

# **The orangery at Carew Manor, Beddington**

A history of the orangery, a report on a survey of the wall in the 1980s and on excavations on the north and south sides in 1998 and 1999.

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The orangery wall is in the grounds of Carew Manor School, Church Road, Beddington, Surrey, SM6 7NH. The west end of the wall is at TQ 29687 65252, the east end at TQ 29745 65272.

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This is one of a series of reports on archaeological and historical investigations at Carew Manor. The following volume has already been published:

John Phillips and Nicholas Burnett  
The garden at Carew Manor, Beddington: an interim report on investigations 1979-2005.

Others reports are in preparation.

Copies of this report can be obtained from [www.lulu.com](http://www.lulu.com).

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# 1. INTRODUCTION

The orangery wall stands in the grounds of Carew Manor School, which was for several centuries the home of the Carew family. The wall, which is grade II listed, dates from the early eighteenth century. The wall has long been connected with an orangery created by Sir Francis Carew in the reign of Elizabeth I. Several seventeenth century writers mention the Beddington orange house as the earliest English structure of its type. This orangery has been briefly mentioned in many more recent garden histories and also at greater length in Woods and Warren's history of glass houses.<sup>1</sup>

In 1979-80 a small group of people began a study of various aspects of the history of Carew Manor. In 1981 the Carew Manor Group was created to provide a more formal basis for the work. The group was later absorbed into the Beddington, Carshalton and Wallington Archaeological Society which was subsequently became the Carshalton and District History and Archaeology Society. In 1982 several members of the group published a brief overview of the early results in *London Archaeologist*. This included a short account of the orangery which drew together the documentary references known at the time and briefly considered the relationship between the wooden orange house and the wall.<sup>2</sup> The following year Virginia Black – who was not a member of the group – published a paper on the Beddington orangery which added much background material but did not include any new information on the structure.<sup>3</sup>

In the mid-1980s John Phillips and Doug Cluett made measured drawings of the ornamental north side of the wall and examined the coping and flues. In 1998 three small trenches were dug against the north side of the wall to examine the footings. This was followed up by an excavation on the south side of the wall in 1999. These excavations were directed by John Phillips although the south side trench was largely supervised by Roger Browne. New documentary research has been undertaken by Nicholas Burnett and John Phillips with important additional contributions by Andrew Skelton and Jane Howard. A good deal of archaeological and historical work was also done on the history of the garden in which the orangery stood.<sup>4</sup> An interim report was produced in 2008 which included a description of the orangery wall, a summary of the excavation results and some new documentary material.<sup>5</sup> This present report brings together the structural and documentary evidence for the orangery with a much fuller account of the archaeological investigations.

Thanks are due to Mavis Peart, the chairman of the school governors, two former head teachers, Brian Wilson and Martin Midgley and the school caretakers especially John Hefernan and Alan Hewett. Nothing would have been achieved without the support of a long standing group of diggers including Roger Browne, Jane Howard, Mike and Pat Bale, Stan and Val Coleman. Peter Stephenson and Derek Bradford.

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Many others have helped along the way: thank you all.

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<sup>1</sup> Woods and Warren 1988 p. 10-14.

<sup>2</sup> Weston, Cluett and Phillips 1982.

<sup>3</sup> Black 1983.

<sup>4</sup> Phillips and Burnett 2005.

<sup>5</sup> Phillips and Burnett 2008.

## 2. THE HISTORY OF THE ORANGERY

The first Beddington orange house was created by Sir Francis Carew who owned the house and garden from 1554 to 1611. Aubrey's *History of Surrey* says that Sir Francis imported his orange trees from Italy while other writers credit their introduction to Sir Walter Raleigh who was related to him by marriage.<sup>6</sup> However, there is no known contemporary evidence to support the Raleigh claims while there is good evidence for Francis acquiring trees in Paris in 1561-2. One of Sir Francis's sisters, Ann, married Sir Nicholas Throckmorton who became the English ambassador in Paris in May 1559. By March 1561 Throckmorton was ill and he was writing to Cecil asking him to arrange for a passport so that his wife, her brother Mr Francis Carew, and his cousin Mr. Francis Peyto could come to Paris.<sup>7</sup> The queen had granted a passport to Nicholas Throckmorton's wife by 19 April. Francis had arrived in Paris and had been presented by Throckmorton to Mary Queen of Scots, by 23 June.<sup>8</sup> Thomas Cecil, the son of Elizabeth's minister William, was also in Paris at this time accompanied by his tutor Thomas Windebank. On 27 August 1561 William Cecil wrote to his son asking him to send anything 'meet for his garden'. This was the first of a series of letters on the subject.<sup>9</sup> On the 25 March 1562 Cecil wrote to Windebank and in a post script added:

