

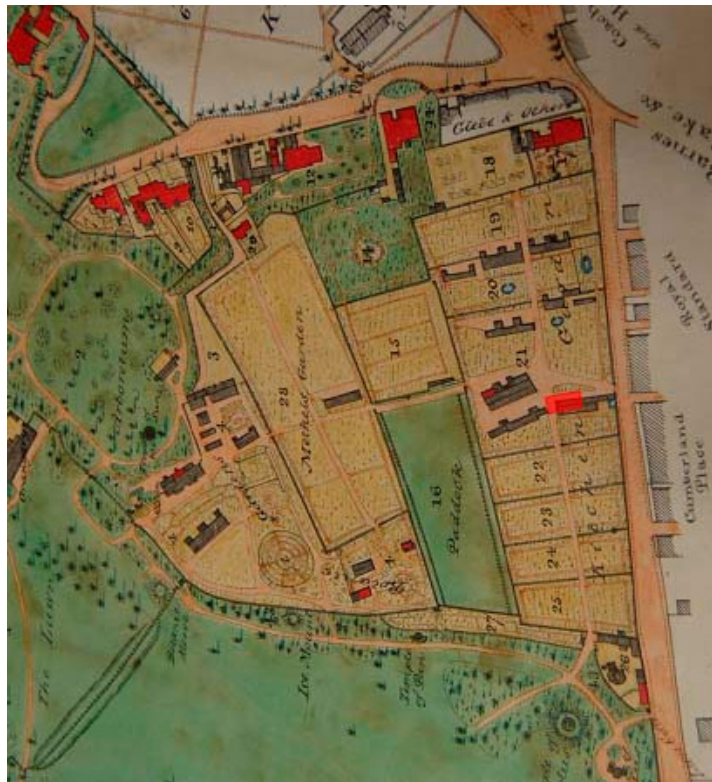
KEW GUILD STUDENT VEGETABLE PLOTS

ROYAL BOTANIC GARDENS KEW

RICHMOND, TW9 3AG

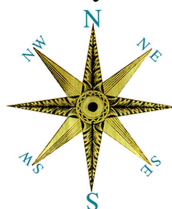
LONDON BOROUGH OF RICHMOND

A PROGRAMME OF ARCHAEOLOGICAL RECORDING AND
PRESERVATION IN SITU



January 2008

COMPASS



ARCHAEOLOGY

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**A PROGRAMME OF ARCHAEOLOGICAL RECORDING AND PRESERVATION
IN SITU**

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Abstract

A programme of rescue archaeological recording and preservation in situ took place in October 2007 at the Kew Guild Student Vegetable Plots (land to the south of the Jodrell Laboratory), Royal Botanic Gardens Kew, London Borough of Richmond TW9 3AG. National Grid Reference TQ 18959 77245.

In September 2007 works began for the provision of sixteen additional planting beds for use by Kew Guild students at the Royal Botanic Gardens Kew, with associated clay paving access footpaths, bespoke fencing of heights suitable for public viewing, plant support systems for climbing plants and an equipment storage facility. This work was outside of the planning process and during the course of construction groundworks a series of large red brick structures were exposed. Fanshawe LLP on behalf of Kew Guild asked Compass Archaeology to come and inspect these structures and, after discussions with representatives of English Heritage and Historic Royal Palaces, it was decided to implement a brief programme of archaeological cleaning, analysis and recording of the exposed structures, followed by their preservation in situ.

As the development programme was already in place only a certain amount of time was available to carry out this work and an area measuring 11m by 23.5m was opened and cleaned within the footprint of the new build.

The archaeological work revealed the foundations of a complex rectangular red brick structure with internal divisions, which appears to be a large late 18th century greenhouse or 'forcing house'. A series of brick footings and internal walls and bases related to a building some 21.5m by 4.6m in plan, with a further wall marking an extension to the north. There was also fragmentary evidence suggesting a further large building existed to the north. The walls indicated at least two phases of construction, with the northern wall apparently being rebuilt or strengthened at a later stage, additionally areas of burnt residue possibly indicate the presence of a central heating source (stove or furnace) with a similar structure at the western end. The drainage regime is also indicated in the construction of the southern wall. There were very few datable finds from the cleaning exercise, with only a small group of post-medieval ceramics being a typical mixture of flowerpot materials and the occasional sherd of utilitarian coarse ware. One clay tobacco pipe tentatively dated to the 18th century was also found.

Further analysis revealed that the greenhouse probably belonged to land originally in the ownership of the Earl of Essex (the Capel family) and is first shown on maps dating to 1771. The building does not appear on Rocque's map of 1746 and therefore a date to the middle of the 18th century seems most likely, which also makes this building contemporary with the nearby Georgian Grade II Listed School of Horticulture building. The early function of these two buildings was as part of the kitchen garden serving Kew Farm (the Capel's family home) and predating the inclusion of this land into the Royal Botanic Gardens. Later map evidence in 1840 indicates that the newly discovered building may have been a 'peach house' or 'vinery' and subsequent map evidence shows a potential second phase of construction of the building to the north.

There was no evidence for any earlier activity, and clean natural deposits were not exposed. The archaeology is now preserved in situ under the Kew Guild student vegetable plots.

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1. Introduction

- 1.1 A programme of rescue archaeological recording and preservation *in situ* took place in October 2007 at the Kew Guild Student Vegetable Plots, Royal Botanic Gardens Kew (land to the south of the Jodrell Laboratory), London Borough of Richmond TW9 3AG, National Grid Reference TQ 18959 77245.
- 1.2 In September 2007 the Kew Guild began works for the provision of sixteen additional planting beds for use by students, with associated clay paving access footpaths, bespoke fencing of heights suitable for public viewing, plant support systems for climbing plants and an equipment storage facility. The aim of the new works was to expand and develop facilities for scientific and horticultural activities; to enhance visitor amenities and provide greater public access to RBG Kew's 'behind-the-scenes' activities; and to provide education facilities. This work did not require planning permission, but during the course of construction groundworks a series of large red brick structures were exposed. Fanshawe LLP on behalf of the Kew Guild and the Royal Botanic Gardens asked Compass Archaeology to come and inspect these structures and, after discussions with Mark Stevenson of the English Heritage Greater London Archaeology Advisory Service and Lee Prosser Curator of Historic Royal Palaces, it was decided to implement a brief programme of archaeological cleaning, analysis and recording of the exposed structures, followed by their preservation *in situ*.
- 1.3 As the development programme was already in place only a certain amount of time was available to carry out this work and an area measuring 11m by 23.5m was opened and cleaned within the footprint of the new build. This report presents a summary of the results of the archaeological fieldwork, which was undertaken by Compass Archaeology between 17th and 19th October 2007.

2. Acknowledgements

Compass Archaeology would like to thank the Kew Guild for commissioning the fieldwork and report and the following Royal Botanic Gardens employees for their assistance with the project:

Roger Thompson (B & M Department)
Nigel Taylor (Curator of Horticulture and Public Education)
John Lonsdale (Horticulture and Public Experience Department)
Michèle Losse, Nicola Randall and Craig Brough (RBG Archives)
Steve Ruddy and Jakub Figura (RBG Survey)
Sandra Bell (Wildlife and Environment Recording Coordinator)
Bernard Verdcourt (Honorary Research Fellow)
Steve Blackmoor and staff (Blackmoor Maintenance Services)

We are also grateful to the following individuals and organisations:
Graeme Ross (Senior Quantity Surveyor, Fanshawe LLP)
Mark Stevenson (Archaeology Advisor, GLAAS English Heritage)
Lee Prosser (Curator, Historic Royal Places)

Further assistance during the post-excavation analysis was also given by the staff of the Linley Library (Wisley and London), the Guildhall Library, Richmond Local Studies Library and the archives of the Capel family at the Sir John Soane Museum (currently closed) and at Hertfordshire Archives and Local Studies (HALS).

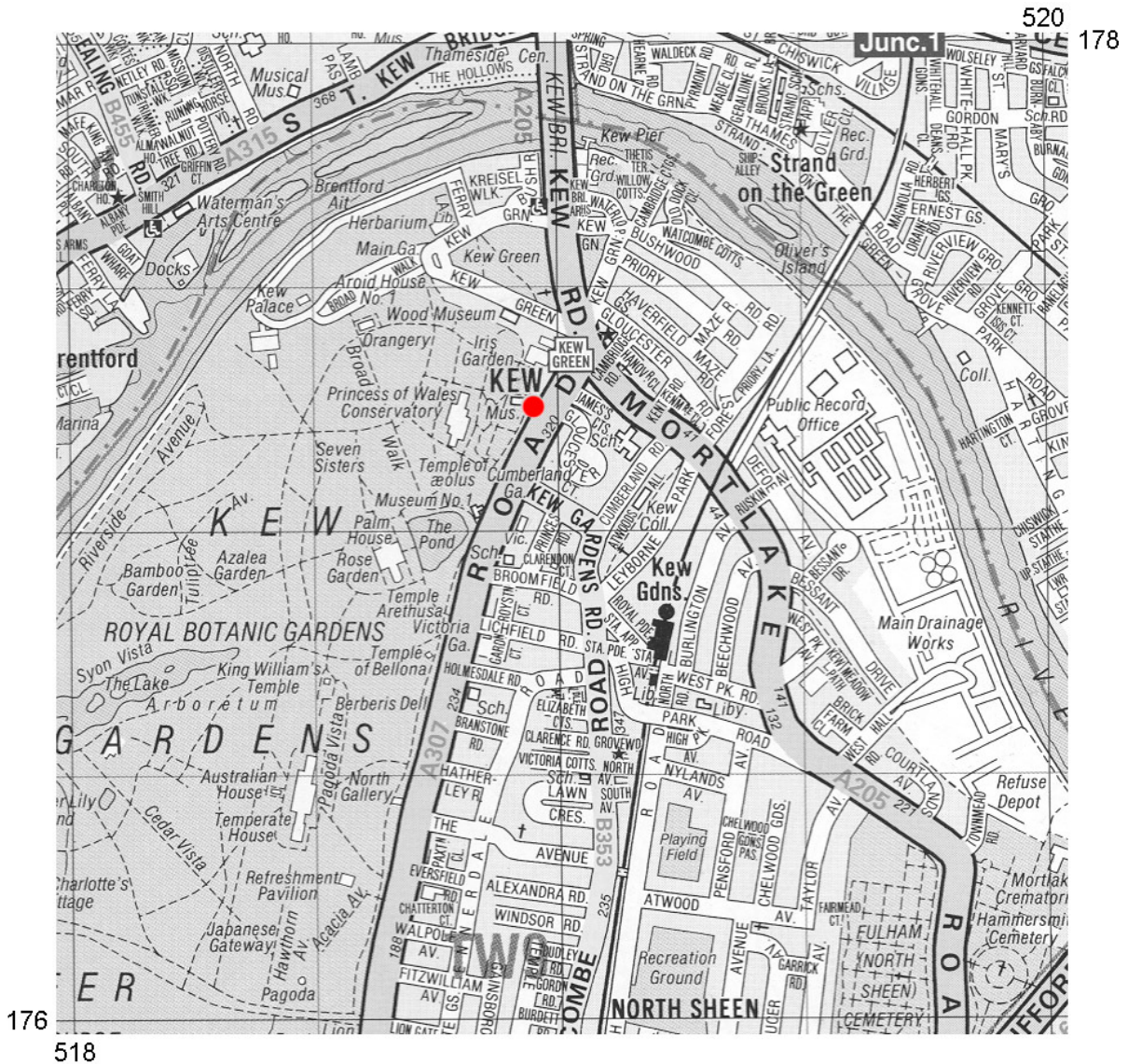


Fig 1 General site location map, showing the approximate location of the site in red. Reproduced from the OS map with the permission of the Ordnance Survey on behalf of the Controller of HMSO. © Crown Copyright. All rights reserved. Compass Archaeology Ltd., London SE1 1RQ, licence no. AL 100031317

3. Background

3.1 Location and topography

The excavation site occupied a rectangular plot of land measuring some 11m north south by 23.5m east west, centred at National Grid Reference TQ 18959 77245 (Fig 1). The site was bounded to the north by the northern half of the Kew Guild Student Vegetable Plots site and by the Jodrell Laboratory, to the east by a grass verge fronting onto the Kew Road (A307), to the south by the existing student plots and to the west by the 18th century School of Horticulture building and the glasshouses to the rear. The site is fairly level, at about +6.5m OD, although the general topography has a slight fall to the north and west towards the river (cf. Fig 1 above).

The British Geological Survey indicates that the site overlies a natural ground surface of River Terrace gravel.

3.2 Brief summary of fieldwork results

The archaeological work revealed the foundations of a large rectangular garden building made of red brick with internal divisions (Fig 2). This building appears to be a large greenhouse or ‘forcing house’ and documentary evidence suggests that it may have been a peach house or vinery (see section 5.9). The presence of the building was previously unknown, but has now been traced through documentary and cartographic sources to be part of a large structure shown on maps dating from 1771. Further analysis indicates that the building is contemporary with the Georgian Grade II Listed School of Horticulture building (Museum No. 2), which stands a few metres to the east, and that both buildings were once part of the land held by the Earl of Essex, the Capel family (in the late 18th century¹). Both these buildings were constructed as part of the kitchen gardens for the Capel’s residence at Kew Farm (later the White House) on Kew Green. The School of Horticulture was also a garden building and before being assimilated into Kew Gardens was a gardener’s residence and a fruit store.

