OSIERS ESTATE, OSIERS ROAD, LONDON BOROUGH OF WANDSWORTH: GEOARCHAEOLOGICAL ASSESSMENT REPORT

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INTRODUCTION

This report summarises the findings arising out of a desk-based investigation and geoarchaeological assessment undertaken by Quaternary Scientific (University of Reading) in connection with the proposed development at Osiers Estate, Osiers Road, London Borough of Wandsworth (National Grid Reference: centred on *ca*. TQ 254 751; Figure 1). Three geotechnical boreholes and nine window sample boreholes were recently put down at the site by CARD Geotechnics (2010; Figure 2). In addition, two further palaeoenvironmental boreholes were put down to supplement and refine the record provided by the geotechnical borehole logs (Figure 2). The aims of this desk-based investigation was to review these borehole records and (1) establish the sub-surface stratigraphy of the site, (2) compare it with that of nearby sites (including a 2-D deposit model), and (3) make recommendations for further investigations (if necessary).

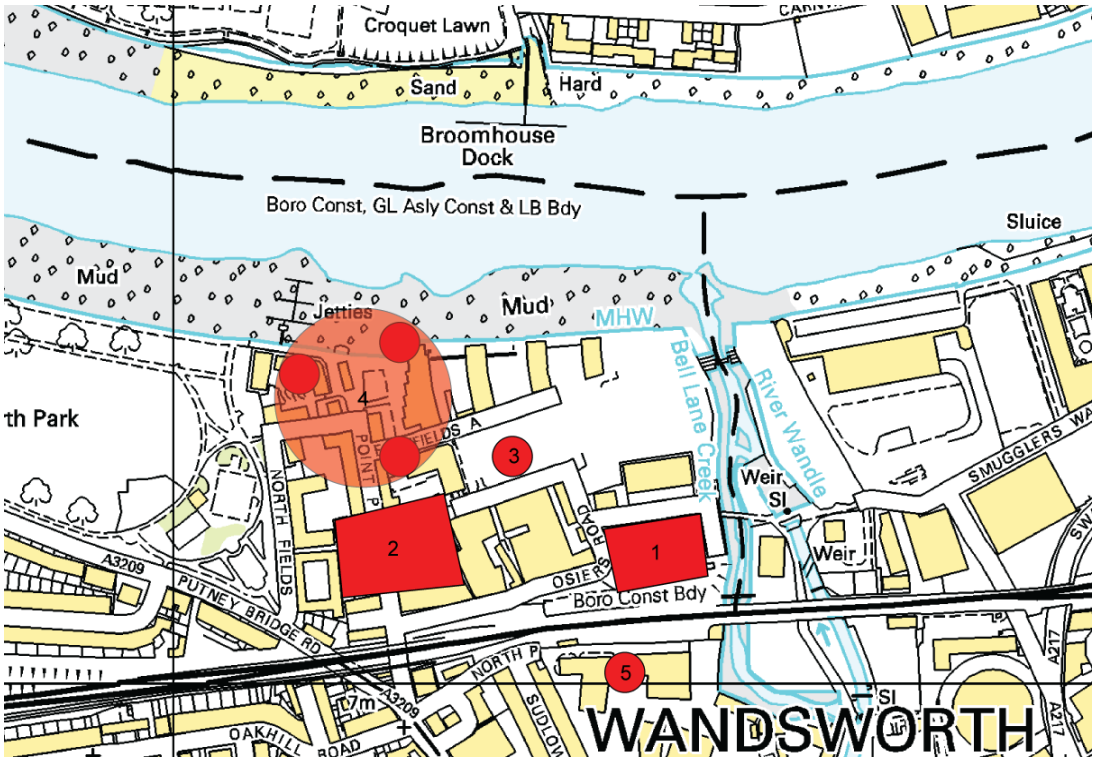

Figure 1: Location of Osiers Estate, Osiers Road, London Borough of Wandsworth (1) and selected other nearby sites: (2) Morganite Site; (3) Former Shell Oil Terminal; (4) Prospect Reach Foreshore and (5) Frogmore Depot.