When this messengar was redy to depart my La Throckm[orton]  
gave me a Le<sup>t</sup> fro Tho. Cecill wherin maketh metion  
that M<sup>r</sup> Caroo meaneth to send home certen orege  
pomgranat lymo and myrt trees. I have alrede a orrege  
tree and if y<sup>e</sup> price be ont much I pray you  
procure for me a lymo, a pomegranat, and a myrt  
tree and help that they may be sent home to Lodo  
w<sup>t</sup> M<sup>r</sup> Caroo's trees and before hand find me in  
wryting a perfect declaratio how they ought to be  
used kept and ordered...<sup>10</sup>

Windebank replied on the 8 April 1562:

Sir  
According to yo<sup>r</sup> commandement I have sent unto yo<sup>u</sup> by M<sup>r</sup> Curo's man w<sup>h</sup> his m<sup>rs</sup> trees  
a Lymmon tree, and ij myrte trees in ij pottes. w<sup>h</sup> cost me bothe a crowne, and the  
Lymmon tree xv . ^ . wherin S<sup>r</sup> yf I have bestowed more than phaps yo<sup>u</sup> will at the first  
like, yet is it th<sup>e</sup> best chepe th<sup>t</sup> we could get it. and better chepe than other noble men in  
France have bought of the same man, having paid for vi trees lcxv . ^ . ^ To have writtin

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<sup>6</sup> Aubrey 1718 vol.2 p. 159-60 says that Francis brought the trees from Italy. This information is not in the Aubrey manuscript in the Bodleian Library and was presumably added by the editor Richard Rawlinson. He visited Beddington in May 1717 (Enright 1956 p. 129) so it might have the authority of family tradition. There are gaps in the documentation of Francis's life which leave time for a visit to Italy but there is, at present, no other evidence for it. Sir Walter Raleigh was Sir Francis Carew's brother in law. Publications often connect him with the Beddington garden without citing original sources. Lysons' *Environs of London* (vol. 1 p. 56) says that the editors of the 1748 edition of *Biographica* 'speaking from a tradition preserved in the family, tell us, they were raised by Sir Francis Carew from seeds of the first oranges which were imported into England by Sir Walter Raleigh'. This is presumably the *Biographica Britannica* but this does not contain entries for any of the Beddington Carews. The work was left incomplete and no article on Raleigh was ever published. The source of Lysons' statement is therefore uncertain.

<sup>7</sup> CSP Foreign 1561-2, item 206.

<sup>8</sup> CSP Foreign 1561-2 p. 150-4.

<sup>9</sup> CSP Domestic 1547-80, XIX, 35; CSP Foreign 1561-2, item 491; CSP Foreign 1561-2, item 615; CSP Foreign 1561-2, item 513.

<sup>10</sup> TNA SP 12/22 printed number 42.