This land did not actually become part of the royal gardens until 1846 and it is interesting that the Capel family (or their royal lessees) had very early glasshouses on his land, which was later to become accumulated into the Royal Botanic Gardens - the home of some of the most famous glasshouses in the world.

A detailed analysis of the map and documentary evidence for the formation of the structure is detailed in section 5 below.

3.3 The archaeology and history of the Kew area

The archaeological heritage of this part of London is complex and archaeological deposits and artefactual material can be anticipated to survive here (particularly in a riverine context) from the earliest times. The archaeological and historical heritage of the Royal Botanic Gardens is well documented and will not be repeated here; additionally previous archaeological investigations within the gardens have revealed significant archaeological deposits from a range of periods².

This rescue archaeology project involved the specific investigation of one primary building phase and no other deposits or finds were encountered from any other periods. Therefore, this particular report concentrates on the archaeology and history of this particular post medieval building in relation to its construction, usage and decline. Any further works in the World Heritage Site should ideally assess the archaeological and historical potential of the whole site context prior to construction works commencing.

¹ The family name is also spelt ‘Capell’ in many references, but following Desmond, R. (2007) ‘Capel’ is used here.

² A comprehensive guide to the heritage of the gardens is found in Desmond, R. 2007 (2nd Edition) ‘The History of the Royal Botanic Gardens Kew’. Information on previous archaeological work in the area can be found on English Heritage’s Archaeology Data Service (ADS) available at <http://ads.ahds.ac.uk>, which includes all the archaeological data required by planning legislation to be submitted through the OASIS database (Online Access to the Index of archaeological investigationS).

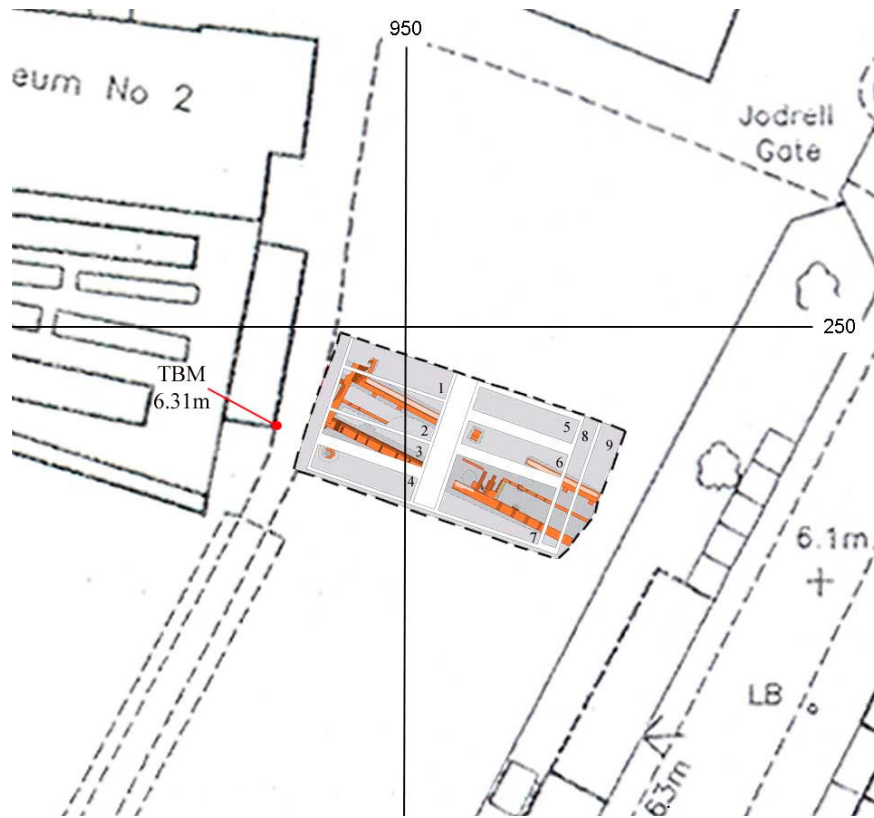


Fig 2 Site location, showing the newly discovered building outline in relation to the 1:1250 Ordnance Survey map. The area shown in orange represents the former building, the areas in grey show the individual Guild Student Plots, separated by the newly cast concrete baulks. The location of the OSBM on Kew Road (value 6.3m AOD) and the TBM on the corner of the adjacent glasshouse is also shown and the Bays are also numbered 1 to 9, following the reference system used throughout this report (*cf.* section 7).

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4. Aims and objectives of archaeological recording and preservation programme.

4.1 Archaeology and legislation

Although this project was outside the planning process, many projects involving groundworks require planning permission and the general methodology for accommodating archaeological matters is set out in DOE Planning Policy Guidance 'Archaeology and Planning' No.16, November 1990 (PPG16) and DOE and DNH Planning Policy Guidance 15: 'Planning and the historic environment' (PPG 15) September 1994.

4.2 Archaeology and World Heritage Sites

The guidance for dealing with archaeology on World Heritage Sites is also set out in PPG 15, 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, ICOMOS UK and the Local Authorities World Heritage Forum.

Once the development groundworks revealed evidence of *in situ* archaeological remains, a programme of emergency archaeological recording and preservation *in situ* works was recommended by English Heritage and Historic Royal Palaces and was immediately implemented on site, and all development works ceased during the archaeological programme.

4.3 The archaeological fieldwork brief

As the archaeological remains were accidentally encountered in October 2007 in the course of construction groundworks, a written specification or brief was not prepared for the archaeological fieldwork. Lee Prosser of Historic Royal Places had inspected the site in the week preceding the 17th October and sketch plans of the archaeological deposits were made. Also at this time, Kew's in-house surveyors, Steve Ruddy and Tony Hall, surveyed the site. Steve Ruddy additionally studied the historic maps of the area and he located the building on the 1771 map (*cf.* Figs 5 and 6). The site was inspected by Compass Archaeology on 17th October and following telephone discussions with representatives from English Heritage and the Historic Royal Palaces it was recommended that the work progress directly to a rescue archaeology phase. This being a period (2.5 days) of recording, analysis and preparation of the site for preservation *in situ* where possible.

The rescue archaeology objectives was 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 continuance of proposed redevelopment works. The fieldwork and photographic record was carried out in accordance with English Heritage guidelines (including *Standards and Practices in Archaeological Fieldwork*, 1998, and *Understanding Historic*

Buildings.... 2006) plus those of the Institute of Field Archaeologists (*Standard and Guidance for Field Evaluations*) where possible within a rescue archaeology and preservation *in situ* framework. This provided a basis on which decisions could be taken as to the need for any further archaeological action in respect of site (*e.g.* in this case preservation *in situ*) or for no further action.

Following telephone discussions with English Heritage and Historic Royal Palaces it was agreed to clean and record an area 11m N-S by 23.5m E-W, about half the area of the Kew Guild Student Vegetable Plots. This formed the southern part of the new plots. The northern half did not have any archaeological features extant and much of the groundworks had been completed here. It is possible that important archaeological remains do survive in the northern part of the site area; however, they were not visible on the initial site inspection on the 17th October 2007 or during the course of the rescue archaeology works on the 18th and 19th. It is hoped that should further groundworks take place in the northern part of the site that this area of potential archaeology remains is preserved *in situ*.



Fig 3 General view of the Kew Guild Student Vegetable Plots looking south. The excavation area can be seen with Bays 1 to 4 to the right (figures standing) and Bays 5 to 7 to the left of the wheel barrows and Bays 8 and 9 on the far left of the image (with two large pieces of white geotextile membrane). © John Lonsdale, Royal Botanic Gardens Kew.

4.4 Archaeological research questions

The fieldwork presented an opportunity to address several specific post-medieval research questions in relation to this discovery:

- What is the form, function and extent of the brickwork structures discovered during the construction groundwork?
- When were the structures built, what purpose did they serve and when were they demolished?
- What dating and phasing evidence is available for these structures?
- What can the construction technique tell us in relation to known regional and local techniques of the period?
- What is the nature of the internal structures within the building/s?
- Is there evidence of heating or drainage regimes within the building/s?
- What artefactual evidence is available for these structures?
- What cartographic and documentary evidence survives for these buildings and how do the archaeological features structures and deposits relate to this data?
- What part did this building/s play in the development of the historic André Estate of the Capel family and later as the royal Kitchen Gardens at Kew?
- What role has this area played in the historic development of the Royal Botanic Gardens?
- How do these structures relate to contemporary excavated greenhouses and forcing houses and what evidence is there for what was grown inside?

5 Cartographic and documentary research

5.1 In order to fully understand the nature of the buildings now preserved beneath the new plots a detailed cartographic and documentary assessment of the site was carried out³. The historical background to the site is primarily considered through a historical map regression, in conjunction with reference to previous research and other documentary evidence relating to the study area. Analysis of the historical background is focussed on the immediate site area, however this necessarily is achieved with reference to developments in the wider area of Kew.

5.2 It should be noted that until the first Ordnance Survey series (1880), maps should be considered more artistic than accurate, although surveying techniques did improve over the course of the 19th century. In addition, the purpose for which the maps were created will have some bearing on their content and level of accuracy. For example detail of buildings is less significant if the map was intended to show only land ownership. For this reason, the position of the excavated site area (generally marked in red) should be considered a ‘best fit’ approximate location only.

³ Historic research for this project was carried out by Katie Johnson of Compass Archaeology.

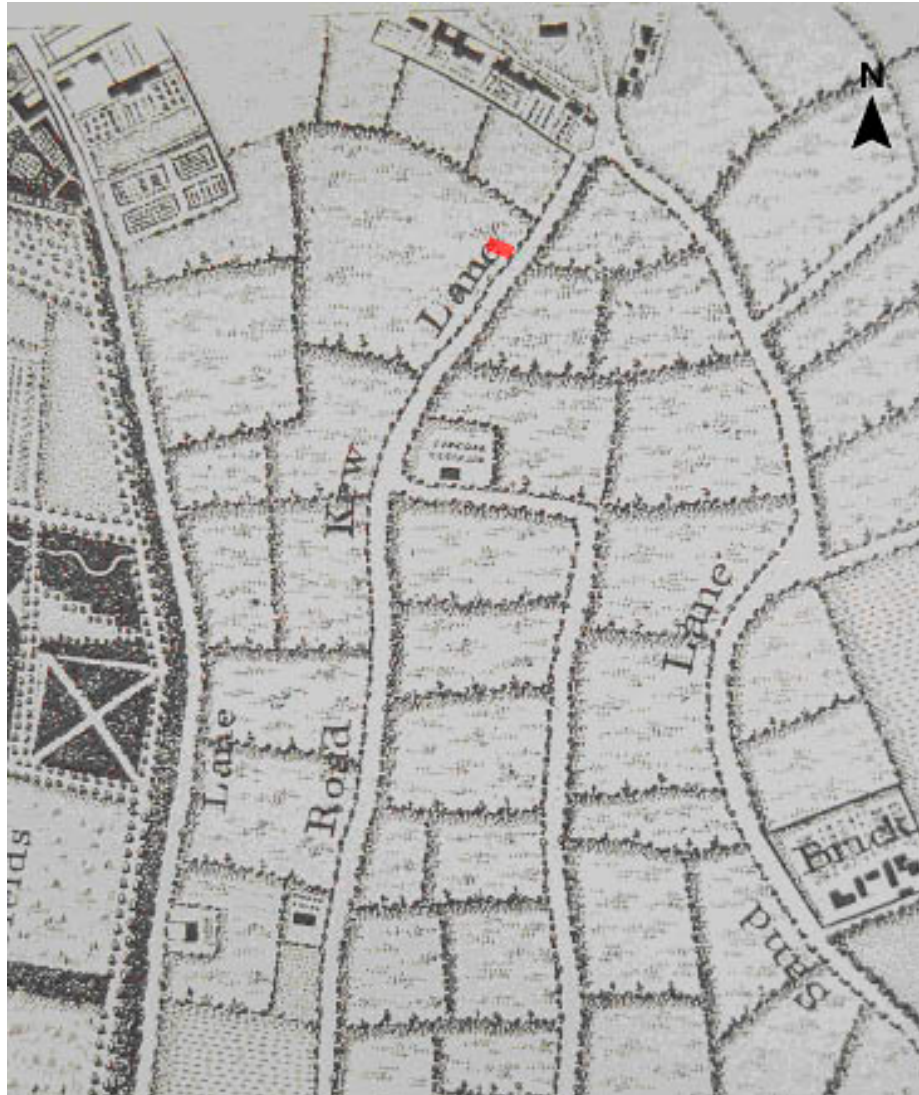


Fig. 4 Extract from Rocque's *'Exact Survey of the Country near 10 Miles Round London'* dated 1746. The approximate site location is shown in red, showing the site to be in open unploughed fields and some distance to the east of the formal landscaped gardens being laid out at Richmond Gardens. Reproduced from a copy in the Guildhall Library, London.

