

**THE NEW QUARANTINE HOUSE SITE  
LAND ADJACENT TO THE LOWER NURSERY**

**ROYAL BOTANIC GARDENS KEW**

**RICHMOND, TW9 3AG**

**LONDON BOROUGH OF RICHMOND.**

**AN ARCHAEOLOGICAL FIELD EVALUATION**



March 2009

**COMPASS**



**ARCHAEOLOGY**

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## **Abstract**

*Archaeological field evaluation of land adjacent to the Lower Nursery at the western side of the Royal Botanic Gardens Kew, Richmond TW9 3AG took place from 15<sup>th</sup> to 22<sup>nd</sup> December 2008. The evaluation was carried out as part of the planning process prior to proposed development of the site for a new Quarantine House in the Gardens.*

*The site lies within an area of the Royal Botanic Gardens that has potential for a range of archaeological features and finds from prehistoric to post-medieval date. Historic map data in the Kew Conservation Management Plan shows a series of boundaries and landscape features in the vicinity of the present site from at least the 18<sup>th</sup> century, and also some buildings to the north and west. There were several changes to the layout of the site documented in the maps, which in particular may include an 18<sup>th</sup> century ha-ha or 'sunken fence' feature running close to or just within the southern part of the site.*

*A recent geophysical (GPR) survey produced evidence for a number of anomalies and potential archaeological features<sup>1</sup>. These anomalies ranged in depth from 1m to 3.2m, it was, however, difficult to relate these the historic map record and to the results of the evaluations, and they are now felt to represent anomalies in the underlying geology.*

*Six evaluation trenches (1 to 6) and two test pits (A and B) were excavated covering a total area of some 100 square metres (three trenches measured 10m x 2m, two measured 7.5m x 2m and one measured 5m x 2m). Four of these trenches revealed simple stratigraphic sequences of topsoil over subsoil (increasingly alluvial to the west towards the River Thames) with natural gravels being exposed in some of the trenches.*

*Trench 3 revealed part of a backfilled ditch, which was interpreted as a 'sunken fence feature', the backfilling of which can be identified by finds, documents and historic maps to date to the late 19<sup>th</sup> century. Trench 6 uncovered a red brick wall and associated structures, made of bricks dating from the period 1630 to 1750. The bricks in these structures had been reused, but no later brick fabrics were present. It is, therefore, possible that elements of these structures could originally be contemporary with the early occupancy of Kew Palace (built 1631 by Samuel Fortrey) and part of the pleasure grounds laid out by William Chambers in the 18<sup>th</sup> century. Test pits A and B were subsequently dug to determine the potential projection and extent of the wall, however further brickwork evidence was only revealed in test pit A.*

*The evaluation recovered a relatively small finds assemblage. This included several residual prehistoric worked and burnt flints recovered from the undifferentiated overburden of most trenches. Otherwise all finds were of later post-medieval date and comprised mainly pottery, with also occasional clay tobacco pipe and several hones.*

*Given the designation of the Royal Botanic Gardens Kew as a World Heritage Site, the presence of any archaeological remains is significant. If the new building will have an impact on these areas of the site it is recommended that a second phase of investigation be carried out; this should provide the opportunity to fully determine the date, nature and extent of both the sunken fence feature and the exposed brickwork in order to contributing to our understanding of the history of this area.*

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<sup>1</sup> Geotech Surveys Ltd.; Project No. 0806s037C, June 2008.

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## **1. Introduction**

- 1.1** This report presents a summary of an archaeological field evaluation of land adjacent to the Lower Nursery, Royal Botanic Gardens Kew, Richmond, TW9 3AG, London Borough of Richmond. Compass Archaeology carried out the evaluation fieldwork between 15<sup>th</sup> and 22<sup>nd</sup> December 2008. The fieldwork forms a condition of the planning proposal to build a new Quarantine House in the Royal Botanic Gardens.
- 1.2** The proposed redevelopment site lies in the west of Royal Botanic Gardens and is close to the River Thames. It was considered that the site had potential for a range of archaeological remains, from the prehistoric to post-medieval periods. Historic maps showed that a series of boundaries and landscape features were located in the vicinity of the present site from at least the mid 18<sup>th</sup> century, with several additional buildings to the west. These maps document several changes to the site, which in particular may include a 19<sup>th</sup> century ha-ha or 'sunken fence' feature that ran close to or just within the southern part of the present site.
- 1.3** English Heritage advised that an archaeological evaluation should be undertaken as part of the planning process. Six trial trenches were proposed and excavated, with two small test pits targeted to determine the extent of specific archaeological remains. These trenches covered some 100 square metres of the proposed redevelopment site at the level of potential archaeology or natural subsoil. Three trenches measured 10m x 2m, two measured 7.5m x 2m and one measured 5m x 2m, with both the test pits measuring less than 0.5m x 0.5m.

## **2. Acknowledgements**

Compass Archaeology are grateful to the Royal Botanic Gardens Kew for commissioning the evaluation and to the following individuals:

Ruth Edwards, Stephen Ruddy and Dave Barnes, Royal Botanic Gardens Kew.  
Diane Walls, English Heritage GLAAS.

### 3. Site background

#### 3.1 Location

The site is located in the western side of the Royal Botanic Gardens Kew, in the London Borough of Richmond, approximately centered at National Grid Reference TQ 1834 7725. The site occupies an irregularly-shaped plot with overall measurements of some 70m northwest to southeast by 50m southwest to northeast: the area is currently open grass apart from occasional trees and shrubbery, and is enclosed by timber fencing on three sides. The site location is shown in Figure 1 in relation to the 1:25000 Ordnance Survey (resized) and in relation to a plan of the Royal Botanic Gardens Kew in Figure 2.

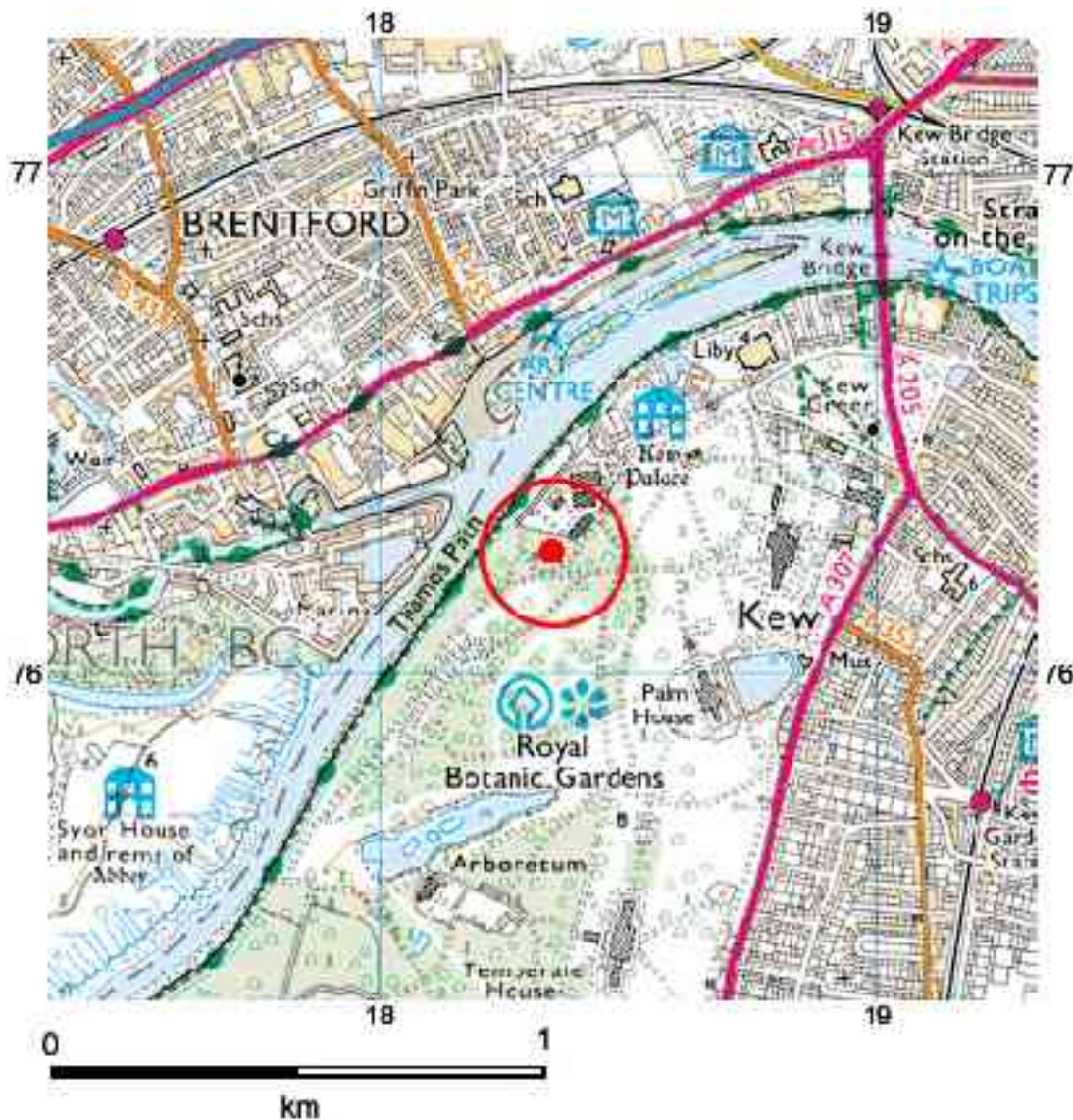


Fig. 1 Site location in relation to the modern 1:25000 Ordnance Survey (resized)

