods.

In addition, during archaeological investigations at St Christopher's House, three timber structures dated to 3450-3240 cal yr BP (2 structures) and 2750-2350 cal yr BP (1 structure) were recorded within the channel's sedimentary sequence (London Archaeologist, 2004). Furthermore, at two sites located on a gravel eyot to the west of the site (44-47 Hopton Street, London Archaeologist, 2001; 245 Blackfriars Road, Thompson *et al.*, 2008), various artefacts reflective of occupation dating from the Neolithic cultural period onwards have been recorded. The sedimentary sequence at 185 Park Street is therefore considered to have good potential to provide geoarchaeological evidence of prehistoric and historic human activity on both the wetland and dryland surfaces adjacent to the site, which should be compared with existing evidence.

Six significant geoarchaeological aims were outlined within the Written Scheme of Investigation for the site (Batchelor, 2014) as follows:

1. To record the depth and thickness of the main stratigraphic units
2. To establish the presence of prehistoric deposits (Peat and/or Alluvium) above the Gravel Surface
3. To clarify the nature, depth, extent and date of any Alluvium/Peat associated with the Bankside Channel

4. To provide a provisional chronological framework for peat initiation and cessation at the site, and compare this with other sites in the Bankside
5. To provide a reconstruction of the environmental history of the site and its environs
6. To establish any indications of human activity

The objective of the field investigations was to address the first three of these aims, by sinking a single borehole on the western side of the site to obtain a record of the sub-surface stratigraphy (Figure 2). In addition, the potential for the sequence for achieving aims 4-6 will be considered, and detailed recommendations for laboratory-based assessment and analysis (if necessary) will be made.

METHODS

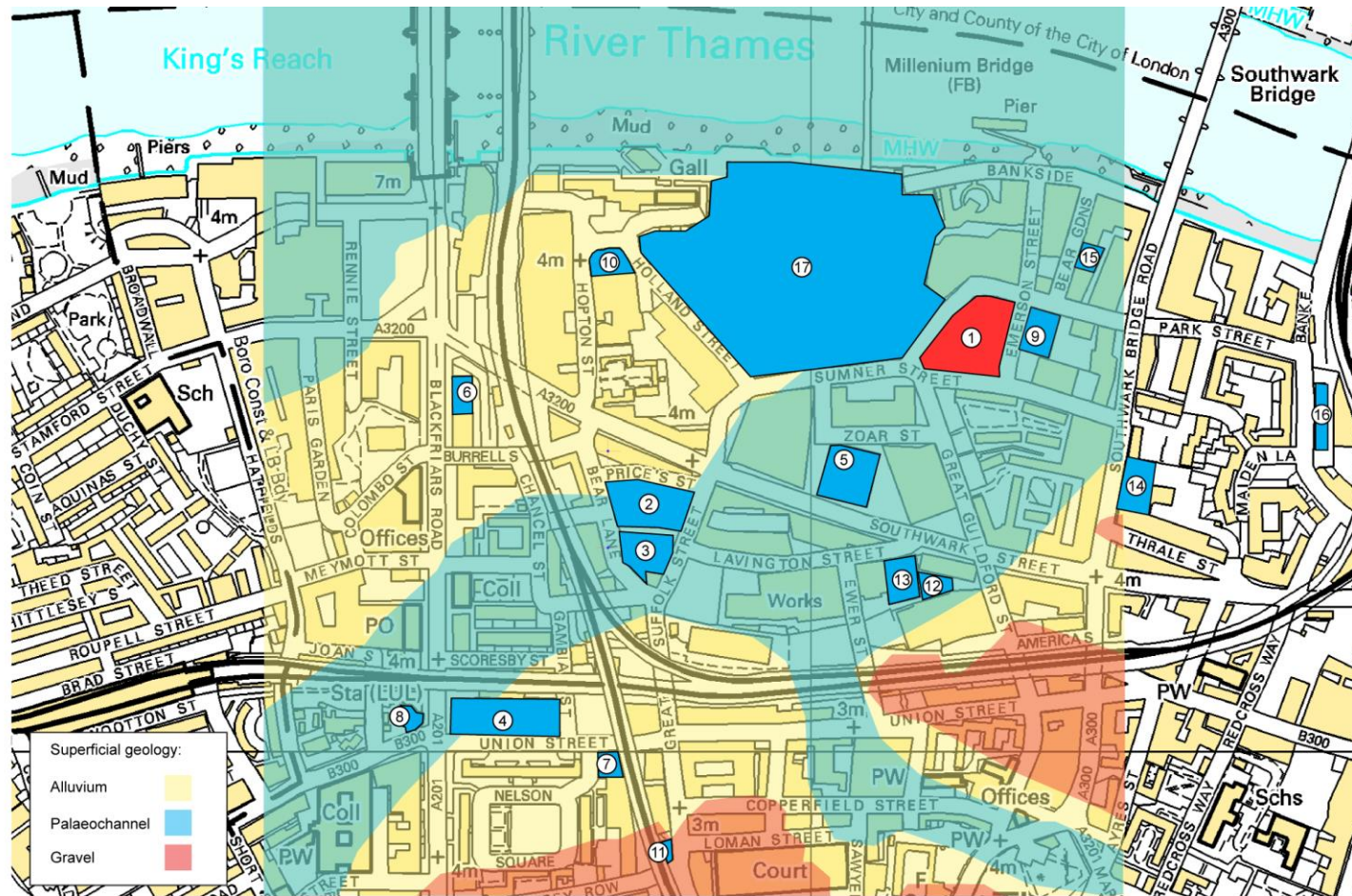
One borehole (QBH1) was put down at the site in April 2014 (Figure 2). The borehole was recovered using an Eijkelpamp window sampler and gouge set driven by an Atlas Copco TT 2-stroke percussion engine. The borehole was put down until coarse grained unconsolidated sediments had been recorded. The spatial attributes of the borehole were recorded (Table 1).