5.3 The first map which is particularly relevant to this study is Rocque's *'Exact Survey of the Country near 10 Miles Round London'*, 1746 (Fig 4). This is not to be confused with Rocque's *'An Exact Plan of the Royal Palace Gardens and Park at Richmond with Sion House etc on the opposite side of the River Thames'* of 1754 or Rocque's *'A New Plan of Richmond Gardens'* inscribed to T and R Greening and dated c 1748. These other surveys do not show the study site but show the royal lands to the west of the study area only extending as far east as the line of Love Lane (cf. Fig 4 marked *Lane* to left of image). These surveys include the royal residences at Kew and West Sheen and the Deer Park and river with Sion House on the other bank. Several versions of these various surveys exist including one dated as early as 1734, but again all do not cover the study area, as the site was not within the royal domain at this time. Reportedly, the site area is also not shown on another plan dating to 1763 and showing

Princess Augusta's Garden, nor apparently were any buildings shown on the site area on a c 1730 plan of land owned by the Capels⁴. The 1746 Rocque map however clearly shows the study area as enclosed fields and clear of any buildings. At the top of the image (just to the right of centre) St. Anne's Church can be seen on the corner of open space of Kew Green. The original church of St Anne's was built in 1714, following the donation of land by the then monarch, Queen Anne. Kew Road is marked *Road Kew Lane*; this was (and continues to be) the main road to Richmond from Kew. The left of the image shows the landscaped Richmond Gardens belonging to Richmond Lodge⁵ and the road (Love Lane), which separated these royal gardens from the future Kew Gardens.

- 5.4** In 1731 Frederick, Prince of Wales, son of George II, leased the land of Kew Farm (later known as the 'White House'; Fig 4 top left of image) from Lady Elizabeth St André. Kew Farm was once the residence of Sir Henry Capel, the Earl of Essex and part of the Capel family's St. André Estate and it is on this land that the study area is situated. The land immediately around Kew Farm is shown landscaped which was most probably carried out by the Capel family, and later by their royal tenants, the gardens continuing to expand to the St. André Estate boundary in the following years⁶. Kew Gardens originated in the private garden of Sir Henry Capel, a friend of John Evelyn (1620-1706), who is said to have brought fruits and rare trees from France⁷. It is recorded that he built two greenhouses for oranges and myrtles, which roused Evelyn's admiration, and he contrived palisades of reeds painted with oil to shade the oranges during the summer. In the 18th century the landscape gardener, Lancelot 'Capability' Brown (1716-1782), laid out the royal grounds at Kew and between 1757 and 1762 Sir William Chambers (1723-1796) the architect was employed by the Princess of Wales to adorn the gardens with buildings (*cf.* section 10.1)⁸.
- 5.5** In 1736, Frederick had married and after Frederick's death (in 1751) his widow, Princess Augusta, instructed her gardening staff to complete the gardens of Kew as had been decided before his untimely death, thus seeing an early establishment of a botanic garden at Kew. This early work was limited however, to land to the west of Love Lane and to the south of the study area and the study area is still marked in 1771 as being part of the undeveloped land in the ownership of the Earl of Essex (*cf.* Figs 5 and 6).
- 5.6** Papers of Sir George Lee MP, dating to 1752, record that Princess Augusta's garden totalled 152 acres of land both leased and purchased. Her accounts for the same year included a reference to a 'kitchen garden', which would supply the royal residence, the White House⁹. Given that it seems unlikely that two such kitchen gardens would exist for the single property, this could be the first reference to the land use of study area. Additionally, in 1753 there is a reference that the head gardener's duties were

⁴ Unfortunately these two plans could not be located at the time of writing this report, based upon information from Richmond Local Studies Library.

⁵ <http://www.kew.org/heritage/timeline>

⁶ *ibid*

⁷ Frederick Scheer, Kew and its Gardens, 13. From: 'Parishes: Kew', A History of the County of Surrey: Volume 3 (1911), pp. 482-487. URL: <http://www.british-history.ac.uk/report.aspx?compid=43012>. Date accessed: 17 January 2008.

⁸ Extract from 'Parishes: Kew', A History of the County of Surrey: Volume 3 (1911), pp. 482-487. URL: <http://www.british-history.ac.uk/report.aspx?compid=43012>. Date accessed: 17 January 2008.

⁹ Desmond 1995: 360

confined to the kitchen garden¹⁰. Again this is a possible reference to the study area as in later maps the land is marked as 'kitchen garden' (cf. Fig 8). However, the area is not specified in any detail in the 18th century, and is not marked on any maps as such until the 1837 map (cf. Fig 10). Therefore the possibility remains that the kitchen garden was elsewhere during this period leaving the study area still lacking a definite use at this time.



Fig 5 Extract from the much larger 'Plan of the Royal Manor of Richmond, otherwise West Sheen, in the County of Surrey' dated 1771. This map was kindly provided by the RBG Kew Archives and is a digital copy of the 1771 original plan from the Royal Library Windsor Castle (Neg. E9037, Order no. 328/92) that was 'taken under the direction of Peter Burrell Esq. His Majesty's Surveyor-General by Thomas Richardson'. The larger plan shows Kew Gardens, New Menagerie, Kew Heath, Thames, Kew Green and plots of land surrounding Kew (marked with the names of the

¹⁰ *ibid*

owners). Unfortunately there is no scale. The site is shown in red and is located in still broadly undeveloped land in comparison to the newly laid out Kew Gardens (Kew Park) to the south and east. Reproduced with kind permission of the Archives, RBG Kew.

5.7 The 1771 Burrell and Richardson map is extremely interesting as it shows the results of the intensive developments at Kew Park in the intervening years between this map and the Rocque survey of 1746 (Fig 5). More importantly when the site area is viewed in detail it can be seen that a long narrow building now occupies the site area and other large buildings are located near by (Fig 6). The plot of land is labelled Earl of Essex in reference to the land ownership and clearly lacks the detail of the formal Kew Gardens (also leased) to the west and south suggesting a different purpose of lesser importance. The buildings are not labelled in the key, unlike those within Kew Gardens and so are deemed less significant. It is apparent that the larger rectangular building to the north west of the study area conforms to the layout of the building now known as the School of Horticulture and that the area highlighted in red is extremely similar in plan to the brickwork structure discovered at the New Student Guild Plots (*cf.* Fig 2).



Fig. 6 Detail of Burrell and Richardson's 'Plan of the Royal Manor of Richmond, otherwise West Sheen, in the County of Surrey, 1771' see Fig 4 for larger extract of

this plan. The distinctive floor plan of the School of Horticulture building can be seen as a central plan with two wings. Reproduced with kind permission of the Archives, RBG Kew.

- 5.8 A second map, carrying the same title, and by the same cartographers was also produced in 1771 and the relevant extract is shown below in Fig 7. Their similarity suggests that the two versions were either produced for two distinct purposes but this is not stated, or that one is an earlier draft version of the other.



Fig. 7 Extract from the Burrell (Royal Surveyor General) and Richardson's (illustrator) 'Plan of the Royal Manor of Richmond, otherwise West Sheen, in the County of Surrey, 1771'. Reproduced with kind permission of the Archives, RBG Kew.

- 5.9 This version of the 1771 survey has a marked difference to that in Figs 5 and 6, in that the building in the study area is not so clearly defined, although the dashed area

indicates a similar plot shape. Whilst an explanation that the building was constructed in the intervening period between the two maps is possible, it seems highly unlikely. More plausibly this can be explained as an oversight error between the two maps, which would again suggest that this plot of land and indeed this building was not deemed as significant as the others (given that an important buildings absence would no doubt have been noticed and corrected). According to the key for this edition, the colour of the plot, labelled as Earl of Essex in Fig 7, was used as '*arable lands of the Royal Gardens*'. These observations, in conjunction with those for Figs 5 and 6, do suggest the likelihood that this area was under the royal garden supervision, but as a kitchen garden rather than formal pleasure ground. The buildings therefore could represent glasshouses or sheds of low importance. As noted before, the larger building just north west of the site has a near exact footprint of the extant School of Horticulture, which is labelled Museum No. 2 on many maps. Research shows that this building was historically used as a fruit store, gardeners' mess room, packing room and the residence for the foreman (John Aldridge, the Chief Gardener, having his residence here in the 1840's)¹¹. The original function of the Museum building is not known, although we do know that it was standing on the site by 1771 and may have originally been built as a small residence under the Capel's at Kew Farm, all we can say is that by 1840 it was know historically as a fruit store and was the dwelling house of the head gardener.

- 5.10** Unfortunately, despite searches of the National Archives about the Earl of Essex's landholdings in the 18th century and a search of Capel family documents, no information was found that could more accurately date the construction of the Museum building, or the associated smaller buildings in the immediate study area and site location¹². We know from the cartographic evidence that these were constructed between 1746 and 1771, and that their function was most likely related to the land use as a kitchen garden serving the White House.
- 5.11** When Princess Augusta died in 1772, the gardens of Richmond and Kew, for the first time, came under single ownership. George III (who came to the throne in 1760) owned the Richmond gardens, and by default then owned the Kew Gardens in 1772¹³.
- 5.12** Susan Campbell has written a detailed paper about the Royal Kitchen Gardens that gave rise to 'Queen Victoria's Great New Kitchen Garden'¹⁴. In this paper, it is noted that toward the end 18th century, seven kitchen gardens were in full production to supply the royal palaces not far from London. Kew Palace is listed as one of these and is combined with Kensington and Richmond to provide a list of all fruit and vegetables supplied to the royal family in 1773. This list includes '*10 baskets of peaches, 5 of nectarines, 10 of apricots, 1 bunch of grapes, 2 baskets of raspberries*'. This is significant as the 1840 map (*cf.* Fig 10) marks the building in the site boundary as including *peach houses* and *vineries*. Campbell also noted that by 1816 new forcing houses had been built in the area, again demonstrating the continuing development of the site as a royal kitchen garden¹⁵.

¹¹ Desmond 1995 (1st Edition)

¹² Hertfordshire Archives and Local Studies (HALS).

¹³ <http://www.kew.org/heritage/timeline>, it should be noted that they were not physically united until 1802 when the dividing Love Lane was closed.

¹⁴ Campbell 1984

¹⁵ Forcing houses 'used to 'force' plants into flower much sooner than they would achieve otherwise. They often had growing frames running alongside. These ensured plants needn't face the thermal shock of coming from a

- 5.13** In 1794 George III acquired the property of the late Reverend Methold, together with his gardens that included eight fruit houses each with their own furnace. This area was also converted later for use as part of the royal kitchen gardens. However, by 1869 the structures were replaced by the ‘*T-range*’¹⁶. This, combined with the earlier (but still used) kitchen garden assumed to be in the study area by this date, totalled an area of fourteen acres by the time Queen Victoria came to the throne in 1837¹⁷. By the 1830s all of the land belonging to the modern garden was held by the Crown, with the exception of a strip of land belonging to the King of Hanover between the former Methold’s Garden and the kitchen garden¹⁸ (*cf.* Fig 10).
- 5.14** In the intervening years between the death in 1820 of both George III (1738-1820) and Sir Joseph Banks (1743-1820) (both critical figures in the development of the botanic gardens) and the accession of Queen Victoria, the gardens at Kew fell into severe decline. The reasons for this included: the apathy of George IV; reduction of funding from the government and the instruction by the King that Kew’s principle carer, W. T. Aiton, be reassigned to redesign other royal estates and palaces¹⁹.
- 5.15** As part of a Lords of the Treasury inquiry into the new Queen’s expenditure, who had no private or Hanoverian income since the death of William IV, the state and future of the Kew Gardens came under government scrutiny. This inquiry was to consider the state of the royal gardens, with the Kew botanic gardens and Kew kitchen gardens to be dealt with separately²⁰.
- 5.16** The gardens providing produce for the royal estates were to be considered in terms of their quality and quantity as it had been noted that on occasions supplementary supplies had to be bought. It was also necessary to assess whether in fact this was more economical. As part of the assessments, the fitness of forcing houses and the suitability of soils were examined. John Lindley (1799-1865) charged with analysing Kew’s production, recorded that the Kew kitchen garden in 1838 was made up of the former Methold’s Ground and the Home Ground separated by a paddock belonging to the King of Hanover²¹. Later maps confirm the study area as being that of the Home Ground. Significantly it was noted also that ‘*the Home Ground had most of the glass: seven peach houses, two vineries, two cherry houses, three pine stoves and a range of pine pits, a mushroom house and many frames for vegetables*’²². The map below (Fig

heated greenhouse before being planted straight into the ground. The grow frames provided a half way house between the two, for a few of weeks until the plants could be ‘hardened off’. Forcing houses took much of the risk out of gardening in the British climate, delivering more control for the gardener. They really came into their own during late spring and early summer.’

http://winsfordwalledgarden.com/greenhouses.aspx?Group=greenhouses&Page=forcing_house

¹⁶ Desmond 1995

¹⁷ Campbell 1984

¹⁸ <http://www.kew.org/heritage/timeline/> this reference again assumes the location of the kitchen garden in the study area based on the later maps showing it in this area.

¹⁹ *ibid*

²⁰ Campbell 1984

²¹ GB Parliament, House of Commons. *Copy of the report made to the Committee appointed by the Lords of the Treasury in January 1838 to inquire into the management etc. of the Royal Gardens, by Dr. Lindley...who... made an actual survey of the botanical garden at Kew, in conjunction with Messrs Paxton and Wilson, two practical gardeners in the month of February 1838.* London, 1840. (H of C paper 292. 6pp.)

²² Desmond 1995: 144

9) is a 1959 copy of a survey carried out in 1837 as part of this inquiry, and the caption about the plan's origin is in Fig 8, also below.

Copy of a map from a plan made in 1837 by Thomas Chawner. (Prepared for the Committee of Investigation into the conduct of the Gardens.) July 1839.
Original in the Surrey Record Office
Copied by Carol A. Cheal, July 1959.