to yo<sup>u</sup> of the pric<sup>e</sup> & attended yo<sup>r</sup> pleasou<sup>r</sup>, I shuld have taryed to long & lost the comoditie of the cariage. well I think this good may ensue the price. Th<sup>t</sup> yf the tree prosperre I am assurid by him th<sup>t</sup> solde it unto me th<sup>t</sup> it shall beare fruite this yeare yo<sup>u</sup> will not think yo<sup>r</sup> money lost yf it doo not prosperre, it shall take awaye yo<sup>r</sup> desire of loesing any more monny in like sorte. my lord & Mr Caroo weare the choosers of it for th<sup>e</sup> Ordering of it this have I learned As sonne as yo<sup>u</sup> shall have it there, the Tub wherein the lymmon tree is must be filled almost up to th<sup>e</sup> top or ij ynches higher than it is w<sup>t</sup> good dong y<sup>t</sup> must be well wett, & so put upo<sup>n</sup> th<sup>t</sup> earthe th<sup>t</sup> is in the tub allready. it must be placed out of the colde of th<sup>e</sup> northe & northe est wyndes & set toward the southe so as it may be very warme for by warmth it proffitith moste. Every viij daies it must be watered twice or oftener yf the drought be greate. In Sept. it must be taken out of the garden & set in th<sup>e</sup> house for all the wynter, watred likewise once or twice in a fortnight [unreadable] may be seene In Aprill [illegible word] eyther in th<sup>e</sup> middest or at th<sup>e</sup> end (as the colde or heate shall be) it must be placed agayne in the garden. as before & for the better spreading of the tree, (for th<sup>t</sup> is compted th<sup>e</sup> beauetye & not the height) the toppes of some of th<sup>e</sup> branches must be cut awaye by small twigges w<sup>h</sup> may be don by tymes as the branches doo increase & growe, in Aprill, May & June, for so they doo heere. It shall not neede to be changed out of that tubb nor earth wherein it is nowe this ij or iij yeere, so heede be takin that the hoopess fall not awaye & th<sup>t</sup> th<sup>e</sup> earth shed not. It hathe beene twice graftid & is of iij years growthe as this man tellith us & this year he would look for s<sup>o</sup> [?] fruite of it. This is all that I can learne for th<sup>e</sup> ordring of it. The myrte trees must be likewise kept very warme & watred so as it suffer no drought. The potte must be fylled up w<sup>t</sup> earthe as th<sup>e</sup> Lymon tree & in wynter retyrd<sup>d</sup> out of the colde. As for a pomegranate tree th<sup>e</sup> season of the yeare is to farre paste to remove them so th<sup>t</sup> it was no sending of anye. I have givin to Mr Caro's man th<sup>t</sup> hathe th<sup>e</sup> charge of yo<sup>r</sup> trees, our [or a number?] pistoles And yf he bring it well to yo<sup>r</sup> house yo<sup>u</sup> may consyder him w<sup>h</sup> a croune or two more for th<sup>e</sup> transportation, of them shall cost you nothing because yo<sup>r</sup> trees go w<sup>h</sup> M<sup>r</sup> Caro's trees. And this is all th<sup>t</sup> I have bene hable to doo in this your matter for trees w<sup>ch</sup> [?] I wish well to prosperre in fruite. And so must humbly take my leave. From Paris the Viiij<sup>th</sup> of Aprill 1562.<sup>11</sup>

Francis probably left Paris around 9 July when Throckmorton wrote a letter of introduction to Cecil. This was probably to facilitate Francis's lobbying for Throckmorton's recall.<sup>12</sup> The journey may have been difficult as France was drifting towards a civil war between the Catholics and the Protestant Huguenots. However, Francis reached England safely sometime before 20 September when a postscript to a letter from Lady Throckmorton to her husband says that 'her brother Carew is sent for to Court'.<sup>13</sup> We do not know whether the trees also reached England. It seems likely but they do not figure in an inventory of Carew Manor dated 24 November 1562. The garden then contained:

Item a cowle, a payle, ij wattring potte  
of yerthe, thre bylls to cutte y<sup>e</sup> hedge  
w<sup>t</sup> a shovell, a spade, ij hand hoocke,  
a mole staffe, thre wydeng knyves  
ij yerne settrs, ij whelbarowes, ij paring  
yerns.<sup>14</sup>

<sup>11</sup> TNA SP 12/22 printed number 83. I have deleted and incorporated numerous crossings out and interlinings.

<sup>12</sup> CSP Foreign 1562 Item 293.

<sup>13</sup> CSP Foreign 1562 Item 660.

<sup>14</sup> BL Add Ms 26905 f20r

There is no sign of the oranges or of any sheds or stoves to carry them through their first English winter. It is hard to believe that they were at Beddington so Francis may have overwintered them in his London house.