Table 1: Borehole attributes of QBH1, 185 Park Street, London Borough of Southwark (site code: PKE14)

Borehole number	Easting	Northing	Elevation (m OD)
QBH1	532136.2	180404.7	2.50

Lithostratigraphic descriptions

The borehole core samples were retained and described in the laboratory using standard procedures for recording unconsolidated sediment and peat, noting the physical properties (colour), composition (gravel, sand, clay, silt and organic matter) and inclusions (e.g. artefacts). The procedure involved: (1) cleaning the samples with a spatula or scalpel blade and distilled water to remove surface contaminants; (2) recording the physical properties, most notably colour; (3) recording the composition e.g. gravel, fine sand, silt and clay; (4) recording the degree of peat humification, and (5) recording the unit boundaries e.g. sharp or diffuse. The results are displayed in Table 2 and Figure 3.



- | | | | |
|---|--|---|--|
| ① 185 Park Street (PKE14) | ⑥ 231-241 Blackfriars Rd (BFX08; Batchelor <i>et al.</i> , 2008) | ⑩ 44-47 Hopton St (HNT94; London Archaeologist, 2001) | ⑭ Southwark Rose Hotel (SDZ11; Young <i>et al.</i> , 2011) |
| ② Bear House (BJH10; Batchelor <i>et al.</i> , 2011a) | ⑦ Jubilee Line, Union St (UNL08; Sidell <i>et al.</i> , 2000) | ⑪ Great Suffolk Street (GUF10; Batchelor <i>et al.</i> , 2011b) | ⑮ Empire Warehouse (EWH08; Mackinder, 2008) |
| ③ Bear Lane (BLZ07; Batchelor <i>et al.</i> , 2011a) | ⑧ Joan St (JOA91; Sidell <i>et al.</i> , 2000) | ⑫ 65 Southwark Street (SOU11; Batchelor <i>et al.</i> , 2011c) | ⑯ 28 Park Street (PKZ07; Turner, 2007) |
| ④ South Point (BKA02; Branch <i>et al.</i> , 2002) | ⑨ 135 Park Street (PKP09; Batchelor and Young, 2009) | ⑬ Surrey House (LVI11; Batchelor <i>et al.</i> , 2012) | ⑰ Transforming Tate Modern (TMB09; Daykin, 2009) |
| ⑤ St. Christopher's House (SCH03; London Archaeologist, 2004) | | | |

Figure 1: Location of 185 Park Street and nearby sites. The projected course of the Bankside Channel, as indicated by Dunwoodie *et al.* (2006) and adapted after Young *et al.* (2010), is also shown.