Fig. 8 Caption detailing the original purpose for the map shown in Fig 9 below.

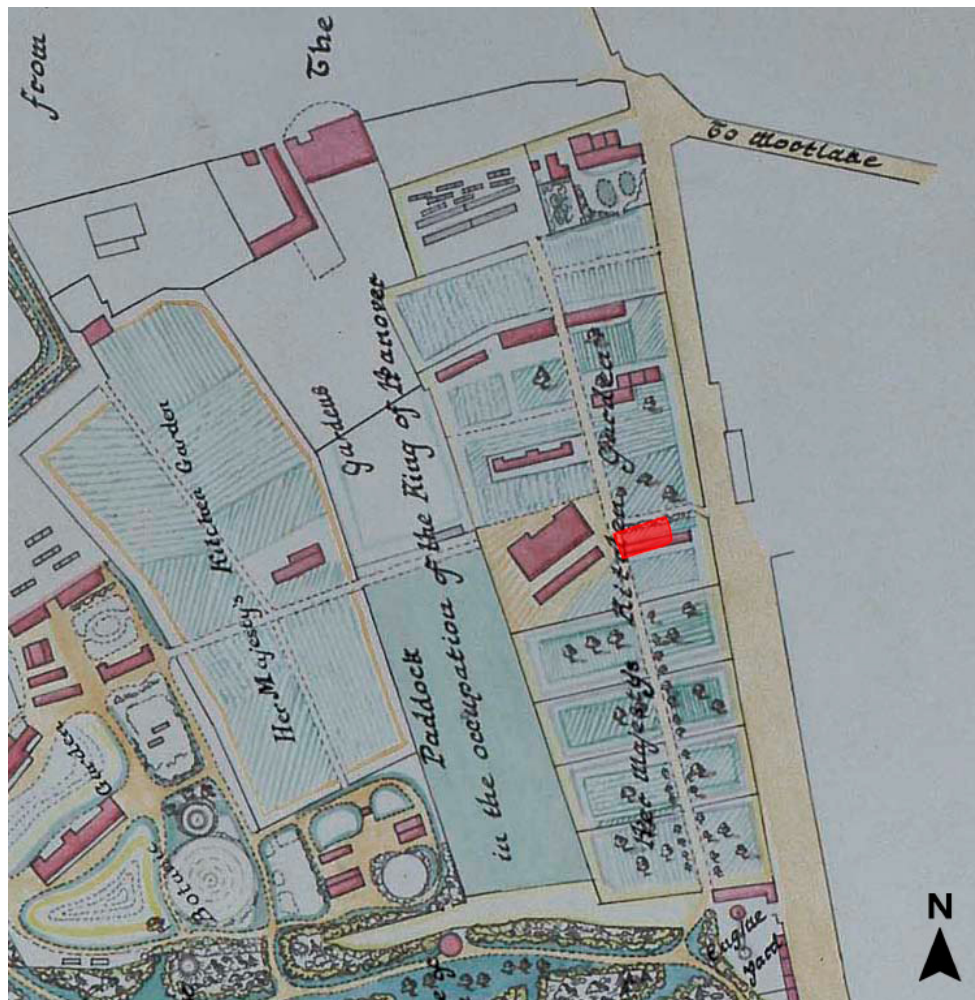


Fig. 9 Extract of the 1959 reproduction of the 1837 survey of the royal gardens, again showing a large rectangular structure in the study area, similar to that shown on the first 1771 plan (Fig 6). Reproduced with kind permission of the Archives, RBG Kew.

5.17 Figure 9 shows the study area marked as ‘Her Majesty’s Kitchen Gardens’, and it is separated from a further area of kitchen garden by a paddock still in the ownership of the King of Hanover. Assuming this is an accurate reproduction of the original this provides the first firm evidence of the land use of the site for this purpose. Similarly, the building from the 1771 map in Fig 6 can still be seen to occupy the site area on a very similar if not identical footprint and as such can now be deemed to have a kitchen garden function. Other similar buildings are dotted across the area and the fruit store building, later known as Museum No. 2, is the largest building in the two areas of kitchen garden. All the kitchen garden buildings follow the broad east to west alignment unlike the major glasshouses in the pleasure gardens, which are aligned north to south, many of the buildings appear to be narrow single bay glasshouses and are not lean-to constructions with standing buildings on the northern face, even the building to the rear of Museum No. 2 is freestanding and the lean-to extension was not added until the 20th century (*cf.* Figs 16 to 18).

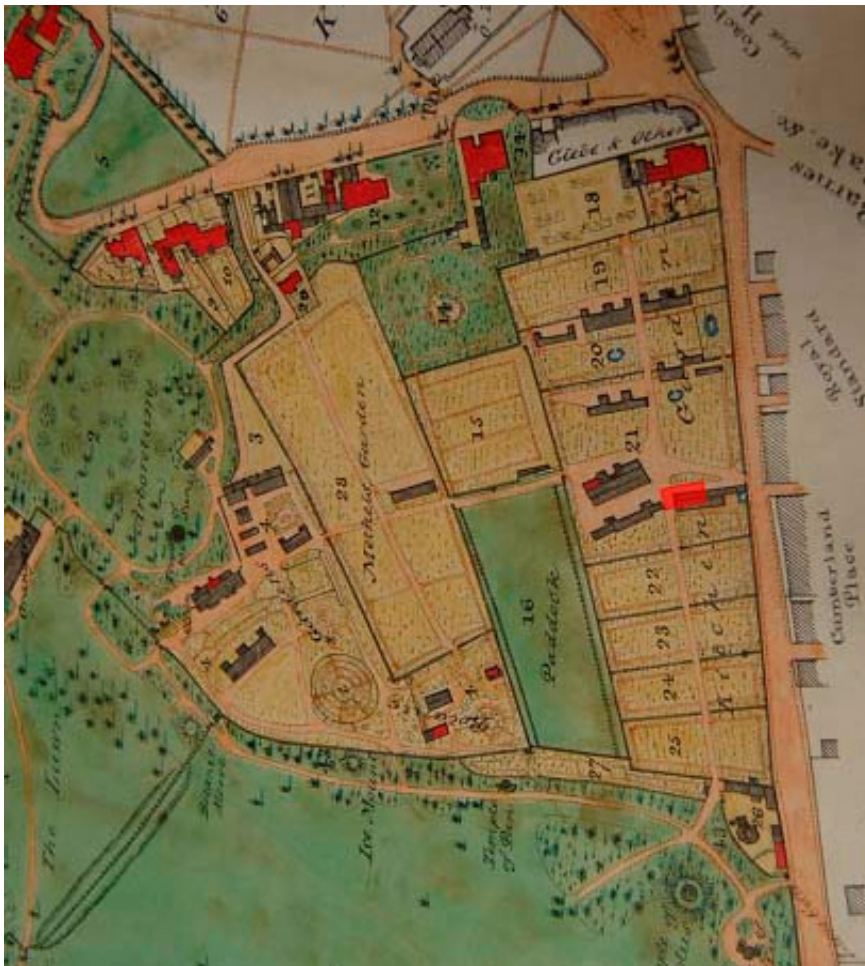


Fig. 10 Extract of the 1840 ‘Plan of Kew Gardens and other lands and premises in the parish of Kew and Richmond, Surrey belonging to her Majesty’ by E and G N Driver. The site area is shown in red (our addition to locate the site) and the map base has this area as grey in colour, it is possible that the red used on the original map base refers to dwelling houses as we know by 1840s that the northwest corner of Museum No 2 was

used as the house of the Head Gardener. Reproduced with kind permission of the Archives, RBG Kew.

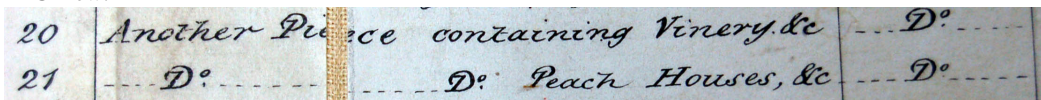


Fig. 11 Extract from the key of the 1840 map shown in Fig 9, detailing the contents of the plot labelled 21 in which the site is located. The 'D°' means 'repeat the above information here' (i.e. ditto)

- 5.18** The investigation's report was produced on the 12th March 1838, but was not officially presented to parliament until the 12th May 1840²³. The report recommended that the total number of royal kitchen gardens be reduced to two, leaving just Windsor and Kew. The, then, head gardener (or foreman, as the role was otherwise known, a role of high rank), John Aldridge²⁴, was congratulated on Kew's contributions. As a result of the praise, it was also recommended that the gardens be extended using the four acres of land marked as *Paddock* and belonging to the King of Hanover. An increase in the Kew kitchen garden budget was advised, notably some of this was set aside for the construction of new forcing houses²⁵.
- 5.19** The 1840 map (Fig 10) shows the study area in much greater detail, a building is shown in the archaeological site area, and there appears to be an additional larger building abutting the original building to the north and extending almost up to the Kew Road frontage. It would appear that the northern building is the later addition, from analysis of the spatial relationships of the general buildings in the area from the earlier plans. It is unfortunately unclear which of these, if either, is the building uncovered in the 2007 excavations and it is possible that all these buildings are not accurately portrayed on this plan, but are a schematic representation of the general layout of the buildings at the time. This is apparent when one looks closely at both the 1837 reproduction plan and this map and notes that very few of the buildings shown are comparable, all are slightly larger or smaller or have extra bays or slightly different spatial relationships. It is possible that some of the apparent changes may reflect the increase in the garden budget (*cf.* section 5.18 above) and a general phase of enlargement and rebuilding of the kitchen garden. From the stratigraphic evidence revealed in the 2007 excavations it does appear that the southern brick structures on the site are of an earlier phase, with a later phase of walling to the north possibly part of a second building. However, this in itself may not truly indicate the presence of two contemporary buildings as shown on the 1840 map, but may represent a rebuild of the northern wall of a single building on the site, with a possible second building potentially surviving to the south and beyond the area of excavation and it may be this that is depicted on this map. This second theory is less likely as the stratigraphic analysis did indicate a second/later phase of building to the north of the main structure and during the groundworks, before the archaeologists arrived on site a further brick wall stub was noted to the north of the exposed structures (Fig 21 and see section 7.4,

²³ Campbell 1984

²⁴ Some references have the gardener as John Smith at this time, but Burton refers to John Aldridge.

²⁵ GB Parliament, House of Commons. *Copy of the report made to the Committee appointed by the Lords of the Treasury in January 1838 to inquire into the management etc. of the Royal Gardens, by Dr. Lindley...who... made an actual survey of the botanical garden at Kew, in conjunction with Messrs Paxton and Wilson, two practical gardeners in the month of February 1838.* London, 1840. (H of C paper 292. 6pp.)

context [066]). The Museum No. 2 building is also shown in much greater detail and appears to be divided into three longitudinal internal strips. The map and caption show the land use for specific buildings, a *vinery* and *peach houses*, which gives us the first indication of the actual function and nature of the building seen in the site area. The map also labels the garden as *Kitchen Garden* and shows this in relationship to the Methold's Garden (misspelled here as *Methels Garden*) and *Paddock* as previously discussed.

- 5.20** In 1841 the ownership of the gardens at Kew were transferred from the Crown to the government, specifically to the Office of Woods and Forests. However, the kitchen gardens (in addition to another small plots of land) were the exception to this and remained under the Queen's jurisdiction.

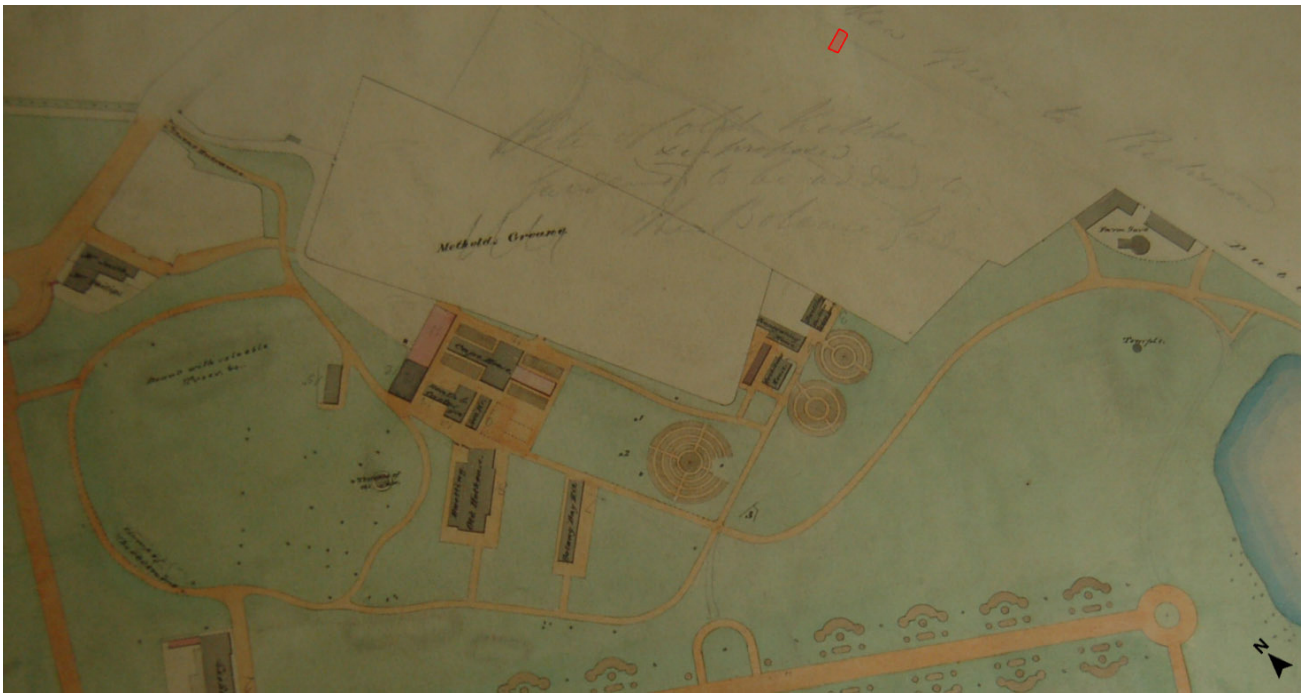


Fig 12 Extract from the '*Royal Botanic Gardens Kew General Plan of the Gardens*', by Decimus Burton, dated January 1845. The pencil annotation just south of the site reads '*Site of old kitchen gardens to be added to the Botanic Garden*' which presumably includes the study area. Reproduced from the Archives, RBG Kew.