GEOARCHAEOLOGICAL CONTEXT

The site is in the valley of the River Wandle, a right bank tributary of the tidal Thames. It is about 200m upstream from the confluence with the Thames and immediately adjacent to the most westerly surviving distributary of the lower Wandle, sometimes called Bell Lane Creek. Historically the ground formed the SE corner of Wandsworth Island and it appears to have remained in agricultural use until the end of the 19th century. Early maps (e.g. OS 1868) show tidal creeks extending westwards into the area from Bell Lane Creek. Throughout the 20th century the site, and the whole of the former Wandsworth Island, was occupied by industrial premises. The British Geological Survey (BGS) (1:50,000 Sheet 270 South London 1998) shows the site as Made Ground over Alluvium resting of London Clay bedrock. Recent investigations on the Osiers Road site have recorded between 3.0m and 4.5m of Made Ground across most of the site.

About 200m to the west of the Osiers Road site at the Morganite site on the east side of Point Pleasant (NGR : TQ 2525 7512), at the western end of the former Wandsworth Island, an alluvial sequence has been recorded (Branch *et al* 2007) between 2.20m and -0.81m OD. This sequence was thought to occupy a N-S channel cut down into the gravels of the Kempton Park Terrace which were seen to rise westward to levels between 3m and 5m OD. Early maps of the area (Rocque 1747) show a creek in approximately the position of this palaeochannel, but in the investigation of the Morganite site the eastern margin of the palaeochannel was not seen. It is possible therefore that the alluvial sediments lie at the edge of a more extensive spread of alluvium forming the floodplain at the mouth of the Wandle, in which case the top of this alluvial sequence is probably close to the level of the former natural ground surface of Wandsworth Island. The build-up of Made Ground above the palaeochannel sediments in the Morganite site can then be seen as bringing the ground surface up to the level of the Kempton Park Terrace, immediately to the west. At its base the alluvial sequence rested on gravel which should probably be regarded as part of the Wandle Gravel of Gibbard (1985), and equivalent to the Shepperton Gravel of the Thames valley and therefore of late last glacial (Devensian) age. This gravel was not bottomed at the Morganite site.

The alluvial sequence at the Morganite site consisted of silty sands with scattered clasts of flint (up to 25mm). These silty sands overlay peat and slightly gravelly organic silts which passed down into calcareous sands including remains of molluscs and ostracods, with a second peaty horizon at the base of the sequence resting directly on the underlying gravel.

In the Wandle valley, about 0.8km upstream from the Osier Road site, Gibbard (1985)

illustrates a borehole transect across the valley showing c.1.7m of gravel overlying London Clay at *c*.0.55m OD. The gravel is overlain by *c*. 1.1m of alluvium with an upper surface at *c*.3.3m OD.