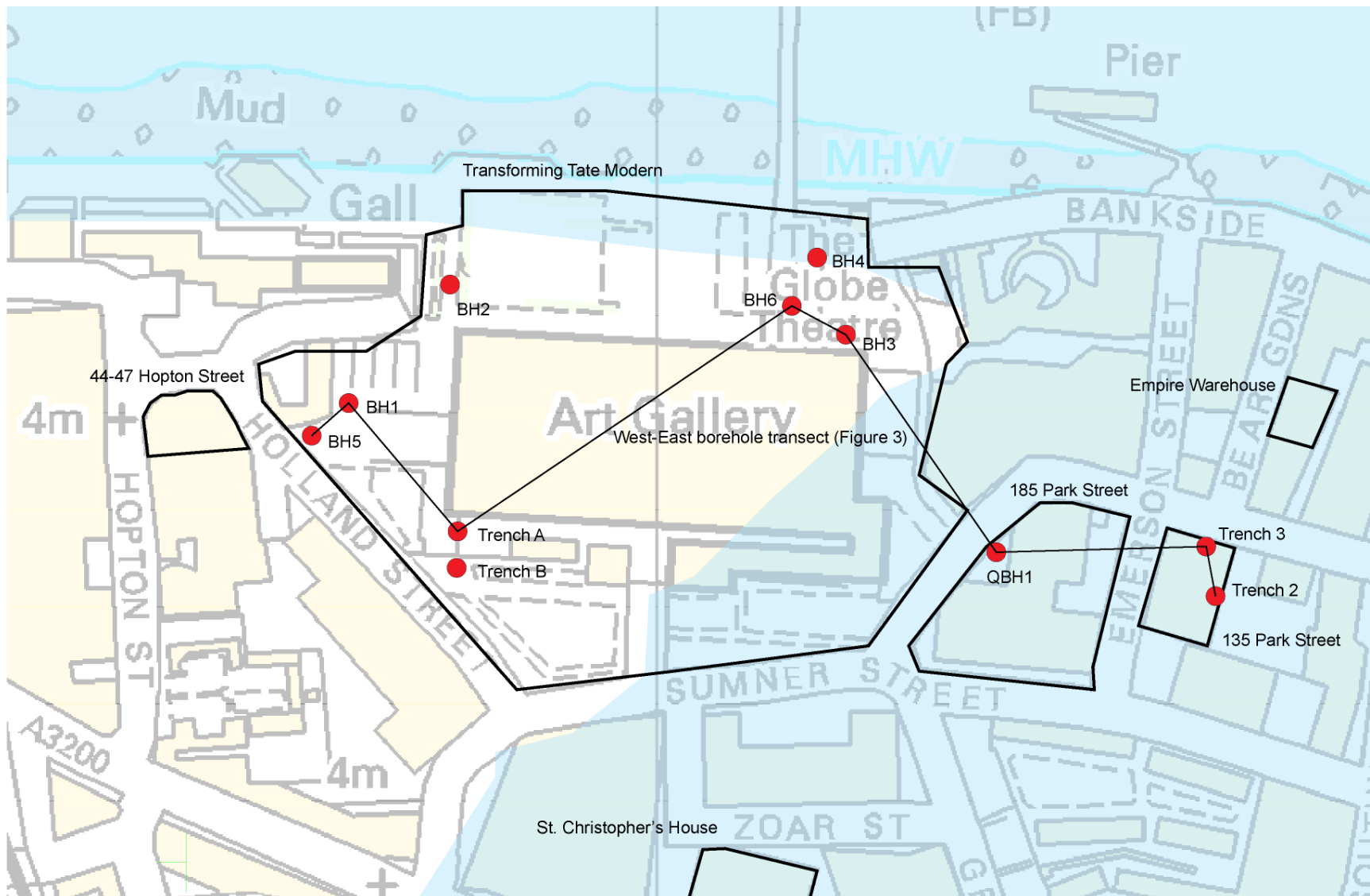


Figure 2: Location of the 185 Park Street QBH1 borehole and stratigraphic sequences from Transforming Tate Modern and 135 Park Street