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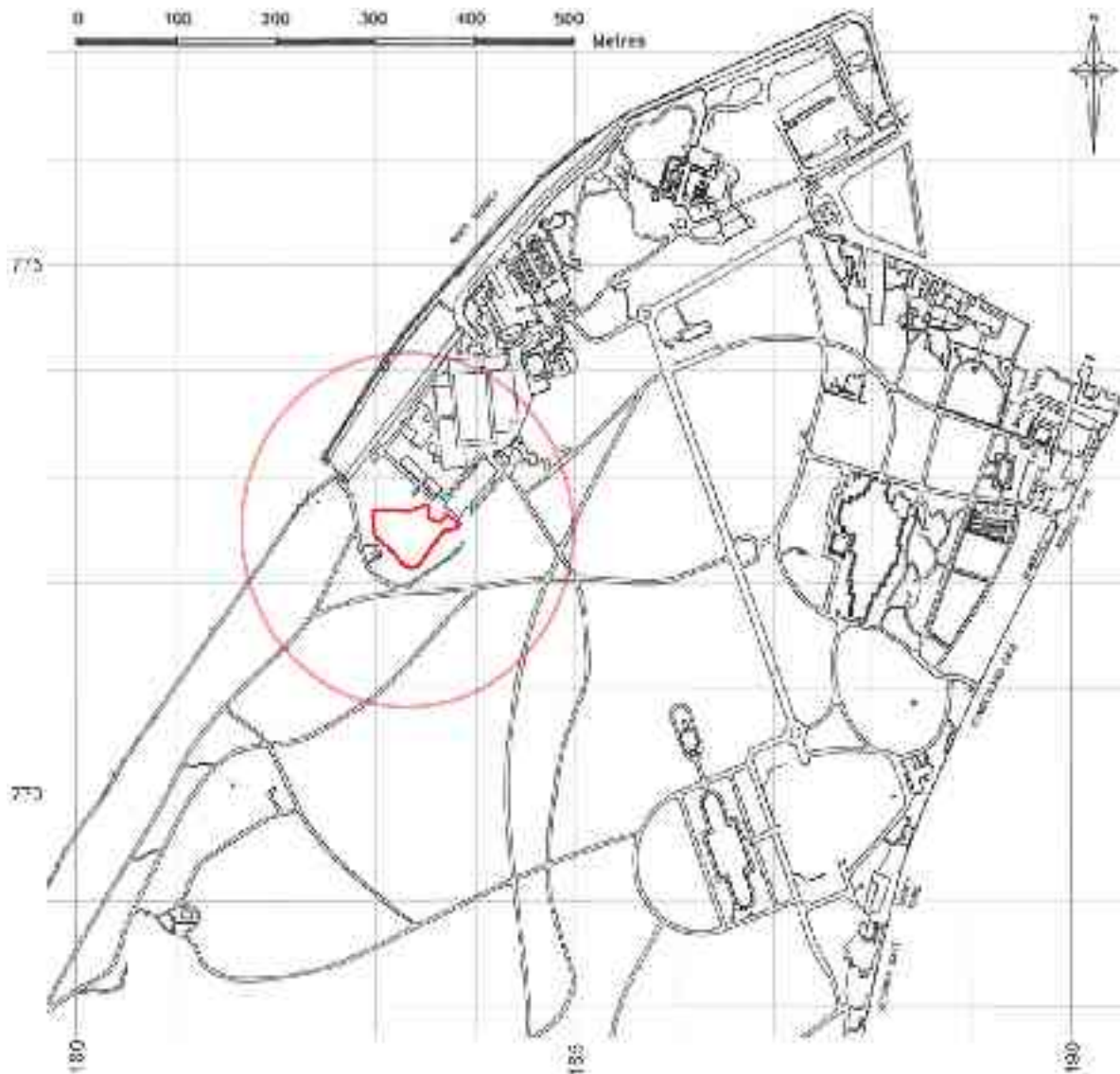


Fig. 2 Site location in relation to a plan of the Royal Botanic Gardens Kew

### 3.2 Geology and topography

The site is located approximately 110m to the east of the present south bank of the River Thames, and within the historic floodplain, at a local surface level of approximately +6m OD.

According to the British Geological Survey<sup>2</sup> the site overlies natural River Terrace Deposits (Kempton Park Gravel; described as gravel, sandy and clayey in part). The BGS does appear to show no later alluvium on this side of the River, although alluvial deposits were encountered on the northern part of the site. The geology of the area is fluvial in nature and reworked and braided sands, gravels and alluvial silt deposits were encountered across the evaluation area.

<sup>2</sup> Sheet 270, 1998

### 3.3 Archaeology and history

The area has produced a range of archaeological finds and remains, from prehistoric times onwards. Historically there is some record of activity from the 16<sup>th</sup> and 17<sup>th</sup> centuries, whilst more detailed surveys date from Rocque's map of 1746 and show a series of enclosed plots, boundaries and scattered buildings.

The most significant historic building in the immediate area is Kew Palace (formerly known as the Dutch House) and built by Samuel Fortrey in 1631. The building is noted for its distinctive decorative gauged brickwork and rounded Dutch gables and is of especial importance archaeologically as it is the earliest recorded example of Flemish brickwork in the country (although it is possible that earlier examples exist)<sup>3</sup>. It was used intermittently as a royal residence between 1728 and 1898. Initially, while her husband George II was extending Richmond Gardens, Queen Caroline leased several parcels of land and buildings in the hamlet of Kew, which included Kew Palace. The pleasure-grounds for the palace, which contained 120 acres (0.49 km<sup>2</sup>), were laid out by Sir William Chambers (1723-1796, but working in the gardens from c 1755). A second 'Gothic' castellated palace (designed in part by King George III, and otherwise by James Wyatt) began construction in 1802 just south of the Dutch House, but was demolished during the reign of George IV in 1828 (*cf.* Fig 4 note the annotation '*Site of the Castellated Mansion*').

George III's residency of the Dutch House was originally intended to be brief, a temporary residence while his new castellated palace was built - at first the Royal Family resided at Richmond Lodge but as the family became larger it became necessary to take over other properties on Kew Green which included the Dutch House. From 1760, when he became king, George III lived in various properties around Kew, principally Richmond Lodge and the White House (after 1735). After his plans for a new palace were dashed, he bought Kew Palace in 1781 to accommodate his new family.

After Queen Charlotte died in 1818, Kew Palace was closed. In December 1896, Queen Victoria agreed to Kew's acquisition of the Palace, providing there was no alteration to the room in which Queen Charlotte died. In 1898, the palace passed to the Department of Works and opened to the public.

Kew Palace is in the trust of Historic Royal Palaces and underwent extensive restoration in 2006<sup>4</sup>.

The map series offers a further insight into the historic development of the area and Richardson's plan of 1771 indicates that the site lay largely within a wooded area, but with a couple of adjoining boundaries to the west and what appears to be a rectangular mound – an artificial landscape feature – just to the northeast (Figure 3). A similar picture is also shown on a map in the Kew archive that possibly dates to the 1780s<sup>5</sup>.

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<sup>3</sup> John Brown *pers comm*.

<sup>4</sup> Some of this data is extracted from the Kew Gardens web-site and from Wikipedia – Kew Palace [www.kew.org/heritage/places/dutchhouse.html](http://www.kew.org/heritage/places/dutchhouse.html) and [en.wikipedia.org/wiki/Kew\\_Palace](http://en.wikipedia.org/wiki/Kew_Palace)

<sup>5</sup> *pers comm* Stephen Ruddy, RBG Kew



Fig.3 The approximate site location in relation to an extract from the 1771 Plan of the Royal Manor of Richmond...in the County of Surrey, by Thomas Richardson.  
*Based on a digital copy provided by the RBG Kew Archives*

19<sup>th</sup> century maps show a number of changes to the above layout, in particular a substantial linear feature that appears on a roughly east-west alignment across the western side of the Gardens. The reproduction of Chawner's 1837 survey (Figure 4) suggests that this may be a ha-ha, as it is shown as a continuous line with hachures (extending all the way to the Brentford Ferry) and indicating a steep bank to the north and a gentler slope to the south. However, the feature seems to have disappeared by the middle of the century. The Conservation Management Plan indicates a 'sunken fence' feature no. 2022 and this is clearly marked as such on the 1840 Driver map. There is some confusion over the actual form of this feature at this time, as an 1852 map marks it as a ha-ha. The Conservation Management Plan states '*The feature*

appears on maps after the early nineteenth century reorganization of the Site brought about by the construction of the Castellated Palace. It is clearly shown on the 1840 map as being a sunken fence and extends in two sections, linked by an above-ground fence, running from the Thames to the Botanic Gardens. By this means the Palace Grounds were distinguished from the broader Pleasure Grounds<sup>6</sup>.



Fig.4 The approximate site location in relation to an extract from the reproduction of the 1837 survey of the Gardens by Thomas Chawner  
*Based on a digital copy provided by the RBG Kew Archives*

### 3.4 Previous survey work

A recent geophysical (GPR) survey of the site produced evidence for a number of anomalies and potential archaeological features, as indicated on the base plan shown below in Figure 5<sup>7</sup>. These anomalies are reported to range in depth from 1.0m to

<sup>6</sup> See also Fig 15 and Section 6.3.1 page 20 for further discussion.

<sup>7</sup> Geotec Surveys Ltd.; Project No. 0806s037C, June 2008)

3.2m and were particularly evident on the eastern side and towards the southwest corner of the site, although it is hard to match any of them with the features and boundaries recorded on historic maps or relate them to the archaeology encountered in the evaluation. It seems most probable that the survey has detected anomalies in the underlying geology.

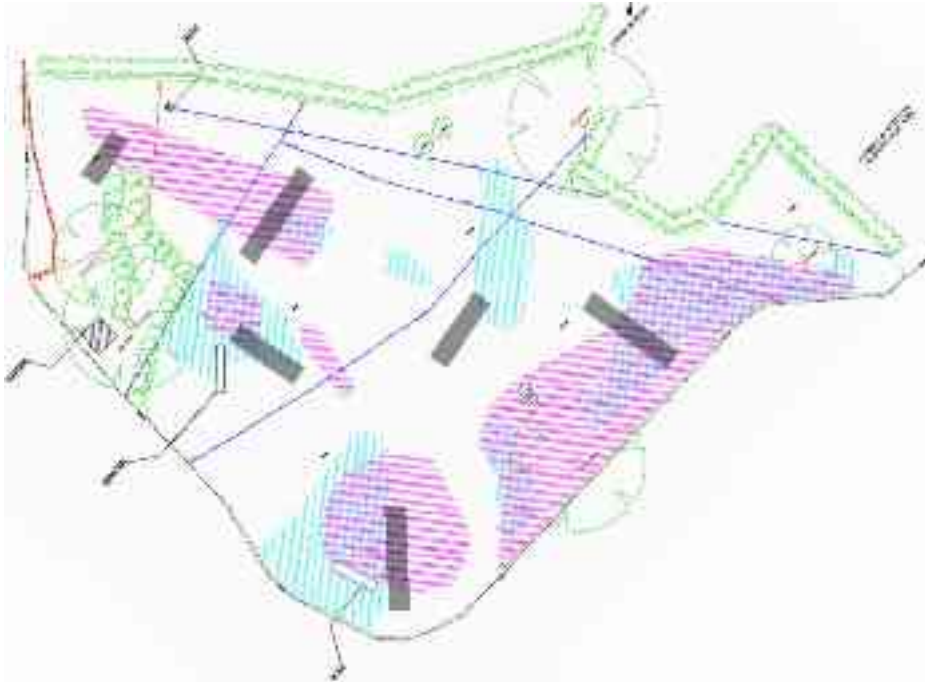


Fig.5 Plan showing the proposed location of the evaluation trenches, based on the geophysical survey plan of the site produced by Geotec Surveys Ltd. (Project No. 0806s037C). The anomalies are shown in pink and blue, with the trenches shown in dark grey. See Fig 7 for scale.

#### **4. Aims and objectives of the evaluation**

##### **4.1 Archaeology and planning legislation**

Following the proposal to build a new Quarantine House within the site in the Royal Botanic Gardens Kew, English Heritage advised that an archaeological evaluation should be carried out as part of the planning process.

The Written Scheme for Investigation for the evaluation was prepared by Compass Archaeology Ltd. on the 10<sup>th</sup> December 2008 and was approved by Dianne Walls of English Heritage on 28<sup>th</sup> March 2008.

##### **4.2 Archaeology and World Heritage Sites**

The guidance for dealing with archaeology on World Heritage Sites is set out in Planning Policy Guidance 15 (PPG15), which is issued jointly by the Secretary of State for the Environment and the Secretary of State for National Heritage, and updates the advice in Department of the Environment *Circular 8/87*.

