

GLA 82: Osterley Park, LIGS

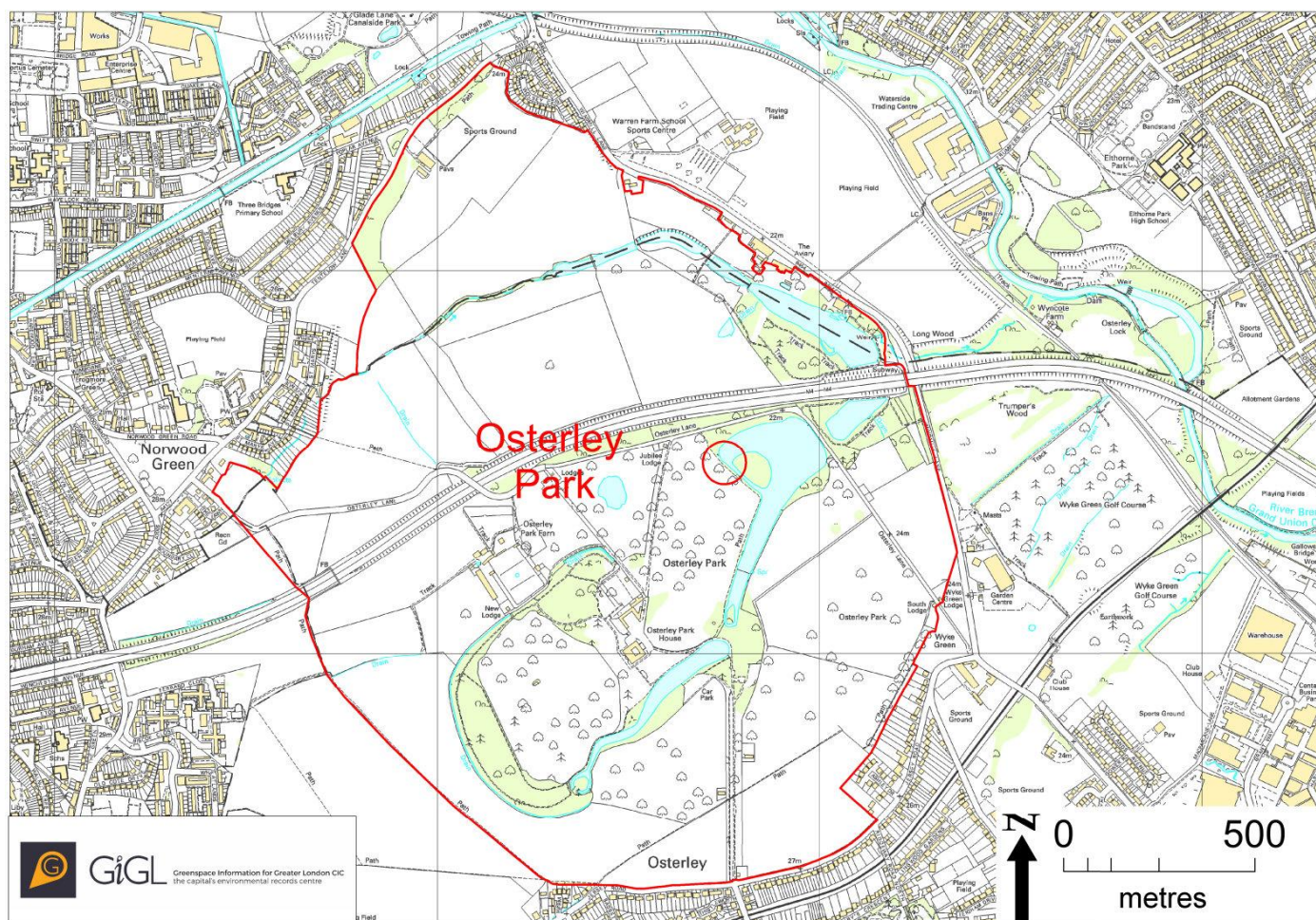
London Borough of Hounslow

Ownership: National Trust

Osterley is a C18 landscape park laid out on the site of an earlier formal garden with substantial additional tree planting being undertaken in the C19 and C20¹. The park has three lakes: the Garden Lake (~2 hectares), the Middle Lake (~5.5 ha), and the North Lake (~3 ha). Since 1974, the M4 motorway has cut across the northern part of the park, including the North Lake. Exposures of Taplow Gravel, laid down as flood plain deposits by the post-diversion Thames* during the late Middle Pleistocene, occur at the NW end of the Middle Lake and is the designated geological feature of the park. In addition, the [stones of Osterley House](#) can be viewed (follow the link on the webpage to *Urban Geology in London No. 37*)².

Sites of geological interest near Osterley Park are Gunnersbury Park (GLA 80), Lampton Park in Hounslow (SGI 42) and Syon Park with the adjacent Isleworth Thames Foreshore (GLA 48). The River Brent and Boston Manor Park, together with SGI 9, the Hanwell Sarsen, are near the eastern boundary.