- 5.21** This 1845 map shows the intended plan for the kitchen gardens to be added to the main botanic gardens (Fig 12). In 1846, when a kitchen garden was built at Frogmore (adjacent the royal residence at Windsor Castle) the royal family had no further use for the one at Kew. The area of the kitchen garden was then given to the rest of the gardens under the care of Sir William Hooker (1785-1865), the first director of the gardens. The study area land was then to be used for hardy herbaceous plants, and labelling on later maps confirms this use.

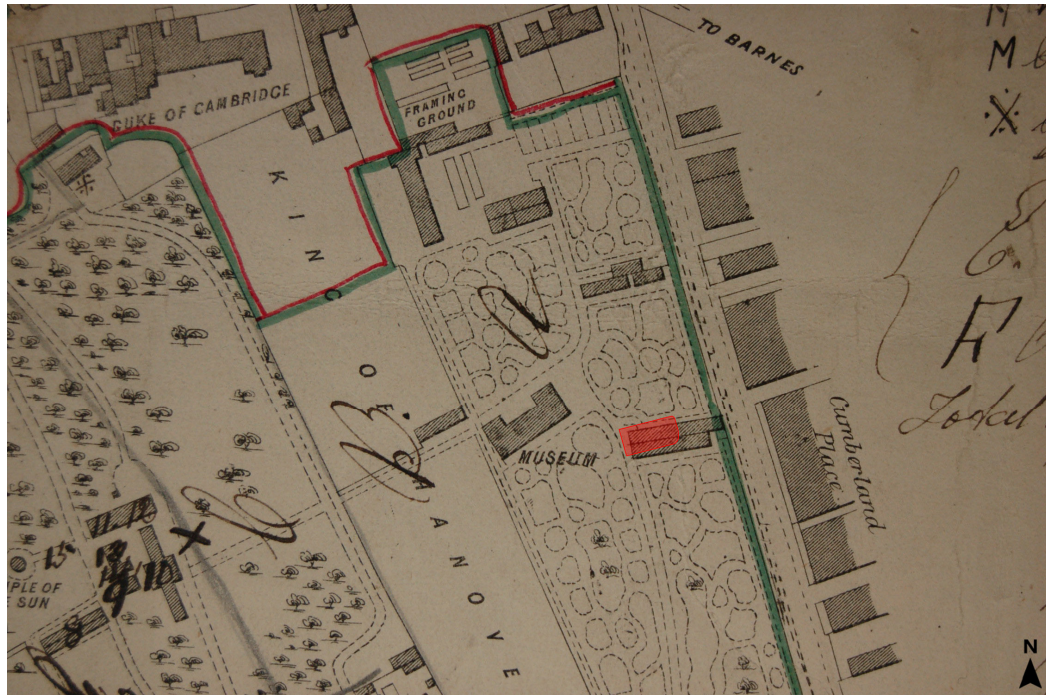


Fig 13 Extract from Map of Kew Gardens and Park in the County of Surrey, 1851, illustrator unknown. The annotation 'a' given in Fig 14 below. Reproduced with kind permission of the Archives, RBG Kew.

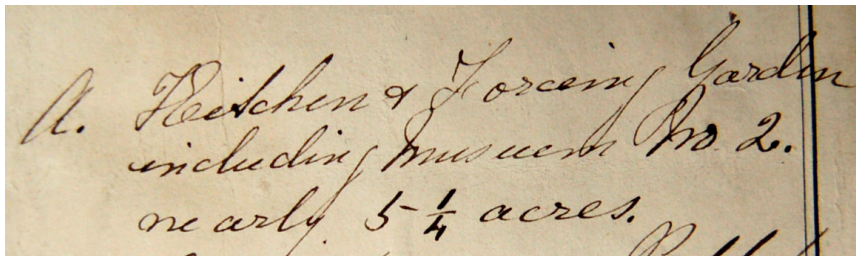


Fig 14 The key caption from the 1851 map in Fig 13 above

5.22 The map shown as Fig 13 (and associated key Fig 14) shows that by 1851 the building which had previously been used as a fruit store, gardeners' mess room, packing room and the residence for the foreman was now converted to a Museum²⁶. The study site is still occupied by two abutting buildings, with no indication as to their exact use unlike the nearby Museum. It is evident that the hand written ink annotations are a later addition as it refers to the museum as Museum No. 2, a name not given until 1857 when a new purpose built museum was opened elsewhere in the gardens taking the name Museum No.1. It is unclear from the annotations if these were descriptions of the land use in 1851, or whether these refer to earlier or even later land use.

5.23 The conversion of the fruit store and foreman's residence into a museum followed Hooker's instruction to Decimus Burton, the architect responsible for many famous buildings in Kew. The intention was to create a temporary museum until a purpose

²⁶ Desmond 1995

one could be built (the later 1857 Museum No. 1). Burton's plans can be seen above as his General Plan Fig 12 and below as his drawings for the redevelopment of the fruit store Fig 15. From the appearance of the present building, it is clear that this design was actually adopted, and these works took place in 1846. The building being known as 'the Herbarium' and opened as the Herbaceous Ground Museum in 1848 and achieving instant success²⁷. By 1853, a reported 4500 herbaceous plants were growing in the study area in the former kitchen gardens.

Kew

*Drawing reference to in
Mr D. Burton's Letter dated
July 25 1846*

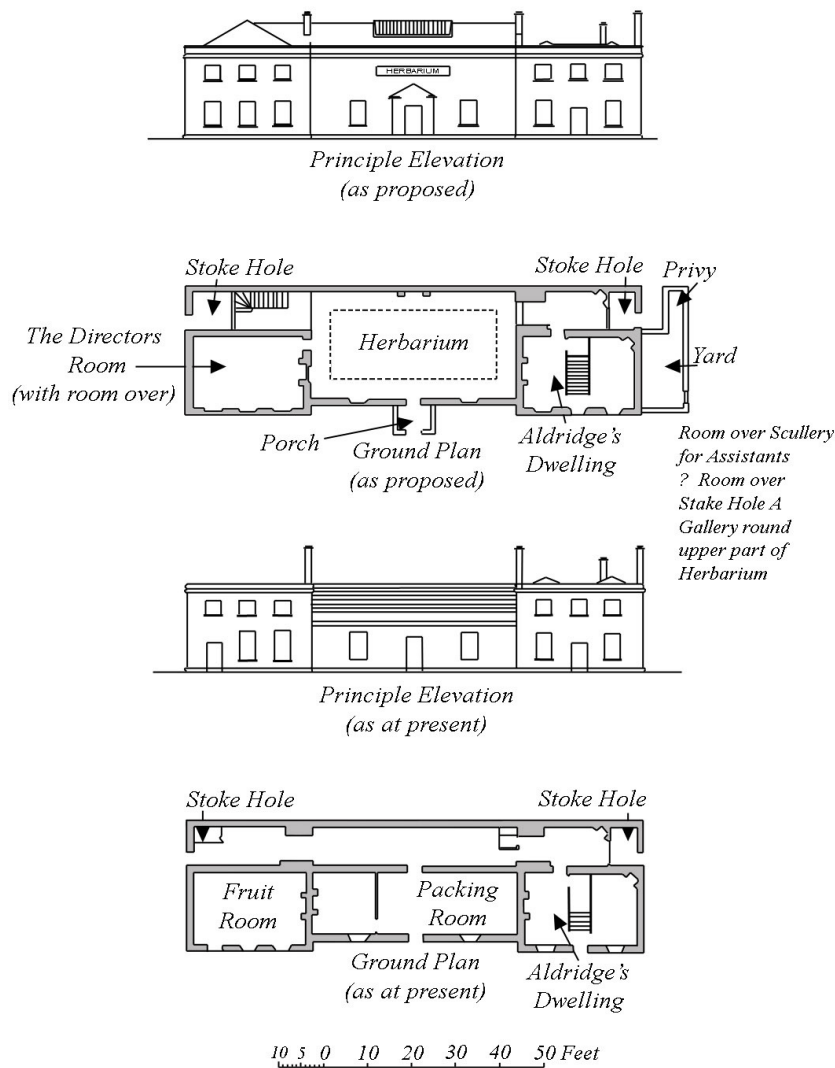


Fig. 15 Reproduction of Burton's plans of old and new building of the Herbaceous Ground Museum. The sketch third from the top is the only surviving record of the original fruit store²⁸.

²⁷ <http://www.kew.org/heritage/timeline>

²⁸ From original illustrations in Desmond 1995: 192, but redrawn for reproduction purposes.

5.24 In the 1846 rebuild the central range of the old fruit store building was doubled in height to form an open exhibition space, lit by a central roof light and a cantilevered balcony was installed at first floor level with an iron handrail. The upper and lower levels were lined with glass fronted mahogany cases. The east end range of the building, the fruit room, was raised in height, divided into two floors and a stair inserted. The north façade at this end was altered and the front door replaced by a window. The building was extended by nine metres to the west in 1881 and, as has been noted, the single storey lean-to extension was added to the rear in the 20th century. Other modifications have also taken place (lowering of the sloping roof, removal of chimney stacks, and addition of two round windows on the second floor either side of the main entrance).



Fig 16 The Georgian Grade II Listed former fruit store building, view looking southeast. Restoration works in the 1960s replastered much of the brickwork (much in cement) and the original flush pointing style (possibly ‘penny point’) cannot be seen. © John Lonsdale, RBG Kew.



Fig 17 The rear of the Museum No. 2 building, view looking northwest, the red brick parapet has obviously been rebuilt at some stage © John Lonsdale, RBG Kew.



Fig 18 The north east corner of the Museum No. 2 building, looking southeast. The dark London stock brick courses can be seen.



Fig. 19 Extract from the 1884 Ordnance Survey series.

5.25 The 1884 OS map shows no building in the study area; given the accuracy of the Ordnance Survey series by this date, and the historical records, it is evident by 1884 the buildings previously occupying the site, were demolished, probably as part of the works associated with the creation of the Herbaceous Ground Museum (Museum No. 2 after 1857). It is also possible that 18th century bricks from the demolition of the structures that once stood on the study site were reused in the rebuilding of the fruit store to form the museum as the elevations of the museum show contemporary materials were generally used. The site area is now part of the Herbaceous Ground and the former fruit store has been altered in accordance with Decimus Burton's designs as the shape is now rectangular rather than like an 'U'. The central portico juts out from the two storey ranges at either end, the central range projecting slightly forward as was indicated in Fig 15. There also appear to be a two long and narrow buildings adjoining to the southern wall of the museum, for which no function is given, but they are no doubt the forerunners of the glasshouses that survive to this day.

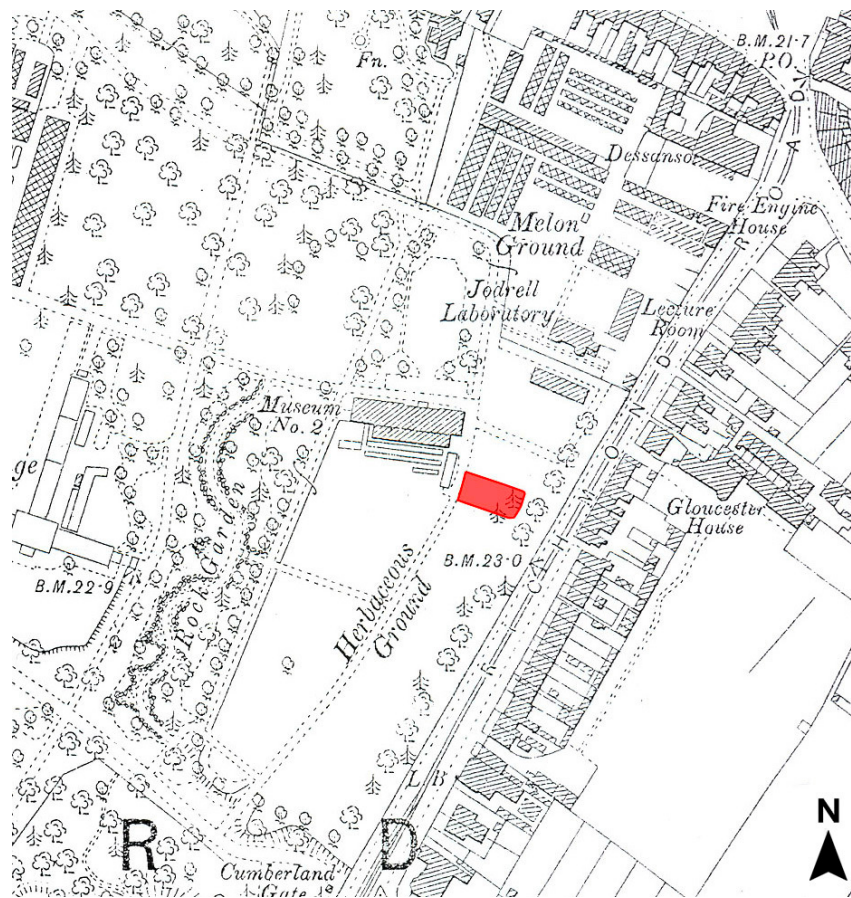


Fig. 20 Extract from the 1894 Ordnance Survey.