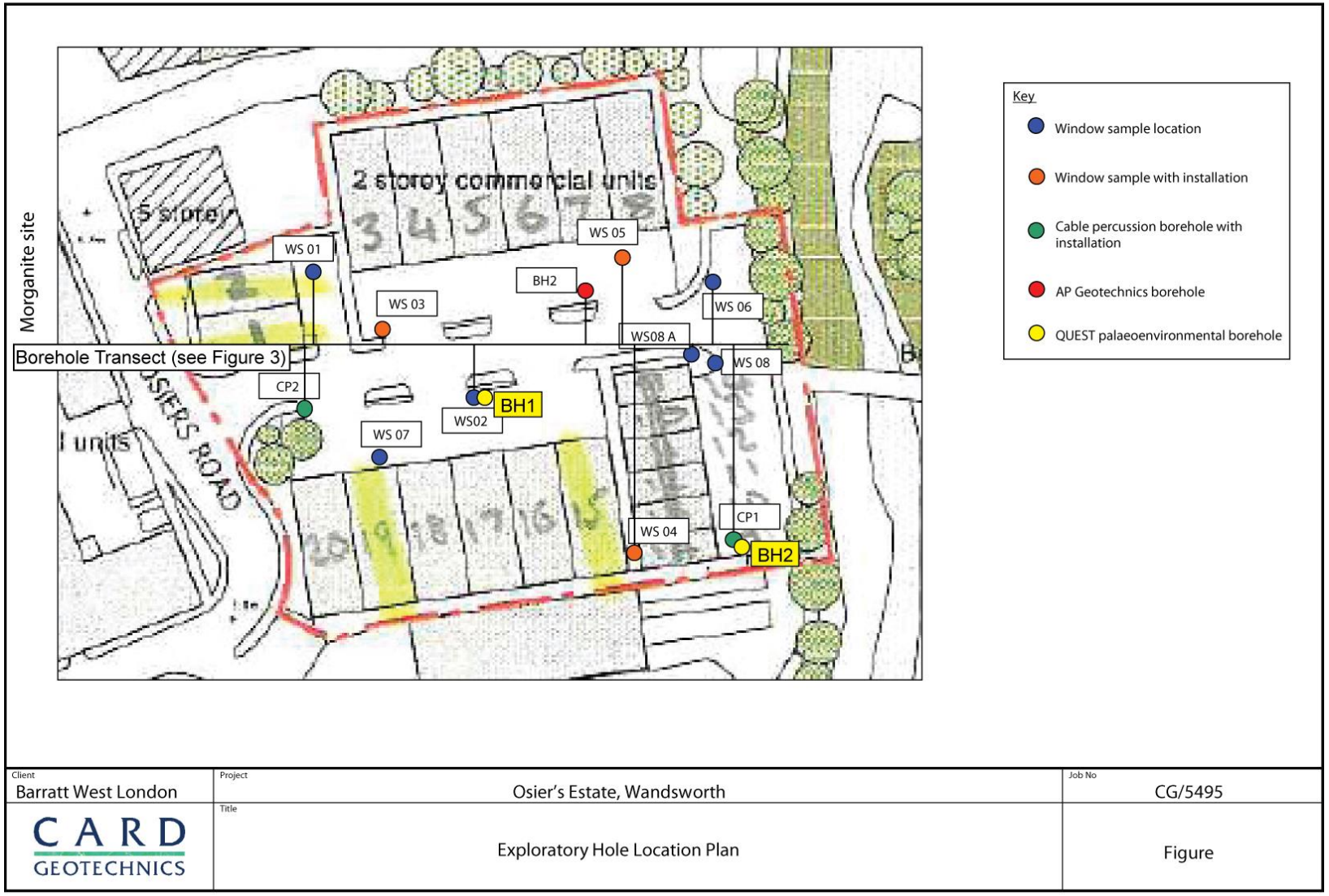

Figure 2: Location of the geotechnical boreholes, window sample boreholes and QUEST palaeoenvironmental boreholes at Osiers Estate, Osiers Road, London Borough of Wandsworth

METHODS

Lithostratigraphic description

The palaeoenvironmental borehole 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 (Tables 1 to 2).

RESULTS OF THE LITHOSTRATIGRAPHIC DESCRIPTIONS

The results of the lithostratigraphic descriptions of boreholes <BH1> and <BH2> are described in tables 1 and 2.

Table 1: Lithostratigraphic description of borehole BH1, Osiers Estate, Osiers Road, London Borough of Wandsworth

Depth (m OD)	Depth (m bgs)	Composition
6.50 to 1.02	0.00 to 5.48	Made ground
1.02 to 0.97	5.48 to 5.53	10YR 3/1; Ag1 As1 Dl1 Sh1 Dh+; very dark grey organic silt and clay with detrital wood and traces of detrital herbaceous material. Diffuse contact in to:
0.97 to 0.87	5.53 to 5.63	10YR 2/1; Sh2 As1 Ag1 Dh+; black very organic silt and clay with traces of herbaceous material. Sharp contact in to:
0.87 to 0.85	5.63 to 5.65	10YR 4/1; As3 Sh1; dark grey organic clay. Sharp contact in to:
0.85 to 0.65	5.65 to 5.85	10YR 2/1; Sh2 As1 Ag1 Dh+; black very organic silt and clay with traces of herbaceous material. Sharp contact in to:
0.65 to 0.40	5.85 to 6.10	10YR 3/2; Ga4 As+; very dark greyish brown sand with traces of clay. Diffuse contact in to:
0.40 to -0.20	6.10 to 6.70	10YR 3/2; Gg2 Ga1 As1; very dark greyish brown sandy clayey gravel.