Francis went on to develop a very elaborate garden at Beddington which is known from travellers' descriptions, archaeology and many incidental references in the household accounts and other documents.<sup>15</sup> The household accounts contain a number of payments which may relate to plant covers but there is no unequivocal mention of the orangery until 10 January 1608 when a man called Sadler was paid for half a day spent sweeping the snow off it.<sup>16</sup>

In May 1611 the garden was visited by a gentleman accompanying the Landgraf Otto of Hessen-Kassel on a visit to England. He kept a diary and along with the streams, grottos and fountains he noticed:

a great number of figgs, oranges, lemons - all trees which were bearing fruit at the time. Item Taxum, Laurocerasum, Pomum Adami, cuius folia melissi odorem fere habent. Nerion vel Rododendron with beautiful red flowers, it is, however, poisonous.<sup>17</sup>

The oranges were clearly part of a larger collection of southern European plants. Laurocerasum is probably cherry laurel *Prunus Laurocerasus* which is a native of south-east Europe and Asia minor; Nerion vel Rhododendron may be *Nerium Oleander* which is native to the Mediterranean; Adam's Apple is a variety of the Lime. The plant described as 'cuius folia melissi odorem fere habent' is currently unidentified.

Several of the plants in the Hesse description are not mentioned in the Cecil correspondence of 1561-2 which suggests that Sir Francis made one or more subsequent purchases through agents or dealers or possibly during untraced journeys abroad. We cannot therefore be certain whether the trees in the Orange house in 1608 were bought in 1562 or were also a later purchase.

Sir Francis Carew's long life ended on 16 May 1611 and the house and garden passed to Sir Nicholas Throckmorton who took the name Carew. He was a son of Sir Francis's sister Ann and the ambassador Sir Nicholas Throckmorton. He owned Beddington until his death in 1644. His son, another Sir Francis, backed the Royalist side in the civil war and also lost much money through gambling. He died in April 1649 and by 1650 the house, park and garden had been leased to the Earl of Warwick who submitted accounts for various repairs that he had carried out including work on the orange house:

Jan: 14 <sup>th</sup> 1652 for fo[?] severall bills for repairs of the old Stoves in the orange house & the repairs of the fountain house as may appear by their bills	7-0-0
Paid Thom. <sup>Nich</sup> Constable ye Carpenter for building of a new orange house Jan 18 <sup>th</sup> 1652	60-0-0
[Marginal note says: Allowed to Nich Constable for repayr <sup>s</sup> of the orange house 60l out of my Lds rent by M <sup>r</sup> Raleigh]	
For two new Iron Stoves for the said orange house being made so much bigger than it was before that the old stoves would not serve the turn	15-0-0

<sup>15</sup> See Strong 1990 and Phillips and Burnett 2005 and 2008 for an account of the garden. The information on the orangery in the Phillips and Burnett publications is superseded by this document.

<sup>16</sup> SHC G6/3/1.

<sup>17</sup> Quoted from Strong 1990.



[A marginal note adds: 2 new stoves sett up by my Ld but of little use]<sup>18</sup>

The orange house was mentioned by several writers in the second half of the seventeenth and early eighteenth century. The first is John Evelyn whose diary entry for 27 September 1658 notes:

To Beddington that antient Seate of the Carews, a faire old hall, but a scrambling house: famous for the first Orange garden of England, being now over-growne trees, & planted in the ground, & secured in winter with a wooden tabernacle & stoves: This seate is rarely watered, and lying low invirond with sweet pastures &c: The pomegranads beare here: here is also a fine parke.

This was followed by an otherwise unknown J Gibson in 1691:

Beddington Garden at present in the hands of the duke of Norfolk, but belonging to the family of Carew, has in it the best orangery in England. The orange and lemon trees there grow in the ground, and have done so near one hundred years, as the gardener, an aged man, said he believed. There are a great number of them, the house wherein they are being above two hundred feet long; they are most of them thirteen feet high, and very full of fruit, the gardener not having taken off so many flowers this last summer as usually others do. He said, he gathered off them at least ten thousand oranges this last year. The heir of the family being but about five years of age, the trustees take care of the oranges, and this year they built a new house over them, but they look not well for want of trimming. The rest of the garden is all out of order, the orangery being the gardener's chief care; but it is capable of being made one of the best gardens in England, the soil being very agreeable, and a clear silver stream running through it.<sup>19</sup>

The 1695 edition of Camden's *Britannia* says:

To the north-east is Beddington, where not only the orchards and gardens in general (as our Author has observ'd) but particularly its Orange-trees, deserve our mention. They have now been growing there more than a hundred years, and are planted in the open ground, under a moveable Covert during the winter months. They were the first that were brought into England by a Knight of that noble family; who deserves no less commendation than Lucullus met with for bringing cherry and filbert trees out of Pontus into Italy: for which we find him celebrated by Pliny and others.<sup>20</sup>