5.26 In this map we can see the continued use of the site as cultivated land, devoid of buildings. The Museum No. 2 has been extended to the west, and a series of further out buildings have been added to the south. The path on the eastern side runs follows the same course as that in the present day, along the line of the rose pergola (constructed in 1959). The more recent developments include the construction of the

Order Beds, the cessation of the use of the Museum No. 2 building as a museum and its conversion to the School of Horticulture in 1990²⁹.

6. Fieldwork methodology

6.1 As has been stated the fieldwork was carried out in accordance with the 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*), where appropriate for a rescue archaeology and preservation *in situ* programme.

6.2 The excavation area was dug from the surface left by the current groundworks and from where the concrete bays for the new student plots had already been cast. There were seventeen new concrete lined bays and archaeological deposits could be seen in the intervening open areas at the southern half of the site. It was proposed to carry out rescue archaeological recording in the nine southernmost bays and the location of these is shown on Figs 2 and 21. The archaeological bays were numbered 1 to 9 and throughout this report archaeological deposits are discussed in relation to either their Bay number and by their own discreet archaeological Context number (shown in square brackets i.e. [001]).

6.3 The recording work involved the cleaning up of an area approximately 11m N-S by 23.5m E-W and all work was undertaken by hand excavation work, no mechanical excavation techniques were used as the archaeological deposits had already been affected by the reduction of the site for the laying of the concrete frames for the New Guild Student Beds. Recent deposits and undifferentiated soil horizons were removed to expose primary structure and surfaces relating to the principal brick work structures exposed during the contractor's groundworks. After this surfaces and sections were investigated by hand, recorded and photographed by the on-site archaeologists. Excavation was generally to the top of the first archaeological horizon removing modern fills and disturbed material, although some overlying deposits were left *in situ* where appropriate, with preservation *in situ* taking place beyond this point. Natural deposits were not encountered, although a clean light brown/yellow silty clay subsoil was evident in several locations across the site ([22] and [056]).

Compass Archaeology are grateful to the staff of Blackmoor Maintenance Services (BMS) for their assistance in removing recent deposits and undifferentiated soil horizons to allow the archaeologists to expose the top of the archaeological deposits.

6.4 At the conclusion of the fieldwork the trenches were left open in preparation for backfilling with the appropriate preservation *in situ* materials as specified by English Heritage. All the preservation *in situ* work was undertaken by the Royal Botanic Gardens Kew.

6.5 The deposits and features exposed in the investigation were recorded on *pro-forma* context sheets (excluding recent material) and by scaled plan and section, supplemented by appropriate photography. Levels were derived from an internal site survey carried out by the Kew Survey team and calculated from a TBM located at the

²⁹ Royal Botanic Gardens, Kew. Site Conservation Plan 2002

southwest corner of the greenhouse that lies just to the west of the site and runs north-south value +6.31m AOD. This was checked against an OSBM on the Kew Road (value 6.3mOD, *cf.* Fig 2 for locations).

6.6 The fieldwork was located to the existing site boundaries by taped measurement, with the resultant plan in turn related as a ‘best fit’ to the Ordnance Survey grid as derived from the 1:1250 map. Additionally the site was surveyed by EDM by the Kew surveying team and the site plans located on the National Grid.

6.7 The records from the fieldwork have been allocated the site code: RBG07 by the Museum of London Archaeological Archive. An ordered and indexed site archive will be compiled in line with the MoL *Guidelines* and will be deposited either in the Museum of London Archive or in the Royal Botanic Gardens Kew Archives.

7. The archaeological fieldwork (*Figs 21 forward*)

7.1 Summary of the findings

The archaeological fieldwork involved cleaning and recording of the extant archaeological features with the aim that the site would be preserved *in situ*. Archaeological recording did not dismantle the surviving remains and, therefore, some stratigraphic relationships could not be fully ascertained. A small brick and mortar sample was, however, retained from each of the principal structures and the excavation of a single small test pit alongside the major walls determined the depth of principal foundations. Fig 21 shows the principal archaeological contexts recorded across the site and a detailed description of each of these contexts is given in section 7.4. A brief summary of the archaeological remains in each bay is given below in the order that the bays were investigated.

7.2 Discussion of archaeological deposits in Bays 5, 6,7,8 and 9 (Fig 21 and 22)

The eastern half of the site was excavated first (Bays 5 to 9) as this area initially had produced the first evidence for buried archaeological deposits.

7.2.1 The main feature of this area was a series of large brick E-W wall foundations [001], [025], and [028]. Collectively these form the southern and northern (two parallel walls to the north) walls respectively of the large rectangular building that appears on historic maps between 1771 and the 1850s (*cf.* section 5; *Figs 5 forward*)³⁰. Associated with the wall foundations were trench built foundation cuts [002], [026] and [029], which at depth cut into the natural silty subsoil [022]. It appears that wall foundation [025] predated the construction of foundation [028], and appears to have chipped away the northern face of the earlier foundation during its construction. Wall [025] was evidently standing when [028] was constructed as there is a 5cm void between the two walls which is filled with rough mortar from [028] which has spilled into the void. The single exposed face of each wall is neatly flush pointed and whitewashed and obviously this could not be repeated on the internal face of [028] as the existing wall was in the way.

³⁰ These features continue into Bays 2 and 3 and here are recorded as contexts [055], [037] and [039], with a north-south returning wall [050] (also assigned context number [061]) *cf.* discussion in section 7.4).

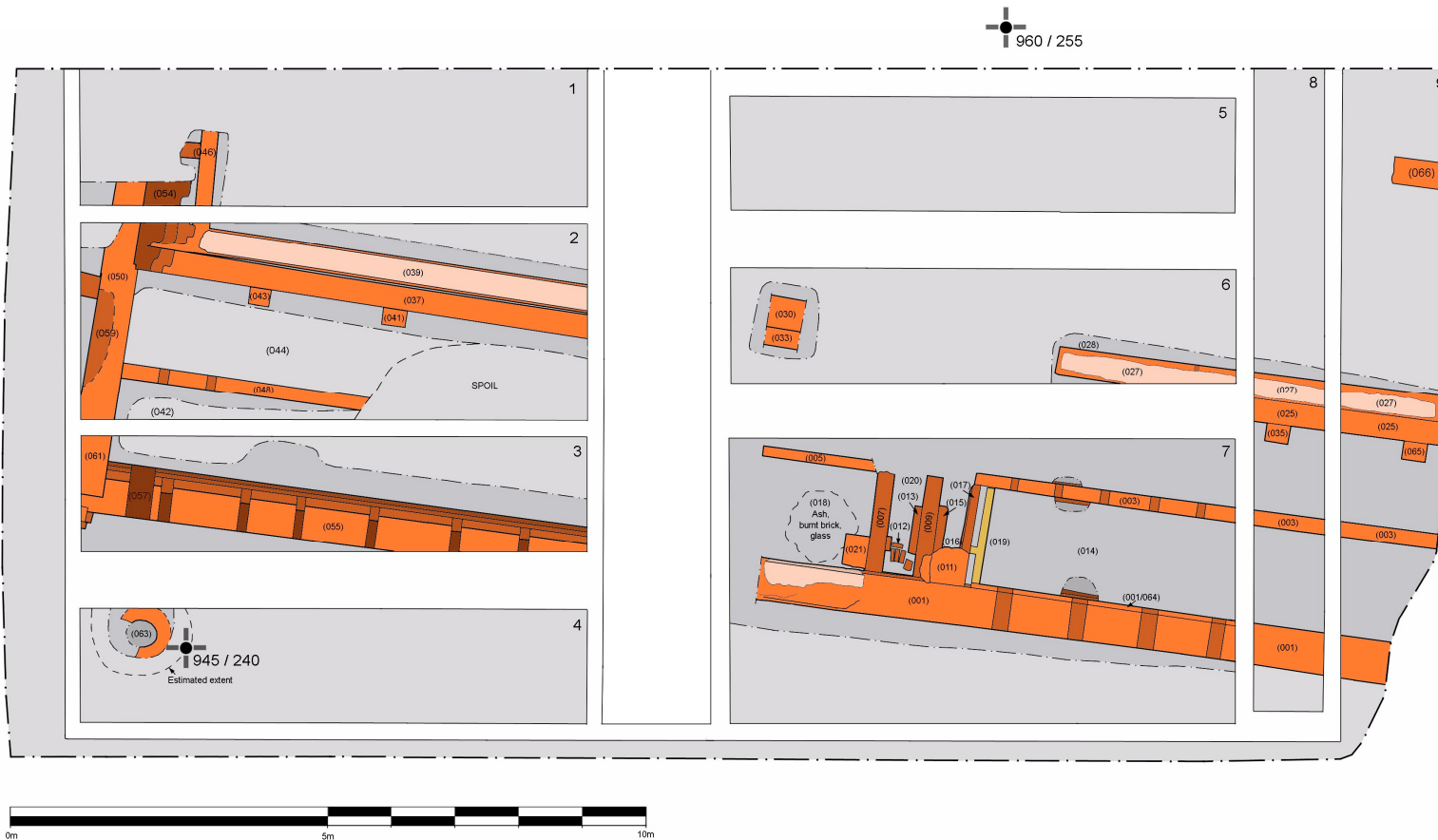


Fig 21 Site plan showing the area of excavation in the southern half of the New Student Guild Plots site with principal contexts shown by context number. The Bays are numbered 1 to 9. The features shown in orange represent principal walls, the features in a darker shade of brown/orange are either defining structural elements of the principal wall such as the teething for drainage in the southern wall [001]. The areas shown in much darker brown represent area of deeper deposits. The areas of lighter beige represent areas of the wall with significant mortar scars surviving. The stratigraphically later wall [019] is shown in yellow.



Fig 22 Aerial view of the excavation area, looking east. Bays 1 to 4 are in the foreground and Bays 5 to 9 in the distance. The principal features can be identified by comparison of this figure to Fig 21 and by using the list of contexts in section 7.4.

7.2.2 In Bay 7 Foundation [001] survived to a maximum of seven courses in height and was more substantial than the parallel east-west wall bases, being some 550mm thick and having three definite stepped foundations. The foundation had numerous cavities built into its length at irregular distances (*cf.* Fig 22)³¹. It is not known at what depth the

³¹ This foundation continues as [055] in Bay 3 and has again large cavities, many of which are whitewashed on the interiors including a large drain or water feature at the western end [057].

construction of the building began or whether all the features on the site are foundations or potentially subterranean elements possibly associated with the underground heating of the building.

7.2.3 The nearby contemporary Georgian fruit store building has a basement boiler and the plan shown in Fig 15 has two stoke holes at each end of the rear southern wall of the building. The fruit store has a ground floor level of approximately 6.4mOD, which places the 18th century ground surface at only about half a metre above the height of many of the structures recorded on the site. If the building was demolished in the 1850s to 1880's to the level of the foundations it is probable that the structures discovered represent the intersection between buried foundations and upstanding walls, rather than subterranean structures.

7.2.4 Therefore, the first element of the building to be constructed would have been the external walls, a shadow of which is visible as the mortar scar [027] visible on the top of the wall base [028], probably indicating the central location of the wall. No clear evidence for the walls survived, although a series of internal brick divisions were evident within the building.

7.2.5 The major internal division was an east-west running central narrow 220mm wide red brick wall [003], which divided the building into two long east-west strips, not unlike how the fruit store was originally divided (Fig 15)³². The northern strip measuring 1.4m (4ft7") wide and the southern strip 1.5m. (4ft11") wide³³ and enclosed an area of disturbed silty soil [014]. In the centre of the building in Bay 7 a complex area of internal dividing walls were recorded and these are shown below in Fig 23. This area is discussed in detail in the context lists and stratigraphically in the matrix for this area.



Fig 23 Detail of central deposits in Bay 7, showing in red the more major structures adjacent to main wall foundation [001] (at the top of the picture with the scale lying on

³² Also assigned context no. [005] and in Bay 2 [048].

³³ The two bays in the fruit store building measure approximately 10ft at the rear and 15ft at the front.

top), later features are shown in green possibly relating to a later phase of works for a area of central heating or division and finally, in purple, one of the five small brick pad bases found internally in the large structure.

- 7.2.6** The central brick structures were not fully excavated and preserved *in situ* so their intricate stratigraphic relationships and functions cannot be determined. What can be said is that the area had obviously been rebuilt and altered at subsequent stages and that a significant amount of burnt residue was present in the surrounding area [020], [016]. There appears to have been some heating element associated with this configuration of brick structures that may relate to the internal cavities in foundation [001] and in the internal division [003]. Two principal phases could be determined as the brick fabrics and sizes were of two generally distinct types, although the sample bricks from wall [015] were slightly smaller and perhaps part of a separate batch.