Table 2: Lithostratigraphic description of borehole BH2, Osiers Estate, Osiers Road, London Borough of Wandsworth

Depth (m OD)	Depth (m bgs)	Composition
6.50 to 1.80	0.00 to 4.70	Made ground
1.80 to 1.50	4.70 to 5.00	10YR 3/1; Sh1 Dl1 Ag1 As1 Dh+; very dark grey organic silt and clay with detrital wood and traces of detrital herbaceous material. Diffuse contact in to:
1.50 to 1.10	5.00 to 5.40	10YR 4/1; As3 Ag1 Sh+; dark grey silty clay with traces of organic matter. Diffuse contact in to:
1.10 to 0.68	5.40 to 5.82	10YR 3/2; Ga1 Sh1 Ag1 As1; very dark greyish brown organic sandy silty clay with mollusc fragments throughout. Sharp contact in to:
0.68 to 0.62	5.82 to 5.88	10YR 3/1; Sh2 Ag1 As1; very dark grey very organic silty

		clay. Sharp contact in to:
0.62 to 0.53	5.88 to 5.97	7.5YR 3/2; Ga1 Dl1 As1 Sh1 Ag+; dark brown organic sandy clay with detrital wood and traces of silt. Sharp contact in to:
0.53 to 0.40	5.97 to 6.10	10YR 3/2; Ga3 As1; very dark greyish brown clayey sand.
0.40 to 0.20	6.10 to 6.30	Sand and gravel (not retained).

INTERPRETATION AND DISCUSSION OF THE LITHOSTRATIGRAPHIC DESCRIPTIONS FROM OSIERS ESTATE

The investigative record from the Osiers Road site consists of the logs of three geotechnical boreholes (CP1, CP1A, CP2), nine geotechnical window samples (WS01, WS02, WS03, WS04, WS05, WS06, WS07, WS08, WS08A) and two palaeoenvironmental boreholes (BH1 and BH2). Window samples WS07 and WS08 were discontinued at shallow depth and are not considered further in this account. All the other window samples were put down through Made Ground to a depth of 6.0m bgs. Between 3.0m and 4.5m of Made Ground were encountered. Boreholes CP1 and CP1A were logged as being discontinued at 8.0m bgs and 8.1m bgs respectively, where 'concrete' is recorded in both boreholes.

It is important to bear in mind that although the geotechnical sediment logs give a reliable indication of the main sediment types encountered in the boreholes and the presence of organic remains visible to the naked eye, they are not expected to identify sedimentological and pedological features and organic remains that might be recognised in a detailed laboratory examination of the cores. For this reason two palaeoenvironmental boreholes (BH1 and BH2) were put down to supplement and refine the record provided by the geotechnical borehole logs.

Geotechnical Borehole CP2, near the western edge of the site, passed through 4.5m of Made Ground into dark grey clay with frequent organic remains. Below 5.7m bgs the sediment became very sandy and below 6.25m bgs sandy partings were recorded. This sandy alluvium rested at 6.8m bgs on gravel which extended down to 8.7m bgs where it rested on bedrock London Clay.

Geotachnical Boreholes CP1 and CP1A, near the SE corner of the site, passed through Made Ground to, respectively 5.0m bgs and 3.3m bgs, into 'dark grey black' clay (CP1A) or sandy clay (CP1) with in both cases 'frequent organic matter'. In both boreholes the sediment became very gravelly downward at 6.0m bgs (CP1) and 5.8m bgs (CP1A). Both boreholes terminated when 'concrete' was encountered – at 8.1m bgs (CP1) and 8.0m bgs (CP1A).

Palaeoenvironmental Borehole BH1 was put down immediately adjacent to the position of window sample WS02, midway between Geotechnical Boreholes CP2 and CP1. It passed

through 5.48m of Made Ground into very dark grey/black organic silty clay with scattered detrital plant remains. Below 5.85m bgs the sediment became sandy and very dark greyish brown in colour with no visible organic remains; and at 6.1m bgs the borehole penetrated sandy gravel which was recovered for a further 0.6m.

Palaeoenvironmental Borehole BH2 was put down immediately adjacent to the position of Geotechnical Borehole CP1. It passed through 4.7m of Made Ground into very dark grey organic silty clay with scattered detrital plant remains. Between 5.40m and 5.52m bgs a sandier, very dark greyish brown unit was present which incorporated fragments of mollusc shell. Below 5.88m bgs the sediment became dark brown in colour and increasingly sandy downward to 6.1m bgs at which level gravel was encountered.