Evelyn visited the garden again on 20 September 1700:

I went to Bedington, the antient seate of the Carews formerly & in my remembrance, a noble old structure, capacious, & in forme of the buildings of the Age in Hen:8 & Q. Eliz: (time) & a proper for the old English hospitality, but now decaying with the house its selfe, heretofore adorned with ample Gardens, & the first Orange trees that ever were seene in England, planted in the open ground, & secured in Winter onely by a Tabernacle of boards, & stoves, removable in summer; thus standing 120 yeares large & goodly Trees & laden with fruite, but now in decay as well as the Grotts & other curiosities, cabinets and fountaines in the house & abroad, thro the debauchery & negligence of the Heires, it being now fallen to a child under age, & onely kept by a servant or two from utter delapidation. The Estate & Parke about it also in decay: the negligence of a few years, ruining the elegances of many.<sup>21</sup>

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<sup>18</sup> Surrey History Centre 2152/1 p. 13.

<sup>19</sup> Hamilton 1794.

<sup>20</sup> p. 165.

<sup>21</sup> *Diary* 20 September 1700

These accounts tell a fairly consistent story. The orange trees were planted in the ground and were covered in the winter by a wooden shed heated with stoves. Gibson says that the building was over 200 feet (60.96m) long and that the trees were 13 feet (3.96m) high.

Gibson and Evelyn both say that the garden was in poor repair at the end of the seventeenth century which fits well with the family history. Sir Francis Carew (d.1649) was followed after a minority by his son Nicholas who died in 1687. His son Francis died just over two years later in September 1689 leaving a child heir, Nicholas (later 1st Baronet), who did not come of age until 1707. An 18 year minority followed in which there were disputes about the custody of the estate and it seems likely that little was spent on maintenance.

Nicholas Carew modernised and refaced the house around 1710-12 and he probably started work on the garden about the same time.<sup>22</sup> However, the timber orangery seems to have survived the initial stages of the work as it is mentioned in Aubrey's *History of Surrey* which was published in 1718. He says that the house

...having before it neat Gardens, not yet finished, with several Canals, and an orchard; but what more particularly deserves our Notice, is the fine Orangerie, where are several Orange-Trees, (transplanted from the warmer Breezes of Italian Air, into our more inclement Climate) planted in the open ground, where they have throve to Admiration for above a whole Century; but are preserved, during the Winter-Season, under a moveable Covert. They were brought from Italy by Sir Francis Carew, Knt. (who built the old Mansion House;) and it was the first Attempt of this Kind that we hear of.<sup>23</sup>

John Aubrey collected material for a history of Surrey but the work was left incomplete when he died in 1697. The surviving manuscript in the Bodleian Library does not contain any Beddington material so this must have been assembled by Richard Rawlinson who filled the gaps in Aubrey's manuscript and edited it for publication. Rawlinson is known to have visited Beddington to collect material in May 1717. His account contains information about the garden not known from other sources so it seems likely that it was based on direct observation.<sup>24</sup> The wooden orangery is also mentioned in Colen Campbell's *Vitruvius Britannicus* in 1717.<sup>25</sup>

Philip Miller's *The gardeners and florists dictionary* of 1724 contains an article on oranges:

Mr. Bradley, speaking of the planting *Orange-Trees* in the natural Ground, instances the Gardens of Sir *Nicholas Carew*, at *Beddington* in *Surrey*, where Trees now growing in the natural Ground always bear Fruit in great plenty, and to extraordinary Perfection.

This method he approves, because such Trees are not subject to the Inconveniences that those Trees which are cultivated in Tubs, Pots or Cases; which are not only liable to frequent Occasions of being shifted, and of the Roots being chilled, but sometimes having too much Water, and other times wanting it, while those that are planted in the natural Ground are free in Growth, and do not loose their Vigour by being shifted, nor are in any Danger but from the frost, which they may as well be guarded against as in a Green-House.

He says, that he there observed, that the *Orange-Trees* grow on the *South* Side of a wall, not nail'd against it, but at full liberty to spread, and that the Gardener informed him they were growing there in the Time of Queen Elizabeth, and were long before

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<sup>22</sup> Phillips and Burnett 2008 p. 142-3.