7.3 Discussion of archaeological deposits in Bays 1, 2,3 and 4 (cf. Fig 21 and 22)

- 7.3.1** The main feature of this western area was again a series of large brick E-W wall foundations recorded as contexts [055], [037] and [039], but being a continuation of [001], [025], and [028] respectively in the eastern bays, but this time with a north-south returning wall [050] (also assigned context number [061]). Associated with the wall foundations were trench built foundation cuts [056], [038] and [040], which at depth cut into the natural silty subsoil, recorded here as [058], but not archaeologically distinct from [022] in Bay 7.

- 7.3.2** Again it appears that on the northern side of the building the southernmost foundation [037] predated the construction of the northernmost one [039], and a north-south return was also evident to wall foundation [039] running north into Bay 1 [046]. It is possible that when a line is postulated between [046] and the stub wall recorded as [066] in Bay 9, that a further building can be postulated lying to the north of the primary building. However, no other remains were visible for this building and further information is simply not available. It is possible that it may remain preserved *in situ* under the Kew Guild Student Vegetable Plots or that these small indications of brickwork structures may relate to much smaller outhouses or furnaces etc to the north of the main building. It is tempting to consider, however, that the two buildings shown on the 1851 map (Fig 13) may survive on this site.


- 7.3.3** Again, the first element of the building to be constructed would have been the external walls, a shadow of which is visible as the very compact mortar scar [036] on the top of the wall base [037], probably indicating the central location of the wall. No clear evidence for the walls survived, although a series of internal divisions were evident within the building and a series of small (less than 500mm²) roughly square brick pad bases were also encountered (cf. Fig 21 for locations). These bases [041] and [043] in Bay 2, [035] in Bay 8, [065] in Bay 9 and [021] in Bay 7 were all freestanding of the adjacent walls, internal and had shallow foundations, being constructed straight onto the clean silty subsoil [022] (and [058]) at about 300mm depth. These features also had mortar scars surviving on several of them, and base [041] had a distinct circular mortar scar [052]. This might perhaps suggest that the base once supported a circular upright or that a small sculpture or vase like pot may have stood on these ornamental dark London stock brick bases, as is recorded in 18th century orangeries especially in



- Italy³⁴. The domestic nature of these buildings within the kitchen gardens would, however, suggest a more practical interpretation of this feature. What is apparent is that these bases did not form parallel pairs across the greenhouse.
- 7.3.4** Again in the western bays the major internal division was an east-west running central narrow (220mm wide) internal red brick division [048] visible in Bay 2, which again divided the building into two long east-west strips. The centre area of the western bays was not fully exposed as no features were evident at the level of the new building works and also the central area was truncated by the construction of the large cast concrete central walkway between the two sets of plots.
- 7.3.5** In wall foundation [055] in Bay 3 numerous large cavities were evident, many of which had whitewashed interiors. Also integral to this foundation was a large deep cavity possibly a drain or water feature at the western end [057] as the surface had been whitewashed and there was no evidence of burning. This is possibly linked to the well or soakaway [063] to the south in Bay 4. It is also possible that this feature is a stoke hole as shown on Burton's plans of the fruit store (Fig 15), which has a similar feature at each end of the southern walls, although it appears that the stoke hole in the fruit store may have been up to 3ft wide.
- 7.3.6** As had been recorded in Bay 7 a further area with much evidence of burning was encountered in the northwestern corner of the site in Bays 1 and 2. This could not be fully excavated, but again may be an indication of the heating regime for the building. With significant raked out deposits of soot and ash and the bricks in wall [050] had turned bright red in places owing to burning. The walls and deposits in the western corner of Bay 1 [054], [046] recorded in plan and now preserved *in situ*, the exact nature of these deposits could only be understood by detailed excavation of these areas.
- 7.3.7** No internal floor layers or obviously imported material like rubble, bark, stone etc was present within the building. Within the footprint several mixed soil layers were recorded [014], [016], [018], [020], [042] and [044] although all of these had been disturbed by the recent groundworks on the site. No finds from secure contexts were encountered, although a great deal of post-medieval debris was recorded in the form of coarse pottery, tile, clay pipe and brick from the overlying cultivated soil layers and from the demolition debris. A small group of post-medieval ceramics being a typical mixture of flowerpot materials and the occasional sherd of utilitarian coarse ware were retained for identification. A single fragment of broken clay pipe stem was also discovered in context [016] although it may be intrusive.
- 7.3.8** The surviving structural remains and historic sources together provide good evidence for the nature of the standing building, which evidently formed a large rectangular east west garden structure and most probably a 'forcing house' as described in contemporary records. It is likely that it was single storey with at least two internal divisions. It appears that the building was heated centrally and with another heat source at the western end. From the available evidence it seems most likely that a further similar structure stood to the immediate north of this building. Although the brickwork itself is not closely dateable it is consistent with the second half of the 18th century, a date verified by map evidence (*cf.* section 5).



³⁴ Koppelkamm, S. 1981


7.3.9 The overall depth of the building between the external faces of wall bases [001]/[055] and [025]/[037] was *c* 4.6m. The overall exposed length was about 21.5m east west although the building clearly continued towards the Kew Road to the east. The location and dimensions of the footings closely coincide with the historic map record, as for example derived from the 1771 plan and superimposed on the site plan (Figs 6 to 10).


7.4 List of recorded contexts (cf. Figs 21 to 23 for locations)

Context	Bay no.	Description	Interpretation
+	All	Mixed deposits; generally darker brown-grey soil with variable amounts of building rubble.	Recently disturbed made ground overlying principal features.
001	3 as [055] 7 8 9	Solidly mortared E-W red brick wall foundation (<i>c</i> 550mm thick) with ten drainage or heating holes (teeth) evident along the length of the foundation (including [055]) at irregular intervals, but generally about 1m apart. Extends for 7.8m in Bay 7 and a further 2.10m in Bays 8 & 9, where it continues beyond the edge of excavation. Becoming foundation [55] in Bay 3 and extending here for another <i>c</i> 8m. With the areas truncated by the modern concrete this gives a total length of this wall base as <i>c</i> 21.1m (approx 69 ft). Generally up to four courses (270mm) extant (now preserved <i>in situ</i>). English bond with a compact cream/yellow lime mortar with flush jointing. Whitewashed drainage holes (possible flues) evident along the length of the wall footing (cf. Fig 21). Small trial trench excavated to base of footing revealing the wall base to survive to a depth of <i>c</i> 630mm deep (at least seven courses). Top of wall base at highest point +6.05m OD and at base of wall footing at +5.15m OD. See also context [064].	Very substantial wall footing for southern exterior wall of large red brick 18 th century greenhouse. <i>Right: View of truncated end of [001] from west end of Bay 7 looking east. Base [021] to left.</i>
			
002	3 as [056] 7 8,9	Cut for wall foundation [001] apparently trench built, as no evidence of a foundation trench for a freestanding wall and with clean fine silty clay [022] adhering to both faces of wall and overlapping stepped footings.	Cut for large east-west wall foundation.


003	7	Very solidly mortared narrow E-W red brick internal division wall foundation across bays 7, 8 and 9 and becomes [005] and [048]. One stretcher wide (103mm) and steps out in a single footer ½ brick step at depth of 240mm from top +5.73mOD. Five irregular teeth holes evident in top surviving course (highest point +5.97), possibly for drainage or for heat circulation. English bond with thick cream yellow and grey patchy mortar with large flint inclusions, only chippable with point of trowel. This wall runs parallel to and is approximately 1.4m (4ft7”) away from wall [025] and approximately 1.5m. (4ft11”) away from wall base [011].	Narrower wall base or internal division within the 18 th century greenhouse, for internal bays or raised beds. 
004	7	Cut for foundation [003]. Possibly there was no cut for this wall, but this could not be fully ascertained, as the area was preserved <i>in situ</i> .	
005	7	Continuation of internal E-W wall division [003], but further west in Bay 3, truncated to east and west by modern disturbance.	Continuation of central dividing wall [003]
006	7	Cut for wall foundation [005]	Foundation cut for wall [005]
007	7	Compactly mortared red and yellow frogged stock brick N-S internal wall division, running between and abutting walls [001] and [005], one stretcher (213mm) wide and extends for 1.55m. English bond in plan, very white thick mortar. Only seen in plan, but a small amount of whitewash visible in east face. Later than [011] and similar in appearance (although wider than) to [013]. Top of wall at +5.92m OD.	Small secondary phase internal wall or frame division. Not fully excavated as preserved <i>in situ</i> . Related to several contexts connected with the area of burning.
008	7	Shallow linear cut for wall footing [007]	Shallow cut for wall base [007]
009	7	Compactly mortared red brick internal N-S wall division, one stretcher thick (210mm) and up to 1.58m long, with three courses visible, similar to but earlier than [007] to west. Relates to nearby contexts, being earlier than [011] (stratigraphically, but all these contexts are broadly contiguous), contiguous with [015] and [017]. The northern end of the wall survives to +5.88mOD and appears to have a stopped end and the southern end disappears beneath [011] at +5.95m OD. Preserved <i>in situ</i> and not disturbed.	Small internal wall or frame division. <i>Below: Wall [009] visible behind small wall [015] in forefront, clearly overlain by brick structure [011] to right of image.</i> 



010	7	Shallow linear cut for wall division [009]	Cut for wall base [009]
011	7	Complex area of level (+5.95m OD) red brickwork located adjacent to and abutting [001] but possibly contemporary with [001]. Physically overlies internal walls [009], [015], [017] and stratigraphically [003]. Very compact cream white sandy mortar bond, measuring 700mm E-W by 600mm N-S. Earlier than adjacent walls [013], [007] and [019].	Flat area of horizontal brickwork, abutting but potentially contiguous with [001], [064], see Fig 23. 
012	7	Five slumped or displaced frogged burnt bricks (exposed faces turned brown by burning), set on edge on a loose sandy bond in the area north of [001], between [007] and [013]. Brick dimensions 232mm x 103mm x 67mm.	Area of firebricks set on edge near area of complex brickwork and burnt soil deposits. Function unknown, but possibly relating to the area of burning to the north and possibly part of a stove or furnace for the greenhouse, cf. Fig 23
013	7	Small section of narrow red and yellow frogged brick internal N-S wall division, one footer thick and only a few bricks surviving so coursing not determined, appears to be 1.10m N-S. White sandy loose crumbly mortar. Adjacent and to the east of internal wall [009] at +5.90m OD.	Small internal wall, obviously later than adjacent wall [009]. Similar in appearance to parallel wall [007], cf. Fig 23
014	7	Mixed mid brown silty soil deposit, frequent inclusions of modern demolition rubble. In plan 4m E-W by 1.5m N-S. Intrusive elements including concrete, but probably in origin a bed or surface inside the green house. No significant evidence of burning, survives at +5.77mOD. Preserved <i>in situ</i> so not fully excavated. <i>Right: [014] visible between wall [001] to left and [003] to right and with internal partition [019] running between at the top of the image.</i>	Originally an internal cultivated soil deposit or formation deposit now disturbed. 
015	7	Loosely mortared red brick internal N-S wall division, one footer thick and up to 900mm visible, possibly extends under [011], only seen in plan (one course). Pinkish mortar with flint inclusions very friable almost sand like. Probably contiguous with wall [009] and [011] but using different materials.	Narrow internal division wall, later than main structure but using smaller hand made bricks 230mm x 100mm x 40mm. See Fig 23



016	7	Loose generally darker brown-grey/black soil with frequent inclusions of burnt materials including mortar, brick, sand, glass fragments in a sooty silt matrix, in plan 550mm E-W x 1.10m N-S. Recently disturbed deposits abutting principal features (overlying [011]) and containing lots of burnt residues, perhaps the raked out debris from an internal heating system or possibly an imported material to add nutrients to the soil.	This deposit was preserved <i>in situ</i> so its exact nature could not be defined, concentration of building debris suggests a functional structural purpose rather than as an imported horticultural deposit.
017	7 3	Narrow red brick foundation running N-S. One stretcher wide at north end, narrower at southern end. Appears to be north-south return of E-W wall [003] or at least contiguous with [003].	Internal division wall, similar phasing to [009], [011], [015] See Fig 23.
018	7	Medium compaction dark brown/grey clayey silt adjacent to wall base [001] and south of wall [005], measuring 1.55m E-W x 2m N-S. Contains significant evidence of burning.	Possibly an internal dumped deposit, but containing building debris, soot, ash, glass so more likely demolition rubble.
019	7	Later loosely mortared N-S internal yellow stock brick division (<i>c</i> one footer thick (103cm) and up to four courses (300mm) extant. Constructed against internal division [017] and walls [001] and [003]. Very easy to dismantle with white mortar and flush pointing. Appears English bond, but built with irregular half bats and very occasional stretchers (two in total) to create an internal void (<i>cf.</i> Fig 23).	Narrow internal division within greenhouse, probably not structural. With brick voids when viewed in plan perhaps these were for flues for heating. Obviously a later addition.
020	7	Area of mixed silty soil deposit which much evidence of burning and possibly containing burnt bricks [012].	Central area of burning, burnt soil deposit, soot, ash etc.
021	7	Rectangular/square freestanding dark purple frogged brick pad base. Solidly mortared and independent of all surrounding walls, measures 300mm E-W by 500mm N-S and three courses visible. Shallow foundations and abutting wall [001]. Similar structures survived in Bays 2, 3, 8 and 9 again on the northern (interior) side of exterior wall [055] in Bay 3 and to the southern side (interior) of exterior wall [037] (Bay 2) and [025] Bays 8 and 9. Survives to a height of +6.09m OD. Not spaced parallel to each other so not pairs of bases.	Internal base or pad for an upright support. <i>Below: base [021] with wall base [001] to right of image.</i> 