RESULTS, INTERPRETATION AND DISCUSSION OF THE LITHOSTRATIGRAPHIC DESCRIPTIONS

The results of the QBH1 lithostratigraphic descriptions are displayed in Table 2 and Figure 3. The captured sequence records Sand and Gravel representative of the Late Devensian Shepperton Gravel below -2.80m OD (5.30m BGL), suggestive of a position towards the apex of the Bankside Channel. However, investigations elsewhere along the Channel have revealed its base drops as low as -4.55m OD at 65 Southwark Street (Batchelor et al., 2011c) and -3.5m OD at St Christopher's House (London Archaeologist, 2004). Thus it is considered likely that the true apex of the Channel lies to the east of 185 Park Street; potentially even beneath 135 Park Street where the Gravel surface was not reached during recent archaeological and geoarchaeological investigations (Batchelor & Young, 2009). On the Transforming Tate Modern site, to the west of 185 Park Street, and edge of the Bankside Channel, the Gravel surface rises to between -0.5 and -1m OD, as would be expected (Figure 3; Daykin, 2009). Even further to the west at Hopton Street, the Gravel surface rises sufficiently high to represent a prehistoric land surface (London Archaeologist, 2001).

A sequence of mineral-rich sediments overlies the Shepperton Gravel surface at 185 Park Street. These sediments are initially coarse-grained (gravelly sand), becoming increasingly silt and clay-rich upwards; a very thin horizon of more organic-rich sediments are recorded between -0.50 and -0.59m OD (3.00 to 3.09m BGL). This sequence is indicative of deposition in an alluvial environment (such as a river channel), with the flow of water decreasing from moderately fast (gravelly sand) to slow and/or even stagnant water (clay/organic-rich clay). The inorganic nature of these deposits is very similar to that recorded across the majority of the Transforming Tate Modern site, to the west of 185 Park Street (Daykin, 2009). They are very different however, to those recorded on the neighbouring 135 Park Street site to the east. Here, less than 60m away, Peat was recorded between -0.22 and at least -1.40m OD in Trenches 2 & 3, dating between 4790-4410 and 3160-2880 cal BP. The presence of Peat indicates the development of a semi-terrestrial land-surface supporting the growth of woodland. Whether Peat ever formed at the 185 Park Street site, or was eroded by alluvial waters is unknown. Unfortunately it is also not possible to determine the chronological relationship of the thin horizon of organic-rich sediment recorded at 185 Park Street to the 135 Park Street Peat deposits due to an insufficiently high organic content.

However, similarly to other neighbouring sites along the channel, the markedly different sedimentary sequences of 185 and 135 Park Street demonstrate the complex depositional

and environmental history of the Bankside Channel. At Surrey House for example, radiocarbon dating revealed that the main period of Peat formation spanned from 10,130-9690 to 4840-4640 cal BP (early Mesolithic to late Neolithic), whilst at the adjacent 65 Southwark Street, it was dated from 5610-5480 to 4290-4090 cal BP (early to late Neolithic). A little further to the north, at St Christopher's House, the Shepperton Gravel surface was overlain by deposits dating from at least 10,650-10,250 cal BP, whilst historic records indicate it had become infilled by the late 17th Century (Turner, 2009). Interestingly, such diverse sedimentary sequences appear to be a feature of this area of London, but tend not to be recorded further along the Lower Thames Valley – e.g. neighbouring Barking Reach (Green et al., in prep), Erith and Plumstead Marshes (Quest, unpublished data).