PPG 15 states that World Heritage Sites:

- i. Are a key material consideration in the determination of planning applications;
- ii. That local authorities should have robust policies in place to protect them and, finally;
- iii. That World Heritage Sites should have and adhere to specific management plans.

The UK government meets its obligations to protect World Heritage Sites through existing legislation, and primarily through the planning system and PPG 15. World Heritage Sites are places recognised under the UNESCO World Heritage Convention as having outstanding universal value for the whole world. By joining the Convention in 1984, the United Kingdom has recognised its obligation to care for such places, of which there are now 16 in England out of 26 altogether in the UK and its dependent territories. Such care covers the identification, protection, conservation, presentation and transmission to future generations of such places.

Advice is available from the local authority conservation team, English Heritage at [policy@english-heritage.org.uk](mailto:policy@english-heritage.org.uk), ICOMOS UK and the Local Authorities World Heritage Forum.

#### **4.3 The archaeological brief**

The accepted brief for archaeological evaluation is to determine, as far as is reasonably possible, the location, extent, date, character, condition, significance, and quality of any surviving archaeological remains liable to be threatened by the proposed redevelopment (English Heritage, *Model Brief for an Archaeological Evaluation*).

Thus the objective of the evaluation was to establish information on as many of the research questions as possible, whilst primarily answering the terms of the brief which is to provide information on which decisions can be taken as to the need for any further archaeological action (*e.g.* preservation *in situ* or archaeological rescue excavation) or for no further action.

#### **4.4 Archaeological research questions**

The evaluation presented an opportunity to address the following research questions, as defined in the preliminary Written Scheme of Investigation (*Compass Archaeology, 10<sup>th</sup> December 2008*):

- *Is there any evidence for prehistoric to medieval activity, and what is the stratigraphic context and date range?*
- *Is there any evidence for early post-medieval activity, and how does this relate to the development of the Gardens?*
- *What evidence is there for 18<sup>th</sup> century and late activity, and can any features or boundary lines be related to the cartographic record? In particular, is there*

*any evidence within the southern part of the site for the possible ha-ha that is shown on the surveys of 1837 and 1840?*

- *To what extent can archaeological features and deposits be related to the geophysical survey? Also, what additional evidence can be extrapolated for these by using the evidence in the survey?*

## **5. Evaluation methodology**

**5.1** The *Written Scheme of Investigation* was produced and agreed prior to the fieldwork. The evaluation was carried out in accordance with English Heritage guidelines (including *Standards and Practices in Archaeological Fieldwork*, 1998) and those of the Institute of Field Archaeologists (*Standard and Guidance for Field Evaluations*).

**5.2** The evaluation comprised six trial trenches and two small test pits. The proposed layout of the trenches as agreed with English Heritage is illustrated in Figure 5. The actual location of these trenches was only slightly altered during the field evaluation; this is shown with the location of the two test pits in Figure 6 below. These trenches covered some 100 square metres of the proposed redevelopment site at the level of potential archaeology or natural subsoil. Three trenches measured 10m x 2m (trenches 1, 3 and 5), two measured 7.5m x 2m (trenches 2 and 4) and one measured 5m x 2m (trench 6). The two test pits A and B measured 0.38m x 0.38m and 0.44m x 0.4m respectively.

**5.3** Initial clearance of the trial trenches was undertaken by a JCB mechanical excavator working under archaeological supervision<sup>8</sup>. Deposits were removed in this way to the latest significant archaeological horizon, or, in the case of absence of archaeological remains, to a clean natural/subsoil layer. Where necessary the sides of the trenches were stepped or battered back to a width greater than 2m in order to maintain safe access. Thereafter exposed deposits and features were selectively excavated and recorded in stratigraphic sequence

**5.4** Archaeological contexts were recorded on *pro forma* sheets by written and measured description, and drawn in plan and section. The trench positions were recorded on a general site plan by taped measurement and related with appropriate accuracy by ‘best fit’ to the Ordnance Survey grid.

The recording system used followed the Museum of London Site Manual for on-site work. By agreement the recording and drawing sheets used were directly compatible with those developed by the Museum. The fieldwork record was supplemented by photography as appropriate (35mm/digital).

**5.5** Levels taken during the evaluation were derived from an Ordnance Survey Bench Mark (OSBM) stone west of the northern limit of the site near the southwest-northeast path leading to the Orangery. This OSBM has a value of 7.6m Ordnance Datum (OD). This level was traversed across to the north site entrance where a Temporary Bench Mark (TBM) was established at 6.73m OD.

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<sup>8</sup> The machine and operator were provided by RBG Kew

- 5.6** Finds and samples were treated in accordance with the appropriate guidelines, including the Museum of London's '*Standards for the Preparation of Finds...*'. All identified finds and artefacts were retained and bagged with unique numbers related to the context record, although certain classes of building material were discarded once an appropriate record had been made. Assessment of finds and samples was undertaken by appropriately qualified staff.
- 5.7** The records from the evaluation have been allocated the site code: LYK 08 by the Museum of London Archaeological Archive. An ordered and indexed site archive will be compiled in line with the Museum of London's *Guidelines for the Preparation of Archaeological Archives* and will be deposited in the Museum of London Archive.



## 6. The archaeological evaluation

The location of the trenches and test pits described are illustrated in Figure 7 below. Each trench and test pit is then described and an interpretation offered before the overall evaluation results are summarized. Archaeologically significant deposits were only encountered in trenches 3 and 6. For this reason, the context register only refers to deposits from these trenches.

### 6.1 Trench 1

Trench 1 was the most easterly located trench in the northeast corner of the site. The trench was orientated northwest to southeast and was approximately perpendicular to the eastern fence line. The trench was situated on ground leveled between 6.45m OD and 6.55m OD. The trench measured 10m northwest-southeast by 2m southwest-northeast and was excavated to an average depth of 0.7-0.8m below the existing ground surface (the lowest recorded depth was at +5.68m OD).



Fig. 6 Excavation of Trench 1 under archaeological supervision.

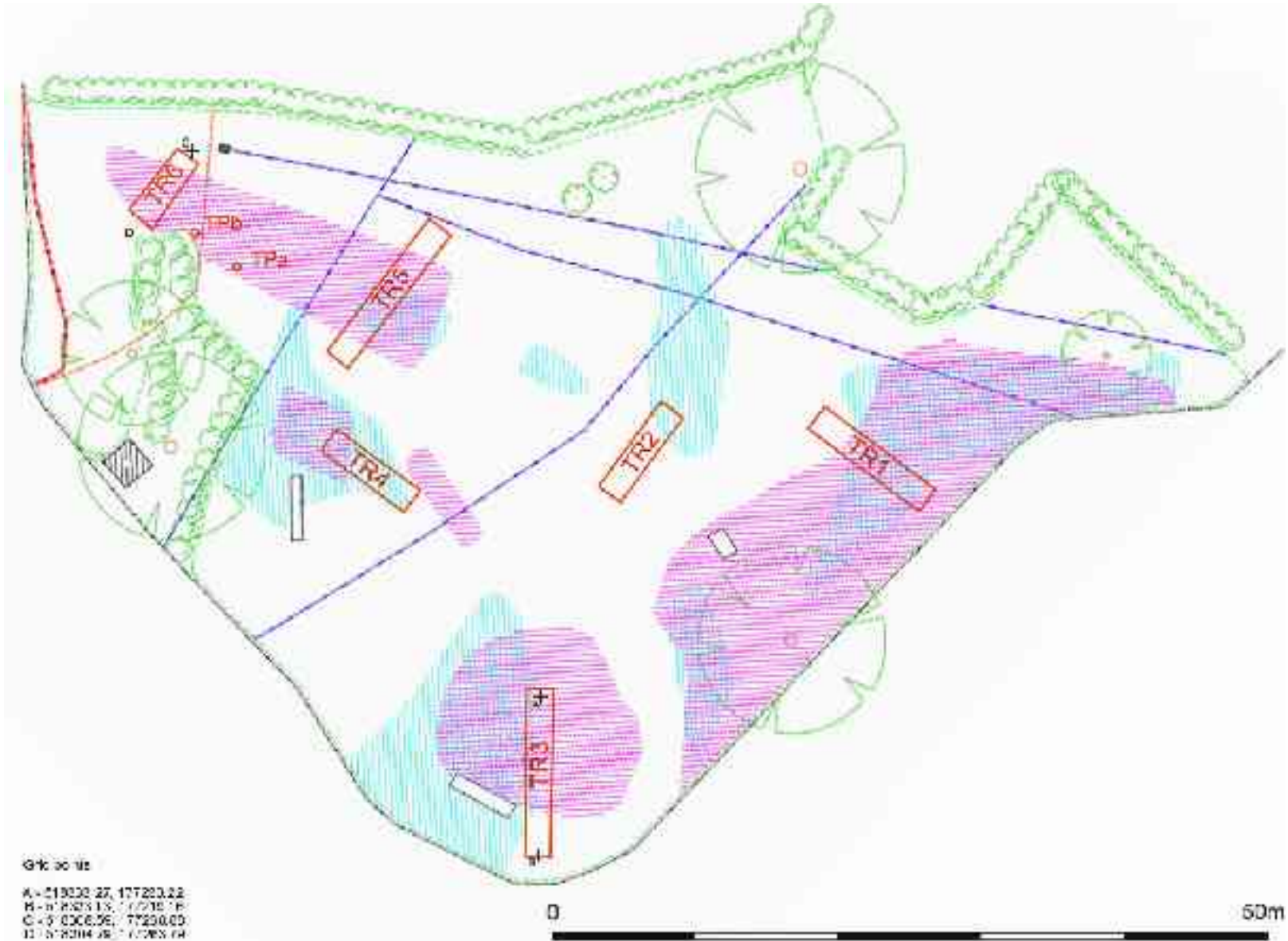


Fig.7 Site plan showing the location of trenches 1-6 and test pits (A/B), and the geophysical survey anomalies. National Grid References are given for Trenches 3 & 6 which produced archaeological finds. *Survey information courtesy of Stephen Ruddy, Royal Botanic Gardens Kew*

The Trench 1 deposits followed a simple stratigraphic sequence of turf and humic top-soil overlying a rich mid-brown fine grain alluvium sub-soil, similar to a brickearth. Natural mixed and graded sands and gravels were observed at the base of the trench.



Fig.8 Trench 1 looking northeast towards the eastern end of the trench (scale: 0.5m)

A single flint convex scraper and two fragments of burnt flint (*cf.* Appendix I) were recovered from Trench 1 (and a sherd of 19<sup>th</sup> century porcelain). Such lithic finds are abundant in the riverine area and are washed out of the Thames gravels by natural processes. These artefacts should therefore be considered as part of the large assemblage of redeposited material from the general prehistoric landscape, a form of ‘background noise’, rather than as evidence for prehistoric activity within the present site area.

## 6.2 Trench 2

Trench 2 was located in the centre of the site, just south of the site entrance and was orientated approximately north to south. The trench measured 7.5m by 2m and was excavated to a maximum depth of 0.91m below current ground surface. The ground surface around Trench 2 was between 6.35m OD and 6.48m OD, the lowest recorded excavated level was at 5.57m OD.