The estate covers 217 ha, of which 134 ha belongs to the National Trust; the remainder is farmland attached to Osterley Park Farm.



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The earliest mansion, replacing a farmhouse, was built in c.1575 for Sir Thomas Gresham, who bought the estate in 1562. It was largely transformed into its present grade I listed design by the architect Robert Adam in the 1760s-1770s for the then owner Sir Francis Child. Although the original ground plan of Gresham's mansion was largely preserved, the fabric was extensively altered, Adam continuing his work for Robert Child after the death of Sir Francis in 1763. The park and gardens surrounding the house were extensively altered during the rebuilding, the formal gardens (Rocque, 1746) being replaced by an informal park (Enclosure map, 1818). The design of the park has been attributed to Mrs Robert Child and her steward, Mr Bunce. In 1804, Robert Child's granddaughter, Lady Sophia Sarah Fane, who had inherited the estate, married the fifth Earl of Jersey and thus Osterley came into the possession of the Jersey family. This would

be the case until the NT's acquisition in 1949 from the ninth Earl. WWII saw the park given over to beef cattle and hay, with allotments E of South Drive.

To the north of the mansion is the red-brick stable block (listed grade I), built around a three-sided courtyard, the open side of which faces the mansion. Now housing the café and other visitor facilities, the stables have their origins in the C16 and, apart from the clock tower and clock added in 1714, are little altered from Thomas Gresham's time.

The mansion is surrounded on three sides by 8 ha of gardens and pleasure grounds which includes one of two walled kitchen gardens. Adjoining this garden is the stucco Garden House (grade I) designed by Robert Adam in c.1780 for use as a plant house. Another C18 grade I listed structure within the pleasure grounds is the Temple of Pan in Portland Stone, thought to have been designed by Sir William Chambers. The Orangery, designed by Robert Adam, formerly stood near the Temple of Pan, but was destroyed by fire during WWII. The other kitchen garden is in private hands at Osterley Park Farm.

By the North Lake, there is a private C18 residence, The Aviary (grade II), once known as The Menagerie, is so-called because it housed Mrs Robert Child's exotic bird collection. In the C18, the house stood in its own park, Menagerie Park – a Robert Adam-designed stone bridge across the lake (grade II) is thought to have connected the two halves of this park.

Geology

The park's bedrock is the Paleogene (Eocene) **London Clay Formation**, a marine unit deposited about 50 million years ago. Apart from immediately around the lakes, the London Clay has a cover of middle and late Pleistocene superficial deposits³. These comprise two post-diversion⁴ Thames terrace gravels with a veneer of the **Langley Silt Member** (Brickearth) in the southern part of the park. The gravels are the **Lynch Hill** and **Taplow Gravel Members**, both deposited during the complex 'Wolstonian' stage, c.270,000 and c.160,000 years ago respectively^{5, 6}. Two minor tributaries of the River Brent have cut down through the Pleistocene deposits to the impervious London Clay. Their shallow valleys were occupied by strings of ponds, which in the C18 were made into the lakes.

The **London Clay** underlies most of the London Basin. Given the c.50 Ma age of the top of the London Clay, there must have been this time span of erosion before the Lynch Hill and Taplow Gravels were laid down. There might have been deposits intermediate in age between the Clay and the gravels which left no traces. The London Clay was deposited in an arm of a warm tropical sea which probably had a maximum depth of >150 m; it occupied the southern part of the North Sea Basin and covered much of south-east England and the near continent.

After deposition great earth movements saw the closure of the precursor to the Mediterranean Sea as Africa collided with Europe and the Alpine Chain was created. In England old faults were reactivated in the process so that the deep basin of the Weald of south-east England was elevated to become an upfold, and what is now the London Basin became a downfold. This helped to protect the sediments to an extent, as erosion is more prevalent in high areas. Seasonal rain caused wide rivers to discharge large amounts of mud into the sea from a coastline probably in the Midlands. Fossils of land plants and animals found within the marine clay have allowed researchers to compare the scene to Malaysia at the present day.

As already mentioned, the **gravels** in Osterley Park are former flood plain deposits of the Thames. These were laid down in cold climate conditions when the river was braided (i.e., with multiple channels). Flow rates were much higher than today due to spring/summer melt, distributing the gravels right across the valley floor. Land uplift following unloading of the ice and/or tectonic movements, caused the river to cut down leading to new flood plain deposits accumulating at a lower level. Sand, silt and clay instead of gravel were deposited at lower flow rates and occur as lenses within the gravels. The gravels are mainly of flint derived from the Chalk, with reworking from gravel-bearing Palaeogene deposits and older terraces.

The gravel terrace surfaces in Osterley Park lie between 22 and 28m OD, the Lynch Hill Gravel forming the slightly higher ground. As already indicated, the Taplow Gravel forms the only significant exposure. The Lynch Hill Gravel is visible only as scattered pebbles in the topsoil.