<sup>23</sup> Aubrey 1718 vol. 2 p. 159-160.

<sup>24</sup> Enright 1956 p. 129.

<sup>25</sup> Campbell 1717 vol. 2, p. 2.

that planted in that Place in the natural Ground. The largest of these Trees, he says, within six Inches of the Ground, was about ten Inches Diameter; and that it was larger in its Stem than that at *Versailles* in *France*: And whereas that in *France* was in a large Case, this was in the open Ground; and when that in *France* was hous'd in October it had no fruit upon it, but this at *Beddington* brings large well grown Fruit.

And in the Year 1719, there were *Orange-Trees* that three Years before had been transplanted from Pots into the Natural Ground, which were grown three Times as much as he had ever seen any Tree that had grown in a Pot or Case in that Time.

That the Conservatory for those Plants in the *Winter*, is a Frame that may be taken to Pieces, and as he supposes is quite taken away in the Summer, and put together again in the Beginning of Winter, which Method he commends, as being attended with several Conveniences.<sup>26</sup>

Towards the end of the article he adds:

There are *Orange-Trees* at Sir *Nicholas Carew's*, at *Bedington*, according to the Account of Mr. *Henry Day*, the ingenious Gardener, that are fourteen Foot high from the naked Ground. The Girt of the stem is twenty-nine Inches, and the spreading of the Branches is nine foot one way, and twelve Foot another. These trees are completely full of Flowers, and continually full of Fruit, which ripens perfectly.

The article on myrtles tells us that:

At Sir *Nicholas Carew's*, at *Bedington*, is a Myrtle of the Spanish broad-leav'd Kind, which is above eighteen Foot high, and spreads about 45 Foot. Mr. *Bradley* says, if to this are join'd those Myrtles that he has seen growing in *Devonshire*, in the natural Ground, he cannot see any Occasion for the great Use of Fire for these Sort of Plants, as in common in Green-houses: But Plants that are in Pots are much more liable to suffer by the Frost, than if they were in the naked Ground; and the more woody the Plants are the more hardy they are.<sup>27</sup>

It seems likely that this was one of Francis Carew's trees given its large size but it appears to have been outside rather than in the orange house.

In 1721 John Evelyn, the grandson of the more famous John Evelyn quoted above, visited *Beddington* and noticed 'ye green house lately built over ye Orange Trees, which are in ye ground, & said to be ye first yt were brought into England, being as old as Queen Elizabeth's time'.<sup>28</sup> This appears to refer to the creation of the brick orange house the north side of which still stands as the orangery wall and would make it the work of *Nicholas Carew*, 1st Baronet, who died in 1727. References to the wooden orangery as a standing building continue but they are almost certainly copying older outdated sources. These include *John Macky's A journey through England* (1732)<sup>29</sup> and the first three editions of *Daniel Defoe's Tour* published in 1724, 1738 and 1742. The fourth edition of 1748 catches up with the change and includes some significant new details:

The Orange-trees continue, and are the only ones in this Country, which have been, for any Number of Years, growing in the natural Ground. They had moving Houses to shelter them in the Winter from the Inclemencies of our Climate; but a few Years since,

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<sup>26</sup> Miller 1724 vol. 2, article on oranges. There are no page numbers. I have not been able to trace this information in *Bradley's* publications.

<sup>27</sup> Miller 1724 vol. 2 end of article on myrtles.

<sup>28</sup> *Journal of Sir John Evelyn Bt*, BL Add Mss 78,514 B f. 45-6.