Once again deposits comprised a simple sequence of turf and humic topsoil overlying a rich mid-orangey brown fine-grained alluvium (*c.* 50% sand, 30% silt and 20% clay) brickearth. These deposits overlay natural mixed and graded gravels. No finds were recovered from Trench 2.



Fig.9 Trench 2 east facing section (scale: 0.5m)

### 6.3 Trench 3

Trench 3 was the most southerly of all the trenches. Located in the middle of the southern projection of the site the trench was orientated approximately north to south. Generally the trench measured 10m by 2m, but around two thirds of the way along the trench (from north to south) the trench was widened and stepped to allow for safe access and assessment of the archaeological features and deposits revealed. The lowest excavated level was 4.86m OD (a depth of no greater than 1.75m below the present ground surface).

Due to the presence of archaeologically significant material, deposits were recorded by context. This list of recorded contexts for Trench 3 is reproduced in the table below and context numbers arranged in stratigraphic sequence in the simple Harris Matrix that follows.

Context	Description	Interpretation
[10]	Beneath the turf was a dark brown organic rich sandy soil of moderate compaction with occasional pebbles, charcoal and ceramic fragments. 550mm thick (max) extending over the whole trench.	Topsoil/subsoil rich in organic material.
[11]	Firm grey-green clay with some silt, streaked with orange. Inclusions of occasional charcoal and very small stones. Layer was 550mm thick (max) and the limits were not established. This layer appears to have been cut by [19].	Dumped clay deposit is the upper fill of the ditch [18]. The laminations suggest multiple dumping episodes or several waterlogging and drying events. Deposit is cut by [19] when path (15) was constructed.
[12]	Moderate-loose mid brown sandy soil with frequent chalk pebbles, occasional brick fragments and flecks of mortar. Deposit was 140mm thick (max) and extended beyond the limits of the evaluation trench.	Redeposited (dumped) soil mixed with building debris in ditch [18].
[13]	Loose greyish pink sandy ash with frequent pebbles, charcoal and brick fragments inclusions. Deposit was 250mm thick and extended beyond the limits of the evaluation trench.	Dumped ashy deposit in ditch [18].
[14]	Compacted mid-brown silty soil with occasional pebbles and charcoal fragments. 0.12m thick and extended beyond the limits of the evaluation trench.	A dark homogeneous deposit lining the cut [18] of the ditch. Possibly a buried soil contemporary with the use of the cut feature.
[15]	Moderate to loose brownish yellow fine chalk/flint gravel in a sandy matrix. Inclusions comprise occasional pebbles and ceramic fragments. 0.14m thick (max)	A lens of sandy/gravelly material, possibly a small path laid inside the primary ditch cut [19].
[16]	Loose mid-brown sandy soil with frequent brick and tile fragments throughout with small to medium sized pebbles and medium-large charcoal lumps. The limits of the deposit were not observed but a thickness of 0.36m was recorded.	Loose rubble and debris fill forming a substructure for the path surface (15).
[17]	Very compact yellow orange silty sand with moderate small to medium pebbles with thickness and extent unknown.	Natural – sandy silty alluvium.
[18]	Cut of linear ditch feature recorded to be at least 1.45m deep in the area excavated, although this may continue beyond the limit of excavation. The sides were gently sloping to a gradual base (potential for base to continue). This section of ditch was orientated east to west. Fills: (14), (13), (12) and (11).	Cut for a large east to west ditch marking the edge or boundary of/within a garden.
[19]	Probable linear cut just 0.28m deep with side gradually sloping to a flat base. Fills: (16) and (15).	Cut for later path feature (15).

### 6.3.1 Stratigraphic Matrix for Trench 3

(10)  
↓  
(15)  
↓  
(16)  
↓  
(19)  
↓  
(11)  
↓  
(12)  
↓  
(13)  
↓  
(14)  
↓  
(18)  
↓  
(17)

The northern part of trench 3 was much like the other trenches displaying a simple sequence of deposits of humic topsoil overlying a rich mid-brown alluvium over the natural river gravels.

However, this sequence had been disturbed by several cut features from mid way along the trench towards the south. In this part of the trench the blended topsoil/subsoil was up to 550mm thick with ceramic fragments, pebbles and charcoal inclusions [10]. A large cut feature [18] with distinct fills dominated the sections cutting the natural gravels [17]. This cut was easily identifiable as a large ditch cut [18]. It appears from the profile of this feature that it represents the 'sunken fence' feature shown on historic maps of this area. The basal fill of this ditch appeared to be a potential buried soil horizon [14]. It seems likely that this deposit formed naturally in the ditch during use. Above this was an intentionally dumped greyish pink sandy fill [13] containing numerous items of typical household waste. However, it was unclear whether this was dumped over a long period using the ditch as a convenient rubbish disposal area out of sight or the ash and rubbish was thrown in over a relatively short period as part of a concerted effort to fill the ditch, using whatever material was readily available. Overlying this was a loose mid-brown sandy soil with a distinct rubble nature [10] (inclusions of brick fragments, pebbles, mortar flecks *etc*). This again seems to be dumped material, although it is perhaps more likely that this material was used to intentionally fill in the ditch. The final fill of the ditch [11] was firm grayish-green clayey silt that was banded with orange laminations. There were occasional charcoal flecks and occasional very small stones, possibly the result of bioturbation. This layer appeared to be laminated suggesting successive episodes of waterlogging and drying out. It is apparent that this clay deposit was deposited with the intention to fill-in the ditch.

Ditch [18] and its associated features were later re-cut by a further small and shallow cut [19], although this was cut at a much sharper angle than the underlying ditch fills, which have clear 'tip-lines'. Cut [19] was filled with loosely compacted rubble and debris material [16] possibly for the purpose of consolidating this (obviously marshy)

area and to form a hardcore substructure for a garden path. The presumed path overlaid this substructure and was comprised of sandy gravel material [15].

Truncated natural gravels were observed at the very base of the trench and were cleaned back to reveal the form of the ditch.

Figure 10 (below) illustrates the southern part of the west facing section from Trench 3 (originally drawn at a scale of 1:10), while Figure 11 shows the plan view of the trench (originally drawn at a scale of 1:20). Figures 12 to 14 show working views of Trench 3.

Numerous finds were recovered from the fill of the large ditch feature and are discussed in Appendix I. The majority of the datable material was domestic pottery considered to be of 19<sup>th</sup> century date and in most cases of the mid-later part of the century. Two hones were also recovered from Trench 3, along with a scraper and a core fragment of Neolithic date and a prehistoric flake. A fragment of marmalade jar had a reference to the date 1875 in black transfer print, which gives us a *terminus post quem* for the later fills of the ditch (*cf.* Appendix I).

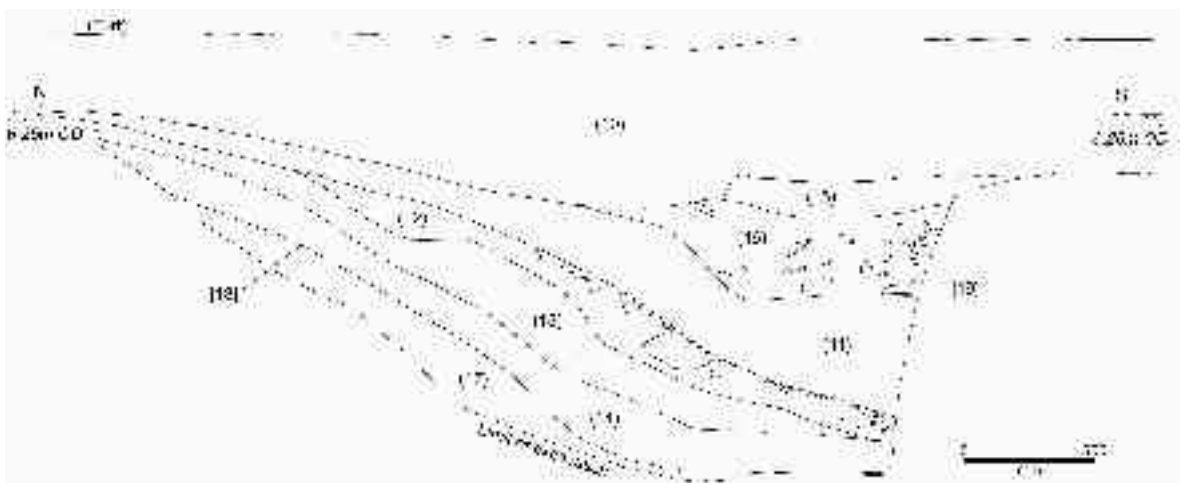


Fig.10 The west facing section of Trench 3, see Figure 11 for the location of the section, and refer to the context register above for details of the contexts as labeled.

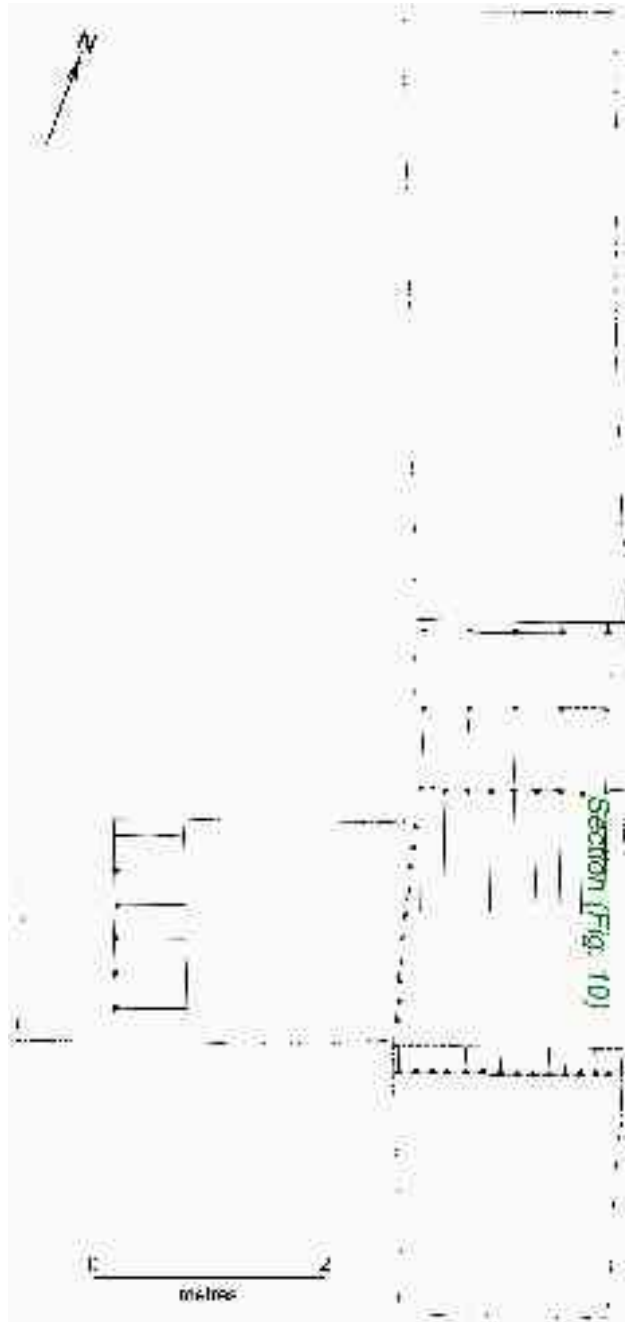


Fig.11 Schematic plan of Trench 3 showing the location of the section in Figure 10 (original scale 1:20). The trench was stepped out to the east and south to allow safe access to the base of the sunken fence ditch feature.