Table 2: Results of the lithostratigraphic descriptions, QBH1, 185 Park Street, London Borough of Southwark (site code: PKE14)

Depth (m OD)	Depth (m bgs)	Composition
2.50 to 0.00	0.00 to 2.50	Made Ground
0.00 to -0.50	2.50 to 3.00	5Y 4/1; As3 Ag1 DI+; dark grey silty clay with a trace of detrital wood and some Mollusca (possibly redeposited).
-0.50 to -0.59	3.00 to 3.09	2.5Y 2.5/1; As2 Ag1 Sh1 Dh+; black organic silty clay with a trace of detrital herbaceous material. Sharp contact in to:
-0.59 to -0.80	3.09 to 3.30	5Y 4/1; As2 Ag1 Ga1 Dh+; dark grey silty sandy clay with a trace of detrital herbaceous material. Diffuse contact in to:
-0.80 to -1.29	3.30 to 3.78	5Y 4/1; Ga2 Ag2 DI+; dark grey silt and sand with a trace of detrital wood. Diffuse contact in to:
-1.29 to -1.35	3.78 to 3.85	5Y 5/1; Ag2 As1 Ga1 Dh+; grey clayey sandy silt with a trace of detrital herbaceous material. Sharp contact in to:
-1.35 to -1.50	3.85 to 4.00	5Y 4/1; Ga2 Ag2; dark grey silt and sand.
-1.50 to -2.13	4.00 to 4.63	5Y 4/2; Ga3 Ag1 DI+; olive grey silty sand with a trace of detrital wood. Some horizontal bedding. Sharp contact in to:
-2.13 to -2.50	4.63 to 5.00	5Y 4/2; Ga3 Gg1; olive grey gravelly sand. Flint clasts 5-20mm. Sharp contact in to:
-2.50 to -2.80	5.00 to 5.30	5Y 4/2; Ga2 Gg1 Ag1; olive grey silty gravelly sand. Sharp contact in to:
-2.80 to -3.50	5.30 to 6.00	Gg3 Ga1; sandy gravel. Flint clasts 20-60mm, sub-rounded to sub-angular.