<sup>29</sup> Macky 1732 vol. 1, p. 137-8.

the Owner was at the Expence of erecting a fine Greenhouse, with Sashes in Front; the Top of the House to take off in Summer: since which time the Trees have been constantly decaying; for, standing as it were in a narrow Alley, between two Walls, when the Top is taken away, the Current of Air is so great, as to Break the Branches, and prevent the Growth of the Trees. They have stood in the Ground, where they now grow, above an hundred Years.<sup>30</sup>

Lysons' *Environs of London* says that the trees died in the exceptionally cold winter of 1739-40 so the 1748 edition of Defoe may still be out of date.<sup>31</sup> However, the probate inventory of Nicholas Carew, 2nd Baronet, dated 1764 mentions a 'Summer house and the Room at the End of the Green house in the Garden' which contained:

A brass front wind Stove with iron cheeks and back and fendor  
poker tongs and brush six Windsor painted Chairs and a Cussion a  
canvas floor cloth painted black and white check &c a bell and  
mathematical pull - a iron harth and fendor rivitted. Eight  
Windsor painted chairs 3-6-<sup>32</sup>

Evelyn had called the building a 'greenhouse' in 1721 so the inventory could refer to the room at the eastern end of the orangery which survived as a shed into the twentieth century.

The house and garden passed to the 2nd Baronet's daughter Catherine and on her death, in 1769, to Richard Gee, a distant relative. From him it descended, in 1816, to Anne Paston Gee. She carried out a major rebuilding of the house and may have informalised the garden by planting trees and partly filling the lake in the garden. This had been done by 1820 when the first known large scale map of the parish was made for the Beddington and Bandon enclosure award. This shows the north wall of the orangery but the rest of building had gone apart from a small building at the east end. A track ran westward from the building parallel to and just south of the wall. The plan appears unchanged on the Tithe Award map of 1840. The first edition 25 inch Ordnance Survey of 1868 shows the building unchanged but suggests that the track had been widened southwards. The 1897 map shows a second narrower building on the south side of the wall to the west of the first one.

A book review in the *Gentleman's Magazine* for 1841 refers to 'some very fine plants [of Brugmansia] plunged in the border of a south wall in the garden of Colonel Carew at Beddington, Surrey, looking very handsome. This is supposed to be the very border and spot where the famous orange trees were grown.'<sup>33</sup> This suggests that a sheltered plant bed had been created on the south side of the surviving north wall.

The Carew estates were sold up in 1859 and the house and grounds were acquired by the Lambeth Female Orphanage Asylum. Their minute book contains two interesting references to the orangery.<sup>34</sup> On 12 November 1874 the 'Ctee directed that the roof of the Orangery should be converted ... so as to form a lean to'. This can only refer to the building at the east end of the wall. On 22 February 1877 the minute book records:

Mr Currey's plan for altering the shed (the old orange house) and adding thereto to provide stabling for one horse and room for drying and storing earth for closets etc. was approved. Mr Dawson's estimate for the work, which was ordered to be done, at 114-10-0 was accepted.

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<sup>30</sup> Defoe 1748 vol 1, p. 255.

<sup>31</sup> Lysons 1792 vol. 1, p. 57.

<sup>32</sup> Surrey History Centre 281/3/1.

<sup>33</sup> Gentleman's Magazine new series vol. 15, March 1841 p. 283.

<sup>34</sup> London Borough of Sutton archives D 2/2/1.

This probably marks the construction of the second block of building shown on the 1896 Ordnance Survey map. The 1913, 1933 and 1941 Ordnance Survey maps show the same details as the 1896 map.

On 5 November 1948 F.H. Healey inspected the wall on behalf of the Historic Buildings Division of London County Council. The visit had been prompted by a letter from the Beddington, Carshalton and Wallington Archaeological Society expressing concern about the state of the wall. After describing the north side the report turns to the south side and says:

From an old farm hand I learnt there were 8 rows of 12" x 12" (approx) flues in the thickness of the wall and the heat was supplied from the angled fireplace [in the room at the east end] ... I also gathered that for cold nights there was at one time a blind let down for protection. Of course no trace of this is visible. A portion of one of the flues can be seen high up at the west end.

The wall generally looks, (& is) sound. Dilapidation is taking place chiefly at the parapet level. Some vegetable growth possible here. I understand that a V1 dropped not far away & and the blast may have removed some of the capping. There is also a certain amount of disturbance of the ornate brick work around the doorway in the eastern most bay. Some bricks have dropped out & and many are loose and ready to fall.

The report later summarises the necessary repairs:

The coping throughout the full length of the wall needs attention. In many cases the stones seem to be missing (chiefly the 3rd bay) in particular co-extensive with bays no 7 & 8.

The moulded brick cornice at this point needs attention as the lead top flashing seems to have gone.