Fig.12 The west facing section at the southern end of Trench 3 showing the ditch, ditch fills and path (Scale 1m).



Fig.13 (left) Excavating Trench 3 and Fig.14 (right). The north facing section of Trench 3 showing the revealed depth of the ditch fills. It is unknown at this stage how deep and wide the full extent of the ditch will be.

The location of this ditch feature seems to suggest it is related to the sunken fence/ha-ha identified on the 1837 Chawner's map previously illustrated in Figure 4 (*cf.* discussion in Section 3.3). This map shows a large linear feature curving round much of the west gardens with hachures indicating banks. This map still appears to imply a typical ha-ha, with one vertical or very steep side and a more gradual slope on the opposite side. However, the section of the ditch revealed in Trench 3 (although the extent and shape were not fully established during the evaluation) has two gently sloping sides and no vertical brick wall or steep bank as anticipated. However, it still seems this feature is that drawn on the 1837 map. Other supportive evidence includes Nesfield's sketch plan of the Arboretum, 1845 which labels a line as 'sunken fence' and Driver's similar reference in 1840<sup>6</sup>. This line crosses the site near Trench 3 and is of the same layout as the hachured line from the 1837 map. The 1867 Ordnance Survey also shows earthworks in the same form as the earlier maps again supporting the existence of a sunken fence feature in the area of trench 3 (*cf.* Fig 15 below). Interestingly, the 1867 map shows the sunken fence, no longer simply continuing to the Brentford Ferry, but now changing course and turning northwards at the Ferry Gate and enclosing the area alongside the river up to the Palace.

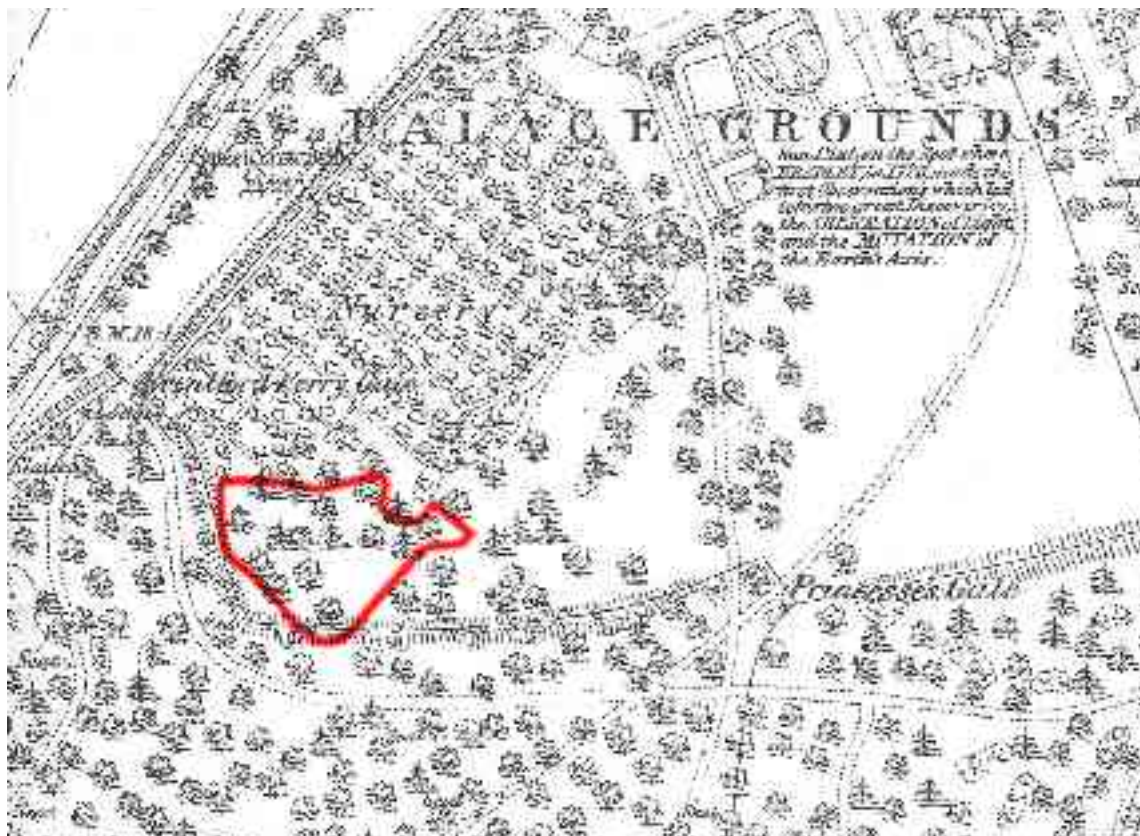


Fig.15 The 1867 Ordnance Survey of the Gardens showing a double sloped-sided earthwork crossing the southern tip of the site

<sup>6</sup> Desmond, R. 1995 *The History of the Royal Botanic Gardens Kew* 173 and Kew Conservation Management Plan, November 2002 Reference 2022.

Desmond, the accepted authority on the history of the Royal Botanic Gardens Kew, discusses how various plots of land came into inclusion within the public gardens. He mentions in 1834 that while nearby areas were opening up to the public, the lawns around Kew Palace were given restricted access through the construction of a ha-ha and railings which stretched from the river near the site of the former Castellated Palace to the west wall of the Botanic Garden above the ice house<sup>7</sup>. This description of the boundary matches those shown on the historic maps and suggests the feature exposed in Trench 3 was dug to prevent access to the palace grounds in 1834. Despite the reference to the ha-ha, the feature should more accurately be considered to be a sunken fence in this location as labeled on the 1845 Nesfield plan (*cf.* earlier discussion). It is interesting, however, that no fence or stake holes were evident in the bottom of the ditch profile, however, the centre of the ditch may possibly be further to the south. This type of sunken fence feature is a more economical and more stable option than a brick lined ha-ha (which would require quite close engineering to function in this riverine context, where the geology is constantly changing). A sunken fence retains the benefits of a ha-ha, by providing an effective boundary to animals whilst also providing an unbroken infinity-view from the palace gardens. This boundary ditch was therefore dug to delineate the pleasure gardens from the lawns of Kew Palace.

Desmond discusses the infilling of the ditch and inclusion of the site area into the main Gardens, rather than remaining as part of the lawns of Kew Palace. This took place in 1895:

*'In the same year [1895] another barrier was removed when Queen Victoria gave permission for the 4½ acre lawn in front of Kew Palace to be added to the gardens. Its boundary ditch or ha-ha was filled in a step welcomed by the Director who believed it had been used for "immoral purposes".'*<sup>8</sup>

This explanation of determined infilling of the boundary ditch explains the clean clay fill [11] of the ditch, all of it probably deposited within a relatively short space of time. Similarly the fills [12] and [13] also probably represent this period of infilling with any nearby convenient material. It is possible that fill [14] was also deposited at this time. However, it is equally possible that the deposition of rubbish in the ditch over a period of time, as a convenient (if undesirable to the authorities) disposal area, was related to the 'immoral purposes' referenced.

There is no documentary or cartographic evidence to offer further interpretation on the later cutting of the fills to construct the potential path [19].

#### **6.4 Trench 4**

Trench 4 was located in the western part of the site and was south of and perpendicular to Trench 5. This trench was 7.5m east to west by 2m north to south. A maximum depth of 1.31m was recorded in the southeastern corner at +5.40m OD.

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<sup>7</sup> *ibid*: 136

<sup>8</sup> *Ibid*: 276

A relatively simple sequence of turf and humic topsoil was exposed overlying a rich mid-brown fine grain alluvium matrix of *circa* sand (50%), silt (30%) and clay (20%) which in turn overlay natural river gravels.

In the north facing section of this trench there was a slight discolouration of the alluvial sub-soil, which appeared to possibly indicate a vertical cut line. However, the absence of any clearly defined interface (the texture of the alluvium being consistent on both sides of the cut), there being no discernable western side of this feature, and lack of finds in the sterile alluvium suggests this may instead be interpreted as a natural feature; perhaps caused by root action or a thermal reaction in the soil. There were very few finds from Trench 4 (*cf.* Appendix I)



Fig.16 Left: the north facing section of Trench 4 showing a cut in the alluvium interpreted as a natural feature (just visible to the left of the scale as a change in soil colour) and Right: view of the trench looking west (right, scale: 1m).

## 6.5 Trench 5

Trench 5 was located north of Trench 4 in the western part of the site. The trench was orientated approximately north to south and measured 10m by 2m. The trench was later extended by a further 1.5 metres at the southern end to test whether the wall revealed in Trench 6 continued this far to the east. The trench extension area was also excavated to the lower level of +5.00m OD to record the nature of the river gravels, whereas the main part of the trench was at the higher level *circa* 5.72m OD to 5.51m OD (the ground level rising from 6.42m OD in the north to 7.49m OD towards the south of the trench). There were very few finds from Trench 5 (*cf.* Appendix I).

Once again a simple sequence of humic topsoil overlying rich mid-brown alluvium was observed. However, unlike the more eastern trenches, the alluvium was thicker in depth (as might be expected closer to the River Thames) and as such no natural gravels were observed. However, when the trench was extended in length, the associated deeper excavation did reveal gravels at +5.00m OD (*cf.* Figure 16 below).



Fig.17 Trench 5 with the extension, looking south, showing the absence of any walls continued from trench 6 (scale: 1m)

## 6.6 Trench 6

Trench 6 was the most westerly of all the trenches and was positioned close to the west gates into the Lower Nursery. The trench was approximately orientated north to south and measured 5m by 2m. An average depth of 1m was exposed for the trench. In the northern end of the trench a series of brickwork structures were recorded. The ground surface at the top of the trench was *circa* 6.20m OD at the northern end and rose to 6.37m OD at the southern end of the trench.

The stratigraphic sequence at the southern end of the trench was similar to the other archaeologically sterile trenches with a simple stratigraphic sequence. Rich humic topsoil overlaid a rich mid-brown matrix of mixed fine grain silt (50%) sand (30%) and clay (20%) of alluvium, similar to a brickearth, but as a much thicker deposit in this trench location.