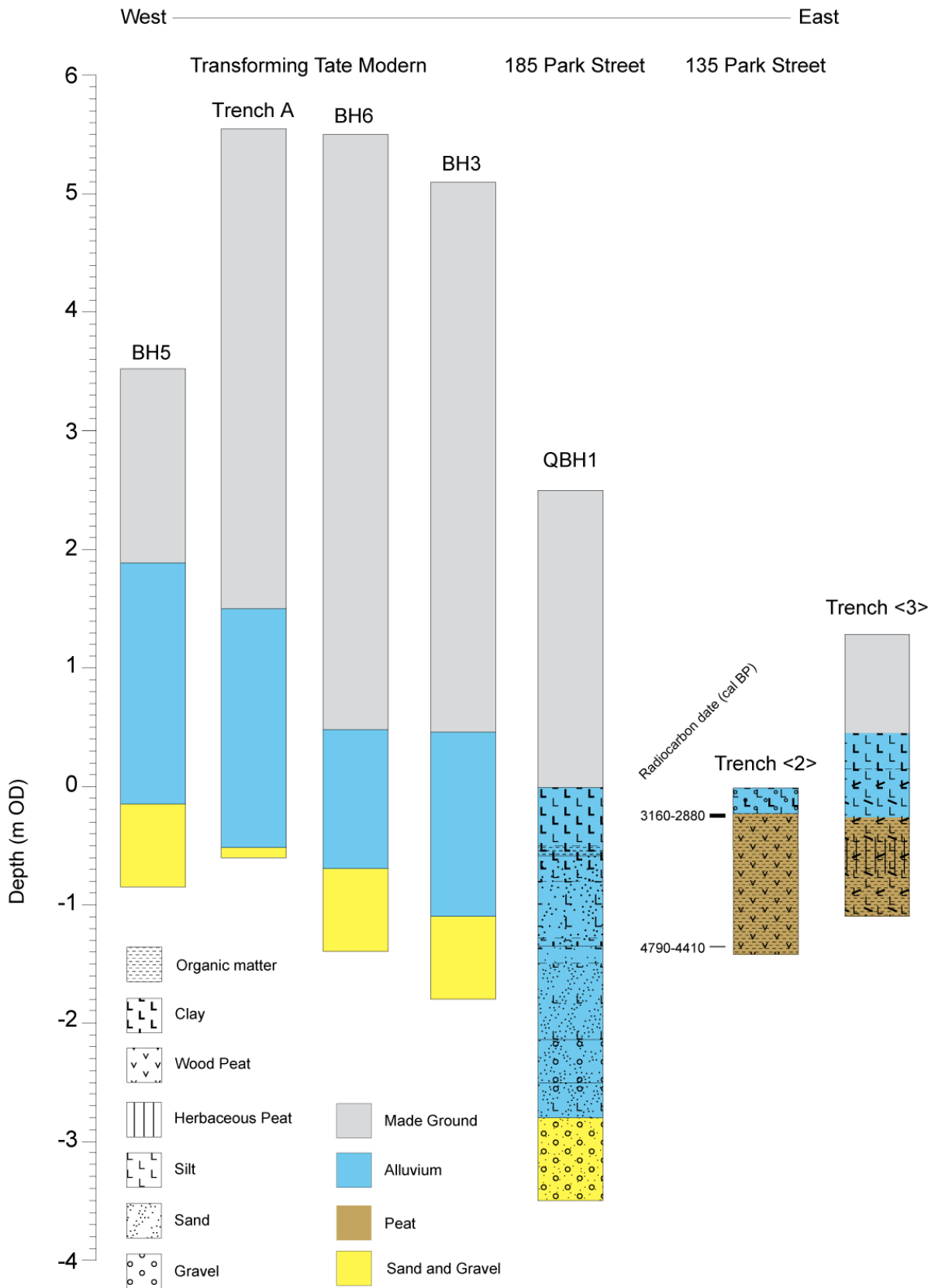


Figure 3: West-East transect of stratigraphic sequences from the Transforming Tate Modern (TMB09), 185 Park Street (PKE14) and 135 Park Street (PKP09) sites. The distance between sequences is not accurately spaced.

CONCLUSIONS & RECOMMENDATIONS

The main aims of the fieldwork were to investigate the first three significant geoarchaeological aims as outlined in the Written Scheme of Investigation for the site (Batchelor, 2014) as follows:

1. To record the depth and thickness of the main stratigraphic units
2. To clarify the nature, depth, extent and date of any Alluvium/Peat associated with the Bankside Channel
3. To establish the presence of prehistoric deposits (Peat and/or Alluvium) above the Gravel Surface

In addition, the potential for the sequence for achieving aims 4-6 will be considered, and detailed recommendations for laboratory-based assessment and analysis (if necessary) will be made.

The results have revealed that the surface of the Shepperton Gravel lies at -2.80m OD and is overlain by a sequence of mineral-rich sediments that become finer upwards. Made Ground caps the alluvial sediments from 0 to +2.50m OD. No Peat is present in the 185 Park Street borehole as it was at 135 Park Street site; a thin (9cm) horizon of organic-rich sediment was recorded at approximately the same elevation, but it is impossible to determine the chronological relationship between this and the Peat deposits from the neighbouring site.

Due to the inorganic nature of the stratigraphic sequence, which has very limited potential for radiocarbon dating, no further work is recommended on QBH1. However, as already highlighted, the deposits of the Bankside Channel can be highly variable across a small area, and thus the potential for more organic-rich sediments or peat cannot be ruled out in other parts of the site. Indeed, the potential for such sediments is considered to increase east and south-eastwards towards 135 Park Street where they have been recorded previously. Further geoarchaeological investigation of these areas of the site therefore has the potential to increase our knowledge and understanding of the former topography of the Bankside Channel, and nature of the sediments infilling it. Irrespective of whether further investigations are carried out, the results from the QBH1 are of interest and should be integrated into any future publication detailing the environmental history of the Bankside Channel.

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