The **Langley Silt Member** occurs in much of west London and has been used for brickmaking, hence its informal name of brickearth. It appears to have a variable origin and age – in some areas it was deposited as windblown dust as loess during arid tundra conditions during the latter part of the last cold stage (c. 25,000-12,000 years BP⁷) and in other areas as flood silts or slope wash. Source materials were likely to be both from glacial outwash deposits of the (then dry) southern North Sea/Channel basins and more local outcrops. There is evidence of soil formation dating from warmer phases of the Devensian. Reworking occurred by surface processes both in the Devensian and Holocene and by more recent human activity⁸.

A series of brickfields extending E-W south of the park is marked on C19 large scale Ordnance Survey maps, but these had largely gone by the outbreak of WW1. Evidence of these can be seen on modern geological maps by way of rectangular areas of gravel marked within the Langley Silt outcrop.

Access

Osterley Park's main approach is from Jersey Road to the south. The entrance, with a late C19 lodge, leads onto South Avenue, a tree-lined drive and footpath. There are car parks just before the drive curves between Garden Lake and Middle Lake to terminate in the forecourt to Osterley House (café and toilets nearby). The South Avenue was constructed in response to the arrival in 1883 of the Metropolitan District Railway (MDR) at Osterley Park and Spring Grove station – its building survives on Thornbury Road. The MDR became the District Line in 1933 and soon after the station was re-sited to the A4 as 'Osterley', now served by the Piccadilly Line.

The park is also accessible from Wyke Green if coming from Syon Lane (SWR) station. Entering Osterley Lane at the junction of Windmill Lane and Jersey Road, two C18 lodges designed by Robert Adam are soon passed. Osterley Lane continues towards the M4 then runs parallel to it before crossing it. Osterley Lane was the 'meandering route' to the mansion described by William Keane in his *Beauties of Middlesex* in 1850. Part-way along the section of Osterley Lane by the M4 is Jubilee Lodge, where going through the gate and turning left will soon lead to Middle Lake and the gravel exposures. Going straight ahead from the gate will lead to Osterley House.

Another way in is by footpath from Tentelow Lane (A4127), Norwood Green. This joins Osterley Lane before crossing the M4. Two C18 lodges are soon reached, marking the approach running SE to the House. The Jubilee Lodge entrance is further along Osterley Lane.

References and notes

1. Osterley Park, Hounslow. Archaeological desk-based assessment. Client: National Trust, Oxford Archaeology, May 2020.
https://nationaltrusthbsmr.esdm.co.uk/LLWS/LLFiles/201251/original_201251.pdf (accessed 19 November 2024). Summarises the history of the house and park and documents past archaeological investigations and a 2019 ground walkover survey by OA.
2. Siddall, R., Urban Geology: <http://ruthsiddall.co.uk/UrbanGeology.html> (accessed 16 January 2025) - <https://ruthsiddall.co.uk/Walks/OsterleyParkHouse.pdf>
3. British Geological Survey Open Linked Data, online mapping and Lexicon of named rock units.
4. Bridgland, D.R. (Eds: Bowen D.Q., Wimbledon W.A. 1994. Quaternary of the Thames, Joint Nature Conservation Committee, Chapman and Hall, London, 441pp.
5. The British 'Wolstonian' stage (= Saalian in northern Europe) of the middle Pleistocene is a complex stage comprising the glacial cycles of marine (oxygen) isotope stages (MIS) 10, 8 and 6 and the interglacials of MIS 9 and 7.
6. Median ages for the gravels are given in the text: MIS 6 is dated 191-130 ka and MIS 8 300-243 ka (from https://www.lorraine-lisiecki.com/LR04_MISboundaries.txt). Even numbered (cold) MIS stages have higher levels of oxygen-18 in sea water due to the removal of regular oxygen-16 to fall as solid precipitation to be locked up in ice (¹⁶O/¹⁸O ratio recorded in deep sea sediment cores).
7. The Devensian stage (= Weichselian in northern Europe) is the most recent glacial cycle, occurring in the late Pleistocene, corresponding to MIS 5d-2 (115-11.7 ka). MIS 5e is the last interglacial (Ipswichian or Eemian stage).
8. Bunce, C., Smalley, I., Stevens, T. and Assadi-Langroudi, A. 2022. Loess in Britain and Ireland: Formation, modification and environmental significance, a review in memory of John Catt (1937-2017). *Proceedings of the Geologists' Association*, 133(6), pp 501-517.

Old 6in and 25in Ordnance Survey maps on the National Library of Scotland website have also been consulted.

*The River Thames originally flowed north of London along what is now the Vale of St Albans into East Anglia, until its valley was blocked by an ice lobe during peak of the Anglian Glaciation at c. 450 ka. It was the most extensive known glaciation in the British Isles. The river was diverted to the south, eventually forming its present course through London.

GLA 82 Osterley Park



Taplow Gravel at the NW corner of Middle Lake

Gravel exposed by a probable combination of occasional submergence and visitor erosion,
~40-50 metres from the photo on the left.

Photos: Allan Wheeler, 30 May 2023