The geotechnical window samples recorded generally similar sequences immediately beneath the made ground, comprising light bluish grey or light grey clays with frequent organic remains and in window samples WS01, WS04, WS05 and WS08A, occasional fine flint gravel. 'Bands of peat' were recorded in the light bluish grey clays of window sample WS01. In five of the seven window samples a downward transition was recorded either into greyish brown sediment (WS03) or into shelly material (WS01, WS05, WS06, WS08A). The level of this transition varied from 4.5m bgs in WS06 and 5.0m bgs in WS03 to 5.8m bgs in WS08A snd 5.9m bgs in WS01 and WS05.

Comparison between the Morganite sequence and the Osiers Road sequences indicates several significant similarities.

1. The maximum thickness of the alluvial sequences recorded at Osiers Road (3.1m in WS04) is identical with the thickness of alluvium recorded at the Morganite site.

2. The transition from organic silty clays at Osiers Road into shelly, and in Boreholes CP2, BH1 and BH2, sandy sediment is similar to the transition at the Morganite site from organic rich silts to calcareous sands with mollusc and ostracod remains.

3. Given the recorded 3.0m overburden of Made Ground at the Morganite site, the level of the gravel surface there underlying the alluvial sequence is reduced to 6.8m bgs, the same level as the gravel surface at Osiers Road in Borehole CP2 and similar to the levels recorded in Boreholes BH1 and BH2 (6.1m bgs in both boreholes).

These similarities need to be considered in the topographic context of the two sites, forming as they do, two parts of the same parcel of marshland – formerly Wandsworth Island. In the

absence of recorded investigations in the area between the Morganite site and Osiers Road, it is not possible to be certain whether the alluvial sequences at these two sites represent accumulation in two separate creeks with an upstanding gravel area in between; or parts of the uninterrupted floodplain at the mouth of the Wandle. The historical evidence in early maps and the BGS mapping of the area tend to support the latter alternative, but in either case the two sites appear to have experienced essentially the same sequence of development in the recorded historic period and earlier in the Holocene. The radiocarbon dating of the Morganite sequence suggests that alluvium began to accumulate there in the third millennium BC and continued to build up into the historic period. There is no obvious reason to suppose that the history of the Osiers Road site has been significantly different.

'Concrete' in Boreholes CP1 and CP1A

It is difficult to visualise any reason why there should be any artificial surface of 'concrete' at the depths recorded here in the lower Wandle valley. There is no record of deep excavations at the mouth of the Wandle. Industrial development of the site in the 20th century seems on the contrary to have entailed substantial ground-raising by the importation of Made Ground material.

The level at which 'concrete' was encountered in both boreholes (c.8.0m bgs) is fairly close to the level at which the base of the gravel was recorded in Borehole CP2 (8.7m bgs) and the thickness of the 'very gravelly' sediment in the two boreholes – 2.2m in Borehole CP1A and 2.1m in Borehole CP1 is similar to the thickness of the gravel recorded in Borehole CP2 (1.9m). In addition the upper surface of the 'very gravelly' sediment (5.8-6.0m bgs) is close to the level bgs at which transitional conditions were recorded in several of the window samples (c.5.8-5.9m bgs) and in Boreholes BH1 and BH2 (respectively 5.85m and 5.40m bgs).

Following the recognition in cores from Borehole BH2 of an alluvial sequence similar to those encountered in all the other boreholes and window samples taken at the Osiers Road site, it seems likely that Boreholes CP1 and CP1A encountered an indurated gravel bed immediately above the contact with the London Clay and that the sediment sequences above this level in both boreholes are *in situ* natural alluvium. Both calcareous and ferruginous induration of fluvial gravels is quite widely recorded in the basin of the Thames and its tributaries and is often sufficiently robust to have served as a durable building material in the historic period – natural concrete.

RECOMMENDATIONS

This area of the Thames has been investigated in detail (see Perry and Skelton, 1995a, b; MoLAS, 2004; Branch *et al* 2007; Jarrett *et al*, 2010) and bearing in mind the fully documented

alluvial sequence from the Morganite site, only some 200m to the west of the Osiers Road site, based on sample material that appears to have been similar to the Osiers Road alluvial sediments in its topographic context and depositional origins, there is no obvious case for repeating such a detailed examination based on samples taken from the Osiers Road alluvium in which a less diverse assemblage of organic remains appears to have been preserved.