The northern end of the trench showed signs of post-medieval activity in the form of a series of red brick walls all running northwest to southeast. These structures are discussed context by context below:

Context	Description	Interpretation
[1]	Friable mid-dark grey brown silty clay with sand. Inclusions comprised of occasional flint and pebbles with occasional brick and tile fragments. Thickness was 230mm (ave.) over the entire trench.	Topsoil merged with subsoil.
[2]	Loose brick rubble with white mortar in a silty clay and sand matrix. This deposit was 120mm thick and was only observed at the northern end of the trench for a length of 1.2m extending for the width of the trench.	Loose rubble layer at north end of trench overlying a possible rubble path [3] and wall [6].
[3]	Very compact brick rubble deposit with bricks with a yellow-grey mortar with distinct lime inclusions. Brick fragments were mainly large ½ bat and ¾ bat red and purple bricks. Slightly thicker bricks than in [6] with dimensions of 225mm x 105mm x 62mm. More Spanish in brick fabric. Appeared to be dumped next to an existing brick structure [6], but on further examination found to underlie the wall structure [6].	Deposit of red brick rubble comprised of red and purple bricks (all once part of a structure/s now demolished) redeposited here as a layer of demolition rubble or as a rubble foundation on the interior side of the later wall [6]. Bricks date to the period 1630-1750, but the reuse of bricks makes dating uncertain..
[4]	Linear feature of rubble debris appearing to have some form of upper cut line/irregular formation of the brick rubble to the south	On excavation the cut did not appear to be structural and instead may be simply be a tip-line in the rubble.
[5]	Mid grey-brown silty deposit containing frequent inclusions of sand and lime mortar, bricks (up to ¾ bricks) and brick dust. The deposit runs east to west alongside the red brick wall [6] and covers the 2 <sup>nd</sup> lower course (northern) of bricks.	This context refers to a visible change in the rubble brick deposit [3] where the deposit becomes much siltier towards the wall [6] and has far less brick rubble in its make up.
[6]	Red and purple brick wall crossing the trench east to west. Bricks were all handmade with uneven bases, rounded arrises with sunken margins, voids and large cracks. The yellow-grey mortar with distinct lime inclusions adhering to the bricks suggested their reuse from an earlier structure. The bricks measured c220-225m x 115-118m x 55-60m on average. Bricks were arranged in an English or English cross bond but only two courses survive with the third course being arranged as a soldier course on-edge. Remains unclear if higher courses once existed or whether the wall was always this height.	This unsubstantial wall is probably a garden or boundary wall. The low level narrow wall was possibly truncated to this height (prior to the present fieldwork as no brick work survives at a higher level in the section), but it seems possible that it had a railings or wooden fence structure above. The poor quality 'waster' nature of the bricks also supports the hypothesis of the structure being a garden wall where such faults are less significant. The bricks date from the period 1630-1750, but the reuse of bricks makes dating uncertain.

<b>Context</b>	<b>Description</b>	<b>Interpretation</b>
[7]	Continuation of large deposit of red and purple brick rubble to north of the wall.	Rubble behind wall may be for structural support of the narrow wall or may be rubble foundation for interior side of wall.
[8]	Compact, light brown alluvium sterile of finds and inclusions between the wall [6] and the pad bases [20]. Not archaeologically distinct from [9]	Sterility suggests the alluvium accumulated naturally and that the bricks were pressed into it rather than accumulating over a period of inactivity between the placement of the pad bases [20] and the wall (6).
[9]	Mid brown alluvium.	Naturally accumulated alluvium over natural gravels.
[20]	Large pad bases constructed of broken blocks of a former wall or walls (at least five in number, with further blocks below the rubble to the north) redeposited in small stacks at intervals along the underside of wall [6]. These broken wall fragments clearly originate from another masonry feature(s) as they have been haphazardly placed in cut [22]. One of the blocks has been laid upside down, as seen by the natural gravels embedded into what is now the upper surface. These would have adhered to the underside of the original structure as the mortar dried into the underlying gravel. The bases also face in various different directions rather than having one wall face as in [6] suggesting they were below ground foundations rather than visible. The bricks are generally typical Tudor bricks with dimensions of 220mm x 102mm x 58mm. However, the reuse of these bricks and the nature of the mortars visible place this structure in the period 1630-1750, but obviously containing earlier bricks dating from the period 1450-1700.	Re-used blocks of masonry wall reused to form brick pad bases which possibly act as a wall foundation for the stability of wall [6] in an otherwise soft alluvium which may cause the wall to collapse if unsupported.  The pad bases are of interest in that they are archaeologically distinct from the overlying wall [6] and are actually free standing of the wall separated by a lens of alluvium [8]. It is possible that the bases are part of a very different structure and are part of a large dump of masonry filling a large cut and extending beyond the limits of the evaluation trench to the north, east and west.
[21]	Construction cut for wall [6]	Construction cut for [6]
[22]	Construction cut for pad bases [20]. Not very distinct from surrounding alluvium.	Construction cut for pad bases [20].
[27]	Deposit at base of cut [22].	Trampled-in rubble from when wall [6] constructed and pad bases deposited [20].

Immediately beneath the topsoil [1] in the northern part of Trench 6 a series of rubble fills were revealed. These deposits most probably represent the demolition rubble of a former garden structure [2], [3] and [5]. A three-course single-stretcher width red brick wall was located to the south of the rubble [6]. This wall was probably constructed in a trench and it is possible that the rubble was used to infill the trench and to give the wall stability. Alternatively the rubble may be the foundation of a

structure which wall [6] fronted. The wall itself was formed of reused bricks and wasters and did not appear to be a substantial structure. This suggests that the wall was perhaps a low-lying boundary or garden wall. If it was to serve as a boundary it seems probably that the low wall observed would be topped with a wooden fence or metal railings, of which there is no remaining trace. Underneath the wall there was a clean layer of alluvium [8] measuring generally 6cm in thickness. It is possible that the wall base was trench-built against the alluvium, and that over time the wall shifted due to the natural movement of the alluvium and perhaps subsided into it, so the clean alluvium filled the voids between the wall [6] and the pad bases [20] below. The pad bases were constructed of chunks of former walls, their reuse being identifiable by their broken edges, concreted gravel impressed onto their bases (now orientated so this is on their upper surface). These appear to form pad base foundations for the wall [6]. They serve as cushion supports for the wall, that otherwise, in the soft alluvium, might sink in various places weakening the structure until it collapsed. Below the pad bases was a thin layer of mixed material that probably represents the trample laid down when the construction cut [22] was dug. The construction cut for the wall is indistinct from the surrounding alluvium and no finds were recovered from this deposit. For this reason it is thought that little time passed between making the construction cut and laying the pads, and that the cut was subsequently backfilled with the upcast material.

An illustration of the brickwork can be seen in Figure 18. Views of Trench 6 and detail of the brickwork and associated deposits can be seen in Figures 19 to 22. Finds from Trench 6 included burnt flint and one sherd of 19<sup>th</sup> century glazed redware. A piece of burnt clay tobacco pipe stem was also recovered from context [7] and had obviously once been included in the hand-made brick fabric and been fired in the brick clamp.

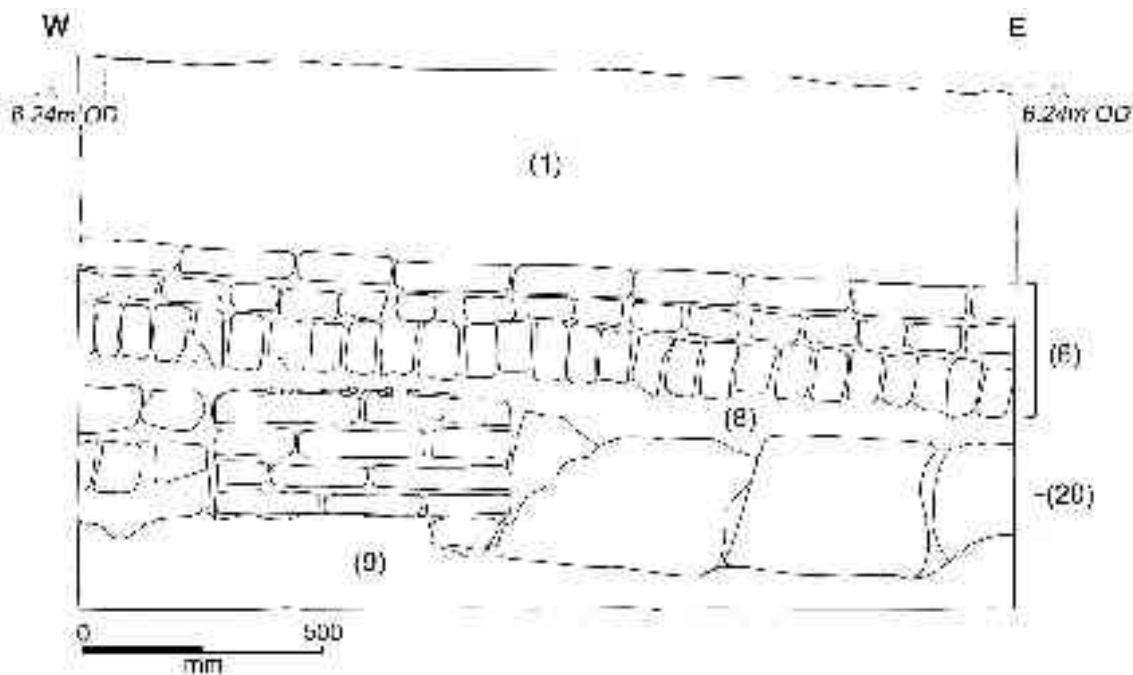


Fig.18 The south facing section of trench 6 (originally drawn at a scale of 1:10).





Fig.19 The south facing section in Trench 6 showing the brick wall [6] with rubble behind and the pad bases formed from the reused chunks of wall [20]. Note the gravel embedded in the concrete on top of the pad base (second base from left) presumably attached there when the wall was previously constructed the other way up. Other bases are incorrectly aligned also, and the structure is obviously made of five different chunks of redeposited masonry. The size of the blocks is determined by the weight that could be fitted into a barrow and physically lifted into the trench (scale:0.5m.)



Fig.20 The northern end of Trench 6 looking east over the rubble deposited behind the wall visible toward the right of the image (scale: 0.2m)



Fig.21 The construction cut/s [21& 22] in the east facing section at the northern end of Trench 6. Note also the differently oriented pad base at the trench edge relative to the others in previous photos and the gravel adhering to the top of the pad base to the right of the image (scale: 0.2m).



Fig.22 Trench 6 looking north towards the exposed brickwork, after removal of the natural alluvium banked against the masonry structures (scale: 0.5m)

The 1771 map illustrated in Figure 3 shows a property boundary in the western part of the site. This boundary is on a similar alignment to the wall observed in Trench 6 and as such it is believed that the wall dates to about this time. The boundary was between the gardens (plots marked 761 and 760) of a small cluster of riverfront buildings of presumably residential function, and seemingly unrelated to Kew Palace. By the 1837 map (Figure 4) there is no further trace of these buildings or the former boundaries and as such it is thought that this area had been incorporated into the Palace and Gardens.

## **6.7 Test pit A**

Test pit A was hand excavated to determine the extent and projection of the wall [6 & 20] revealed in Trench 6. The test pit measured 380mm by 380mm. The test pit was located approximately midway between Trenches 5 and 6 (*cf.* Fig 7).

Grass and topsoil became cleaner with depth, however a number of fragments of ceramic building material including part bricks were observed in the subsoil at a depth of c400-500mm below the present ground surface. At a depth of c750mm the subsoil graded into lighter yellowish brown slightly silty sand natural deposits and no signs of the wall from Trench 6 were encountered.

## **6.8 Test pit B**

Like test pit A, test pit B was excavated between Trenches 5 and 6 in attempt to determine the projection and extent of the brickwork observed in Trench 6 [6 & 20]. The test pit measured c440mm (northwest-southeast) by c400mm (northeast-southwest). The test pit was located approximately midway between trench 6 and test pit A (*cf.* Fig 7).