022	7	Moist compact mid grey/brown fine clean silty clay, some modern intrusive inclusions but becoming cleaner at depth. Extends to base of footings on southern side of wall [001].	Natural sub-soil deposit, through which wall [001] was constructed
023	7	Fill of small tooth in brick walls [001] and [064] a fine clean silty clay with small mollusc clusters. Analysis of mollusc sample from this apparent drainage feature showed the mollusc like samples to be the eggs of one of three species of shelled slug <i>Testacella</i> . All eat earthworms and can burrow deep in cultivated soil, none are aquatic and the sample was probably quite recent ³⁵ .	Silted up fill of small drainage tooth [024] in wall [001]. <i>Below after excavation and also showing [018] sooty soil deposit.</i> 
024	7	Small structural hole through wall foundation [001], [064], narrower than other holes in this wall base 170mm N-S x 630mm E-W (two courses 170mm) high. See image above for [023].	Structural void or tooth through wall, see image above, probably for drainage as not generally large enough to be training roots through. Also, probably too small and too deep for a stoke hole.
025	6,8,9	Very compactly mortared major red brick external E-W foundation, 330mm wide, and crossing Bays 6,8 and 9 and becoming foundation [037] in Bay 2 and also surviving as small section [033] in Bay 6. Variation on English bond in places with a grey/cream lime mortar, but only external (southern) face is whitewashed or lime washed. Does not appear to have voids as evident on other bases, cf. [037]. Survives to height of +5.97m OD at highest point.	Large wall base. The northern wall for the greenhouse, possibly abutting [028] or has been replaced by the construction of wall [028]. It appears that this wall has been damaged on the northern face by the construction of wall [028]. Preserved <i>in situ</i> .
026	6,8,9	Cut for wall [025]	
027	6,8,9	Very compact mortar scar visible on the top of wall foundation [028] at +5.97m OD and centrally placed on wall, measuring 310mm N-S by length of wall in Bay 2 of 2.54m E-W. Same as [030].	Faint trace visible as a line of mortar showing where the wall was placed on top of the brick foundation.


³⁵ Compass Archaeology are very grateful to Sandra Bell (Wildlife and Environment Recording Coordinator) Bernard Verdcourt (Honorary Research Fellow) for analysing the soil sample from this context.


028	6,7,8	<p>Compactly mortared E-W major dark red brick external wall foundation running across Bays 6, 8 and 9 and also connecting with and becoming [030] to the west in Bay 6 and continuing as [039] in Bay 2. Measures a total length (including [030] and [039]) of approximately 21m (over 68ft) E-W and is 450mm wide N-S, depth to base of footing is 550mm with one half step visible at +5.17mOD. English bond with a thick grey/cream lime mortar in a neat flush jointing, but hard to be certain as whitewashed on northern face. The appearance of the southern side not visible as the wall abuts wall [025]. No teeth or voids visible in this wall and possibly evidence of a northern return in Bay 2. Survives in Bays 6, 7 and 8 at general level of +5.97m OD and extant for three courses.</p> <p>Runs parallel and to north of wall [025] and probably replaces [025] as a load-bearing wall. See images to right and for [039].</p>	<p>Very substantial wall footing for northern exterior wall of large red brick rectangular structure.</p>  <p><i>Above: showing relationships of wall [025] left and wall [028] right, as seen in Bay 2 looking west (as walls [037] and [039] here).</i></p>
029	6,7,8	Cut for wall foundation [028]	
030	6,	Very compact mortar scar visible on the top of small section of wall foundation [031]. White/cream mortar with faint charcoal flecks. Same as [027]	Faint trace visible as a line of mortar showing where the wall was placed on top of the brick foundation.
031	6	Small broken section of wall, damaged by recent machine reduction works. Appears to be a continuation of wall [028] in Bays 6,8 and 9 and [039] in Bay 6.	Small section of northern green house wall in Bay 6
032	6	Cut for section of wall [031], same as [029] and [040]	
033	6	Small broken section of wall, damaged by recent machine reduction works. Appears to be a continuation of wall [025] in Bay 6 [37] in Bay 2.	Small section of first phase northern green house wall in Bay 6
034	6	Cut for section of wall [033] in Bay 6, same as [026] and [038].	

035	8	Very compactly mortared small square freestanding dark red brick base, one of four such surviving bases located to the south (interior) of E-W wall [025]/[037]. Base measures 380mm E-W by 300mm N-S and survives to +5.91m OD. Very compact grey/brown mortar with faint charcoal flecks. The other three are [041], [043] in Bay 2 and [065] in Bay 9.	One of four small square freestanding bases to south of wall [025]/[037].
036	2	Very compact cream/grey mortar scar visible on the top of wall foundation [037] at +5.95m OD and centrally placed on wall, measuring 190mm N-S by length of wall in Bay 2 of 2.54m E-W. Same as [027] and [030]. Forms a crust c. 10mm deep. <i>Right: detail of surviving mortar scar, visible along the central area of wall [037] in patches.</i>	
037	2	Very compactly mortared major red brick external E-W foundation, 330mm wide crossing Bays 6, 8 and 9 and becoming foundation [025] in Bays 8 and 9 and also surviving as small section [033] in Bay 6. Variation on English bond in places with a thick (10mm) grey/cream lime mortar, but only external (southern) face is whitewashed or lime washed. Does not appear to have penny point jointing and no voids evident as on other bases. Survives to height of +5.95m OD at highest point in Bay 2.	Continuation of wall base [025] in Bay 2. <i>Below: general view of Bay 2, looking east, with wall foundation [039] to left of image parallel to wall [037] adjacent to right.</i> 
038	2	Cut for trench built wall [037]	

039	2	<p>Compactly mortared E-W major red brick external wall foundation running across Bay 2 and also connecting with and becoming [030] to the east in Bay 6 and continuing as [028] in Bays 6,8,9. Measures a total length (including [030] and [028]) of approximately 21m (over 68ft) E-W and is 450mm wide N-S, depth to base of footing is 550mm with one half step visible at +5.17mOD. English bond with a thick cream grey lime mortar in generally a flush jointing, but hard to be certain as whitewashed on northern face. The appearance of the southern side not visible as the wall abuts wall [037]. No teeth or voids visible in this wall and possibly evidence of a northern return in Bay 2. Survives in Bay 2 at general level of +5.95m OD and survives for at least seven courses.</p> <p>Runs parallel and to north of wall [025] and probably replaces [025] as a load-bearing wall. See images to right and for [039].</p>	<p>Continuation of wall [028], possibly with north-south return at far western end.</p> <p><i>Below: Wall [039] with [037] to right, looking east, showing possible northern return of [039] cut by central white modern concrete footing.</i></p> 
040	2	Cut for [039]	
041	2	<p>Small square freestanding dark red/purple brick base, one of four such bases located to the south (interior) of E-W wall [025]/[037]. Other three area [035], [043] and [065] measures 360mm E-W by 290mm N-S and survives to +5.91m OD and three courses deep (220mm). Thick very compact crusty white/cream mortar with faint charcoal flecks, small circular area of mortar missing in centre of base, perhaps suggesting a circular perhaps metal upright stood on this base (see context [052] for this mortar scar).</p> <p><i>Right: view looking east of square freestanding base [041] to south of wall [037]</i></p>	<p>One of four small square freestanding bases to south of wall [025]/[037].</p> 
042	2	<p>Mixed mid brown silty soil deposit, frequent inclusions of modern demolition rubble. 3.8m E-W by 1.35m N-S. Preserved <i>in situ</i> so not fully excavated.</p>	<p>Originally an internal cultivated soil deposit now disturbed.</p>

043	2	Small square freestanding dark red/purple brick base, one of four such bases located to the south (interior) of E-W wall [025]/[037]. (cf. [041]. Measures 360mm E-W by 310mm N-S and survives to +6m OD. White/cream mortar with faint charcoal flecks. Four courses visible, with thick mortar crust surviving on top of base [053].	One of four small square freestanding bases to south of wall [025]/[037]. 
044	2	Mixed mid brown silty soil deposit, frequent inclusions of modern demolition rubble. 5m E-W by 1.4m N-S. Preserved <i>in situ</i> so not fully excavated.	
045	2	Excavation slot alongside wall [037] to determine base of structure. Single half bat stepped footing encountered at +5.47m OD (top of wall at +5.95mOD). Stepped footing given context number [044] for sake of brick sample and to differentiate from samples at the top of the wall. Total depth of wall to clean silt at base 680mm to +5.17m OD.	Brick samples from base of wall [037]
046	1,2	N-S mortared brick wall foundation, up to 250mm thick though heavily disturbed. Appears similar construction to [039]	Apparently, north south return of wall base [039] but preserved <i>in situ</i> and not excavated.
047	1,2	Linear cut for wall base [046]	Cut for wall base [046]
048	2	Comparatively loosely mortared narrow N-S red brick wall foundation across Bay 2. One stretcher (215mm) wide and steps out in a single footer ½ brick step at depth of 240mm from top +5.95mOD. Three irregular teeth holes 160mm wide and one brick deep, evident in top surviving course (highest point +5.97m OD). The teeth holes are irregularly spaced and one is 400mm wide between holes and another 330mm width. Possibly for drainage or flues for heat circulation. English bond with loose yellow grey sandy mortar, cf. Fig 21. This wall runs parallel to and is approximately 1.5m (nearly 5ft) away from wall [037] and approximately 1.7m (5ft 7") away from wall base [055].	Internal divisional wall similar to [003] in Bay 6 and on the same alignment, most probably a continuation of central division [003]/ [005].
049	2	Shallow linear cut for [048]	Cut for wall base [048]

050	1,2	<p>Within a complex area of disturbed brickwork at western end of Bay 3 is a loosely mortared E-W red (in places bright red) brick wall foundation (c 550mm thick E-W) and in other places looking completely contiguous with wall footing [055]. Extends for 5m N-S in Bays 1-3 continuing beyond the edge of excavation in Bay 3. Generally up to four courses (270mm) extant (preserved <i>in situ</i>). English bond with a yellow sandy friable loose mortar with generally flush jointing. Top of wall base at highest point +6.05m OD and at base of wall footing at +5.15m OD.</p> <p>The areas of very bright red brick appear in the northwest corner of Bay 2 where significant residues of burnt material were found.</p>	<p>Appears to be the western end of large rectangular greenhouse structure.</p> <p><i>Below [050] looking west at west end of Bay 3 at junction with [037].</i></p> 
051	2,3	Cut for [050], apparently trench built, clean fine mid brown/orange silty clay subsoil at depth.	
052	2	Distinctive circular small mortar scar on top of small square base [041] at +5.91m OD. See [041].	
053	2	Plain mortar scar on top of small square base [043] at +6m OD.	
054	1	Complex area of badly disturbed brickwork in southwest corner of Bay 1. All preserved <i>in situ</i> and detailed interpretation not possible as area not excavated The changing levels and degrees of burnt residue suggest complex processes taking place here and may represent the boiler or stove for the greenhouse.	Recorded as continuation of primary N-S running wall [050] at junction with return of wall [039] running N-S as [046]

055	3	<p>Solidly mortared E-W red brick wall foundation (c 550mm thick) with ten drainage holes (teeth) evident along the length of the foundation (including [001]) at irregular intervals, but approximately 1m apart, extending in Bay 3 for c 8m. Becoming foundation [001] in Bay 7 extends for 7.8m in Bay 7 and a further 2.10m in Bays 8 & 9, where it continues beyond the edge of excavation. With the areas truncated by the modern concrete this gives a total length of this wall base as c 21.1m (approx 69 ft). Generally up to four courses (270mm) extant (preserved <i>in situ</i>). English bond with a white lime mortar with generally flush jointing. Drainage holes (possible flues) evident as large voids evident along the length of the foundation at differing intervals approximately 1m apart, but as wide as 1.1m and as narrow as 760mm (<i>cf.</i> Fig 22). Small trial trench excavated to base of footing revealing the wall base to survive to a depth of c700mm deep (at least seven courses). Top of wall base at highest point +5.94m OD in Bay 3 and at base of wall footing at +5.63m OD.</p> <p><i>Right: above view of wall foundation [055] looking west along Bay 3; middle: detail of internal wall voids (many of which are internally whitewashed) and stepped footings and below: view of complex intersection at western end of wall base [005], possibly a large drain [057].</i></p>	<p>Major E-W wall foundation [005], continuation of wall [001] in Bay 7.</p> 
056	3	<p>Cut for [055] apparently trench built, clean silty sub soil evident at depth of +5.87m OD which is about depth of top stepped footing of wall [055].</p>	
057	3	<p>Large deep void at western end of wall base [055] integral part of wall construction and contiguous with main construction phase. Appears to be a large drain (too small for a root hole) and was filled with clean silty alluvium [058].</p> <p><i>Right: Detail of drain [057].</i></p>	