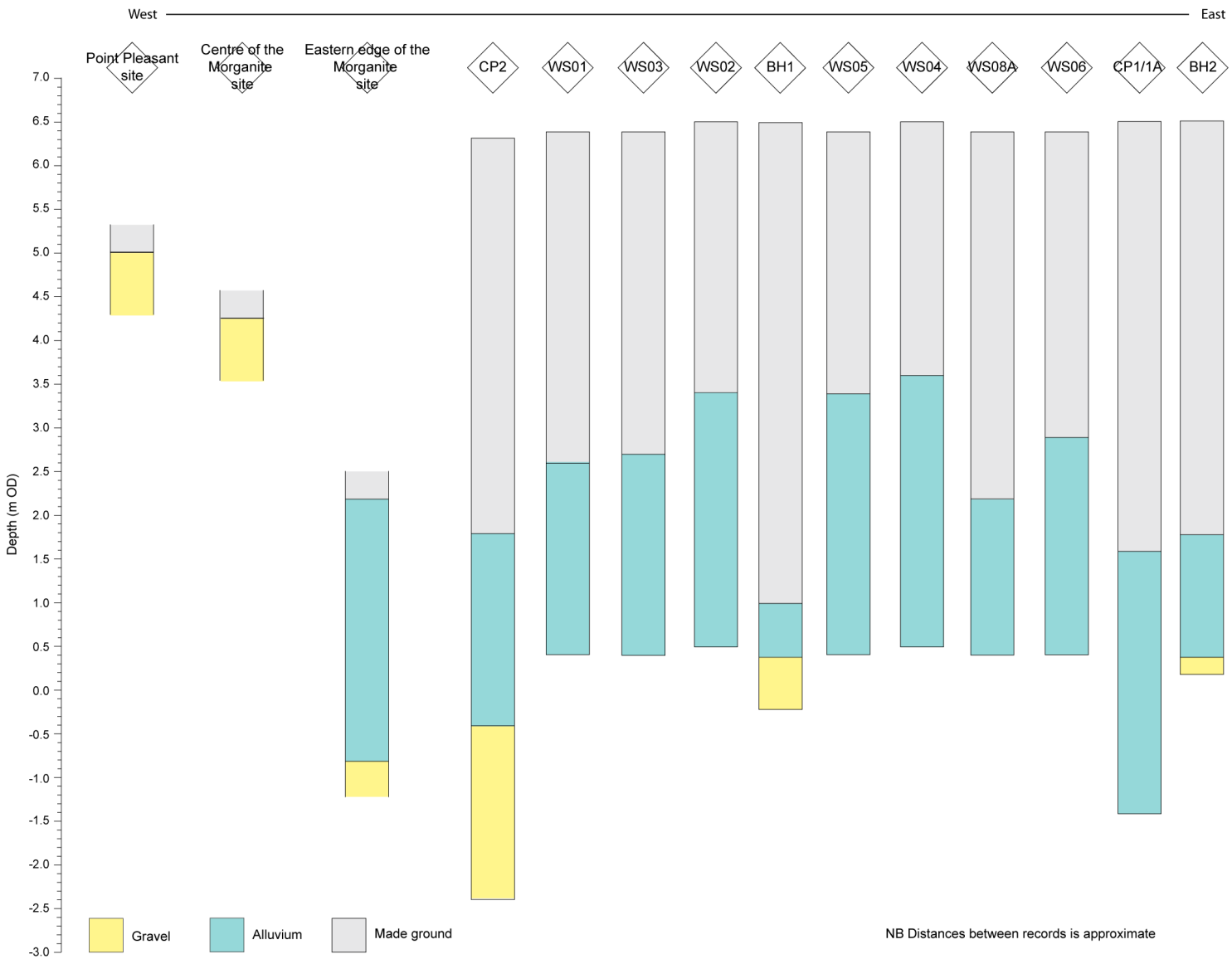

Figure 3: Simplified west-east transect of lithostratigraphic records from Osiers Estate, the Morganite site and Point Pleasant, London Borough of Wandsworth

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