Topsoil was observed to overlie a rather stony deposit, which became less stony with depth. At around c300mm below the present ground surface at 100-120mm thick layer of CBM rubble was observed particularly in the northern part of the test pit. Beneath this was a thin soil layer. On the north side of the pit, at about 480mm and 520mm below the present ground surface the edge of a brick wall jutted out up to 150mm south into the pit. This wall edge ran in line with the northern short edge of the pit, running into the northeast and northwest sections. The extant top of the brick work was covered in mortar where further brick courses had previously been removed. This wall was clearly the continuation of that in Trench 6.

## **6.9 Summary of the findings**

### **Prehistoric**

The archaeological evaluation produced nine pieces of flint work including two finished scrapers of probable Neolithic date. These finds represent a typical assemblage for the general area and are typical of distribution patterns for lithic artefacts in this area. The flints are generally washed out of the Thames gravels and redeposited in secondary alluvial contexts across the floodplain. These few

redeposited prehistoric worked and burnt flints suggest activity in the wider landscape, but tells us little about the immediate study area.

### **Roman to Medieval**

There is no evidence for activity in the subsequent periods until the mid post-medieval period.

### **Post-medieval**

The excavation of a ditch feature in Trench 3 has identified the 'sunken fence' feature shown on historic maps, such as the Driver map of 1840. Documentary sources provide the more accurate date of 1834 when a boundary feature was constructed to separate Kew Palace from the pleasure grounds open to the public by this time. The description of the location of this boundary and close match to the location of the ditch feature on maps suggests that this feature was indeed that observed in Trench 3. Documentary sources also detail the termination of the sunken fence when it was infilled in 1895 and the lawn of Kew Palace that it delimited was incorporated into the Gardens. These dates correspond with dating evidence from the fills, and the deposits observed also support a rapid infilling of the ditch (*cf.* Appendix II). The interpretation of the ditch would be greatly enhanced if a full cross section could be excavated. With just one slope exposed during the evaluation, it is impossible to comment further on the form of this structure. Further work also allows for the potential recovery of dating evidence, which would add further weight to the conclusions made from documentary and cartographic evidence.

Trench 6 also provided evidence for post-medieval activity in the form of brickwork structures and rubble deposits. Although reuse of the bricks makes dating difficult, fabric analysis places all the structures within the period 1630-1750, which makes them very interesting with regard to Kew Palace and to the work of Sir William Chambers and later notable figures in the development of this area. A map of 1771 clearly shows property boundaries crossing in this area of the site and the wall could be interpreted as relating to these. It is unfortunate that the full extent and projection of the wall could not be traced in the extension of Trench 5 or in the excavation of test pit A. Its clear continuation in Test pit B suggests that further sections of this wall could exist within the as yet unexcavated parts of the site. If the footprint of the new building will have an impact on these areas of the site, then further archaeological investigation may be required to determine the date, form, extent and function of these masonry structures.

## 7. Assessment of the results of the evaluation

The archaeological evaluation has provided an opportunity to address the site-specific objectives that were defined within the preliminary *Written Scheme* (see above). The responses to these are outlined below:

- *Is there any evidence for prehistoric to medieval activity, and what is the stratigraphic context and date range?*

The only prehistoric archaeological material uncovered was a selection of worked and burnt flints. None of these originated from firm archaeological contexts (all were redeposited) and should be considered background noise from the wider prehistoric landscape. There was no other archaeological evidence for activity from the prehistoric to medieval periods.

- *Is there any evidence for early post-medieval activity, and how does this relate to the development of the Gardens?*

There is no evidence for activity within the early post-medieval period, although bricks reused in structure [20] do have a fabric date range of 1450-1700, other considerations do indicate however, that a more accurate date for this structure would be within the period 1630-1750.

- *What evidence is there for 18<sup>th</sup> century and later activity, and can any features or boundary lines be related to the cartographic record? In particular, is there any evidence within the southern part of the site for the possible ha-ha that is shown on the surveys of 1837 and 1840?*

The evidence for the 18<sup>th</sup> and 19<sup>th</sup> century almost exclusively took the form of boundaries. A low and insubstantial brick wall in the west of the site (Trench 6 and Test pit B) most likely represents the boundary marked on the 1771 map. This area was incorporated into the gardens by at least 1837 as the boundaries do not appear on maps dating to this year. Trench 3, in the southern part of the site, revealed evidence for a sunken fence with two gently sloping sides. This is in the approximate same position as the feature marked on the maps of 1837, 1840 and 1867. It is believed the ditch was constructed in this way as the cheaper and more stable alternative to the ha-ha, but retaining the same advantageous features.

- *To what extent can archaeological features and deposits be related to the geophysical survey? Also, what additional evidence can be extrapolated for these by using the evidence in the survey?*

The archaeological features observed in Trenches 3 and 6 (and test pit B) did not seem to relate to the anomalies highlighted in the geophysical survey and therefore no additional evidence can be extrapolated using the survey evidence. It is also enigmatic that the survey did not clearly indicate the buried ditch feature or the large masonry structures. The underlying alluvial geology (with its braided gravels and palaeochannels) may have produced the anomalies recorded in the survey.

## 8. Conclusions and recommendations

The archaeological evaluation revealed two areas of archaeological deposits, both relating to the historic royal development of this part of the Gardens.

If these areas are to be affected by the redevelopment proposal it is recommended that further archaeological investigation takes place to determine the date, extent, form and function of the brick work structures and to plot the extent and route of the sunken fence feature.

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## Appendix 1: the Finds

The evaluation produced a relatively small finds assemblage, including ten pieces of residual prehistoric struck flint from the undifferentiated overburden (annotated [+]) with examples from each trench except Trench. 2. There were also four pieces of undated burnt flint from the same horizons in Trenches 1 and 6. Otherwise the finds were all later post-medieval, comprising mainly pottery but also occasional glass, clay tobacco pipe and several hones. The bulk of these finds also mainly came from the fills of the former sunken fence feature in Trench 3, which were removed largely by machine and which are dated by documentary evidence to 1895. The remaining finds came from machine clearance in the other trenches, with the exception of single potsherds from contexts [7] and [15] (Trenches 6 & 3).

### 1. Struck flint

*Jon Cotton, Museum of London Early Department*

- [+] Trench 1 A good example of a finished small convex scraper made on a small flake of Bullhead Bed flint, which occurs at the base of the Thanet Sand deposit over the Chalk. Washed out of the Thames gravels and of Neolithic date.
  
- [+] Trench 3 A good example of a finished small end/side scraper on good quality mottled chocolate banded flint. Again from the gravels and made on a flake off a prepared core. Neolithic date.
  
- [+] Trench 3 A small core fragment, possibly a rejuvenation flake off a core (in order to prepare the core further). A least two striking platforms visible. Neolithic.
  
- [+] Trench 3 A flake, possibly notched, but this is most probably later damage. Prehistoric date.
  
- [+] Trench 4 A waste flake, debitage from a classic waste flake, with a large hinge fracture at the distal end, possibly the result of a lack of skill on the part of the knapper or poor raw material. Prehistoric.
  
- [+] Trench 5 A large waste flake, off River Gravel flint. Prehistoric
  
- [+] Trench 5 A flake fragment, off rolled River Gravel flint. Prehistoric.
  
- [+] Trench 6 The patinated distal end of a flake blade. Recortication as a result of a chemical reaction to the ground conditions. Prehistoric.

## **2. Burnt flint**

[+] Trench 1 Two pieces, dimensions 10-44mm (31 gms)

[+] Trench 6 Two pieces, “ “ 18-37mm (28 gms)



### 3. Pottery

Except as noted the assemblage is generally considered to be of 19<sup>th</sup> century date, and in most cases of the mid-later 1800s.

[+] Trench 1: Sherd of a porcelain plate with blue painted decoration (19 gms).

[15] Trench 3: Sherd of plain white earthenware [REFW bowl] (34 gms).

[+] Trench 3 (recovered during machine excavation of sunken ditch feature): Marmalade jar. A total of 18 sherds (542 gms) forming about two-thirds of a cylindrical marmalade jar 140mm high by 112mm in diameter. The jar is in white-glazed earthenware, bearing on one side a black transfer print the following largely complete legend:

GRAND MEDAL OF... (MERIT VIENNA 1875? – *suggested by internet ref.*)

JAMES KEILLER & ... (SONS?) DUNDEE MARMALADE (within oak wreath)

ONLY PRIZE MEDAL FOR MARMALADE. LONDON. 1862

On the base is imprinted the name of the pottery: MALING NEWCASTLE

#### ***Other transfer-printed ware (110 gms)***

- 2 rim sherds of plates with blue decoration.
- Rim sherd of plate with brown decoration on cream base.
- 2 body sherds, green & blue decoration.

#### ***Other decorated wares (102 gms)***

- Sherd of porcelain (CHPO) with blue decoration.
- 2 sherds of blue-decorated earthenware.
- 2 rim sherds of an earthenware plate with dark red circular banding.
- Sherd of bone china saucer, plain except for traces of a gold band.
- Rim/body sherd of a small bone china cup, estimated diam. 48mm, faint traces of ?blue band at rim .

#### **Unglazed redware**

- Terracotta rim, *c* 27mm thick (266 gms). Probably from a large plant pot, estimated rim diam. 18 inches (457 mm).
- Rim/body sherd of a flowerpot; estimated rim diam. 3.5 inches [89 mm]; (30 gms).

## Stoneware

Approximately two-thirds of an unidentified but presumably circular object, 113mm diam. by 27mm high (256 gms). The object was of stoneware and roughly glazed on all surfaces, with a recessed central area surrounded by a shallow upstanding rim (so very broadly forming a shallow bowl in profile). The base of the recessed area bore three indentations that were evidently formed by a finger (nail uppermost) pushed into the unfired clay.

## Other (33 gms)

- Base of small cylindrical jar or similar, plain cream glaze, 48mm diam.
- Part of foot & body of a small plain white-glazed earthenware bowl.

[+] Trench 4: Two body sherds of undecorated stoneware, ?ENGS bottle. (48 gms). Rim sherd of plain ?creamware bowl, later 18<sup>th</sup> C+ (23 gms).

[7] Trench 6: One small sherd of glazed redware (1 gm). *c* 1700-1900.

## Glass

Three items were recorded, all from the uppermost fill [10] of the sunken fence feature in Trench 3, and all appear to be later 19<sup>th</sup> century in date.

- Lower part & base of moulded green glass bottle, diam. 60-67mm – somewhat irregular in x-section – and extant height 120mm (342 gm). Embossed on one side and on the base the name WHITE, and on the other side ‘DEPOSIT CHARGED ON THIS BOTTLE’.
- Base of wine glass; diam. 60mm, clear & undecorated glass.
- Three fragments forming approx. two-thirds of a small ointment or paste pot, max. diameter 60mm by 19.5mm high (35 gm). Opaque white glass, embossed on base .../4 (?¼) OZ.

## Clay tobacco pipe

Part of one bowl and three pieces of stem were recovered from the fill [+] of the sunken fence feature in Trench 3:

- Base of a bowl & adjacent stem. The base has a projecting spur, with the maker’s initials on the sides. One letter is **W** (on the right hand side as the pipe would normally be held), the other is unclear but may be **F** (or **T**). Probably 19<sup>th</sup> century. Apparently not relating to William Heath’s famous clay tobacco factory immediately across the river in Brentford .
- Stem with slightly flared mouthpiece at one end and visible teeth indentation marks; length 51mm..
- Stem fragment, length 45mm.

In addition a single 32mm fragment of stem was found in the rubble layer [7] (Trench 6). This had a pinkish discoloration (including one of the broken ends) and had evidently undergone secondary firing, possibly as an inclusion within one of the bricks in this context.

## **Hones**

Part of three hones were recovered, including two very similar items from the fill [+] of the sunken fence feature in Trench 3. These are undated but probably all 19<sup>th</sup> century:

Trench 3 [+]:

- Conical-shaped, tapering to a point at one end and roughly broken at the other, max. dimensions 93mm x 36mm (102 gms). Made from a natural hard light-brownish quartzite.
- Similar to the above and of identical composition, but shaped more as a tapering cylinder, lacking a point although again broken at the wider end. Max. dimensions 74mm x 30mm (71 gms).

Trench 5 [+]:

- A roughly shaped piece of hard grey slate-type material, max. dimensions 148mm x 40mm (160 gms). Appears to be a makeshift hone, and quite heavily worn on one surface.

## **Metalwork**

Only one metal item was found: a brass wheel with teeth cut around its circumference, apparently from a clock movement. Diam. 56mm by 1.6mm thick.

## **Conclusion**

The small group of struck/worked prehistoric flint is of some intrinsic interest, and adds to the corpus of material recovered on both banks of the Thames in the vicinity.

Otherwise all the material was of later post-medieval date (mostly mid-late 19<sup>th</sup> century), and comprised a small assemblage of unremarkable domestic pottery plus occasional items that suggest a more direct connection with the Gardens and associated buildings. This latter group includes the single rim sherd from a terracotta planter, the three hones – and perhaps also the large marmalade jar.

Most of the post-medieval assemblage was also recovered from the fills of the sunken fence feature in Trench 3, where its presence and date broadly confirms the documented date of 1895 that is given for backfilling (Desmond 1995, 276). Elsewhere there were few finds, mainly from the undifferentiated soil overburden, which is consistent with the recorded history of the site as open and largely undeveloped land.

#### 4. Ceramic building material

*John Brown, Gifford*

[6] Trench 6 The brick and mortar samples from the red-brick wall structure [6] comprised four bricks. The first brick was of London fabric type 3033 and was a fairly dense orange sandy brick with a large amount of quartzite. The distinguishing characteristics of this brick were uneven bases, rounded arrises, sunken margins and ‘squodge marks’ visible on one side. The brick had dimensions of 220-225mm long x 115-118mm wide x 55-60mm deep. Although the fabric looks early, the dimensions suggests a later date than the 3033 fabric samples from [20], and possibly within the period circa 1630-1750, as opposed to the general date range for this fabric of 1450 to 1700. This brick is contemporary with the later brick types from the masonry structure [20]. The mortar is a yellow grey mortar with distinct lime inclusions which is also normally associated with a late 17<sup>th</sup> century early 18<sup>th</sup> century date. Some of the bricks in the sample, shown evidence of older mortar on the faces and suggest that this wall was constructed from a previous structure of probably 17<sup>th</sup> century date<sup>0</sup>.

Other bricks from this sample conform to the above classification, but some are much darker in colour than the first brick sample, being a buff, darker purple hue.

In conclusion the date of context [6] most probably falls within the date range of *circa* 1630-1750.

[3] Trench 6 The brick and mortar samples from the rubble deposit [3] behind wall [6] comprised four bricks. The first brick was of London fabric type 3032, a different fabric, but similar to 3033. This brick was a fairly dense buff sandy brick containing lots of voids and cracks, formed by inclusions of Spanish in the clay. The brick dimensions were 225mm long x 105mm wide by 62mm deep and a bit thicker than some of the bricks from this evaluation but conforming to a date range of 1630 to 1750. The mortar is similar to that used in [6].

Other bricks from this sample conform to the above classification, but some are much darker in colour than the first brick sample, being a buff, darker purple hue.

The structure is comprised of reused bricks, which obviously formed part of an earlier structure and were reassembled in cut [21].

In conclusion the date of context [3] most probably falls within the date range of *circa* 1630-1750.

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<sup>0</sup> Fabric analysis based on Vince, A. 1984 (2<sup>nd</sup> Ed) Pottery Archive: Users Handbook, London: Museum of London, DUA Publications 1.

[20] Trench 6 The brick and mortar samples from the red-brick reused masonry structures [20] below wall [6] comprised four bricks. The first brick was partially broken and of London fabric type 3033. This brick was of the same brickearth source as the first brick from Context [6] and was a fairly dense orange sandy brick, poorly fired and containing less quartzite. The firing is typical of a Tudor brick and demonstrates that brickmaking technology was still not producing bricks of a reliable standard at this time. The brick dimensions were 116mm wide by 55mm deep (no length was available) and conforms to standard Tudor brick dimensions, with a date range of 1450 to 1700.

The second brick from this sample appears to be a combination of London fabric type 3033 (orange) and 3032, so represents a slightly later version of 3033, dating from *circa* 1630 until 1800. This particular brick has characteristics that place in the date range of *circa* 1630-1750 and certainly before 1780. The dimensions were 220mm long x 102mm wide by 58mm deep and these conform to typical dimensions for bricks *circa* 1630-1750 in London.

The other brick samples from this context conform to the second brick characteristics and all show evidence of reuse. The sample is a combination of brick types, which have evidence of older mortar residues on the brick edges.

The structure is comprised of reused bricks, which obviously formed part of an earlier structure and were reassembled in cut [22]. It is possible that three phases of usage are visible, a first masonry structure, reuse of brick elements of this structure in a later masonry structure and finally redeposition of the broken blocks of this masonry in cut [22] in evaluation Trench 6.

In conclusion the date of context [20] most probably falls within the date range of *circa* 1630-1750.

Apart from the brick samples in Trench 6 only one example of roof tile was retained, from clearance [+] in Trench 4. This comprised two adjoining pieces of pantile, of 18<sup>th</sup>-19<sup>th</sup> date – overall dimensions were 191mm x 112mm (424 gm).

## Appendix II OASIS Data Collection form

OASIS ID: compassa1-54455

### Project details

Project name	Land Adjacent to the Lower Nursery, Royal Botanic Gardens, Kew, Richmond, TW9 3AG, London Borough of Richmond
Short description of the project	An archaeological evaluation undertaken on land adjacent to the Lower Nurseries, Royal Botanic Gardens, Kew between 15th and 22nd of December 2008. Six evaluation trenches and two test-pits were excavated. Part of a back-filled 19th century ditch/sunken fence feature was exposed, considered to be the same boundary feature depicted on contemporary maps. Probable 18th century red-brick walls were exposed elsewhere. A relatively small assemblage of finds was recovered, including residual prehistoric worked and burnt flint.
Project dates	Start: 15-12-2008 End: 22-12-2008
Previous/future work	No / Not known
Any associated project reference codes	LYK08 - Sitecode
Type of project	Field evaluation
Site status	World Heritage Site
Current Land use	Other 15 - Other
Monument type	DITCH Post Medieval
Monument type	WALL Post Medieval
Significant Finds	POT SHERDS Post Medieval
Significant Finds	CLAY TOBACCO PIPE Post Medieval
Significant Finds	FLINT Prehistoric
Significant Finds	ANIMAL BONE Post Medieval
Methods & techniques	'Targeted Trenches','Test Pits','Sample Trenches'
Development type	Not recorded
Development type	Quarantine House. Royal Botanic Gardens, Kew.
Prompt	Direction from English Heritage – PPG16

Position in the planning process Not known / Not recorded

### Project location

Country England

Site location GREATER LONDON RICHMOND UPON THAMES RICHMOND AND KEW Land Adjacent to the Lower Nursery, Royal Botanic Gardens, Kew, Richmond.

Postcode TW9 3AG

Study area 100.00 Square metres

Site coordinates TQ 1834 7725 51.4813138714 -0.295601937373 51 28 52 N 000 17 44 W Point

Height OD / Depth Min: 4.86m Max: 5.68m

### Project creators

Name Organisation Compass Archaeology

Project brief originator English Heritage/Department of Environment

Project design originator Compass Archaeology

Project director/manager Geoff Potter

Project supervisor Gill King

Type sponsor/funding body Royal Botanic Gardens, Kew.

Name sponsor/funding body Royal Botanic Gardens, Kew

### Project archives

Physical recipient Archive Museum of London archaeological archive

Physical Contents 'Animal Bones','Ceramics','Worked stone/lithics'

Digital Archive recipient Museum of London archive

Digital Contents 'none'

Digital Media available	'Images raster / digital photography','Text'
Paper Archive recipient	Museum of London Archive
Paper Contents	'none'
Paper Media available	'Context sheet','Drawing','Matrices','Photograph','Plan','Report','Section'

### **Project bibliography 1**

Publication type	Grey literature (unpublished document/manuscript)
Title	The New Quarantine House, land adjacent to the Lower Nursery, Royal Botanic Gardens Kew, Richmond TW9 3AG. London Borough of Richmond: An Archaeological Evaluation
Author(s)/Editor(s)	Johnson, K
Date	2009
Issuer or publisher	Compass Archaeology
Place of issue or publication	5-7 Southwark St, London, SE1 1RQ
Description	Bound report detailing the results of an archaeological evaluation - illustrated.
Entered by	Katie Johnson (mail@compassarchaeology.co.uk)
Entered on	26 January 2009



### **Appendix III London Archaeologist Summary**

**Site Address:** Land adjacent to the Lower Nursery, Royal Botanic Gardens Kew, Richmond, TW9 3AG: An Archaeological Evaluation.

**Project type:** Archaeological Evaluation

**Dates of Fieldwork:** 15<sup>th</sup> – 22<sup>nd</sup> December 2008

**Site Code:** LYK08

**Supervisor:** Gill King

**NGR:** TQ 1834 7725

**Funding Body:** Royal Botanic Gardens Kew

An archaeological evaluation was undertaken in advance of development of land adjacent to the Lower Nursery, Royal Botanic Gardens Kew. Six evaluation trenches and two test pits were excavated across the site, exposing evidence for a 19<sup>th</sup> century boundary feature and 18<sup>th</sup> century red-brick masonry structures. A large backfilled ditch was exposed in the southern part of the site, thought to represent a sunken-fence feature depicted on contemporary cartographic sources; a later path feature cut the ditch consisting of rubble foundations underlying a gravel surface. To the west a series of 17<sup>th</sup> or 18<sup>th</sup> century red-brick structures were exposed, consisting of an insubstantial probable garden wall constructed of re-used materials and an underlying deposit of large blocks of reused brick masonry and associated brick rubble fills. The bricks recovered from these structures date to the period *circa* 1630-1750.

Natural deposits consisted of alluvium overlying river terrace gravels, recorded between 4.86m and 5.68m OD.