The elaborate brickwork to doorway in the 9th bay is in bad repair and the lead flashing is missing. The repair needed is mostly the replacement of dislodged bricks in architrave, cornice, pediment &c.

The repairs required on the south side are only slight the chief being the repair or resetting of the splayed brick set courses and the bricking up of the exposed side of the flue.

The whole structure needs close inspection and a certain amount of repointing should be carried out. No form of pointing should be allowed which does not conform with the old and no cement [?] should be used. I would suggest Lias lime & sand only be used. Any pointing to the rubbed brickwork should be carefully done.

The pan tile roof over the old heating chamber should receive attention & made water tight.

With regard to the temporary shed on the South side adjacent to the heating chamber this might be allowed to remain provided it is causing no damage to the old brickwork<sup>35</sup>.

A photograph taken for the London County Council in 1951 shows three lean-to sheds on the south side of the wall at the east end. One occupied the space between the two projecting walls and shows that the west wall extended much further south than now. A second shed lay to the west and, at the west end of that, there was a third small shed which appears to have housed a two wheel cart.<sup>36</sup>

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<sup>35</sup> In 1986 a manuscript draft of this report was in the files of the GLC Historic Building Division. There is a transcript in the Carew orangery file.

<sup>36</sup> There is a copy of the photo in the Sutton Local Studies collection.

The wall has subsequently suffered from vandalism and much of the architectural detail has been severely damaged.

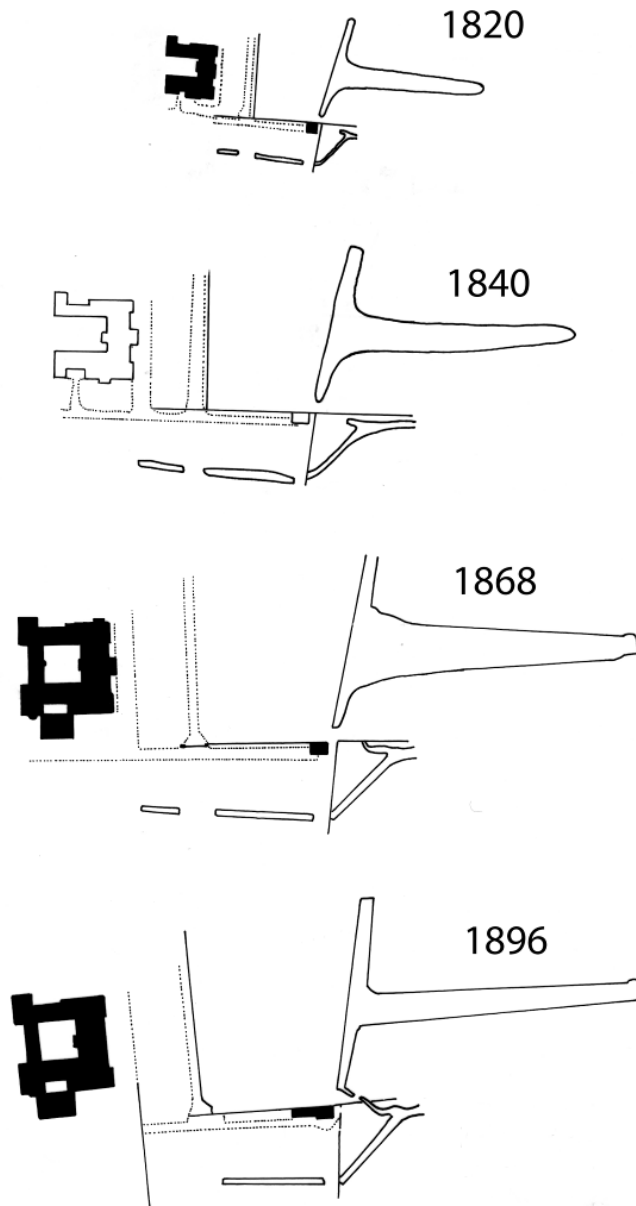


Figure 1. The orangery wall from the enclosure map of 1820, the tithe map of 1840 and the first two editions of the Ordnance Survey 25 inch maps.

## 3. THE ORANGERY WALL

### 3.1 The north side

The north side of the wall is divided into nine bays by ten pilasters of rubbed brick (figures 2, 4, 5 and 6).<sup>37</sup> The pilasters are 0.75m wide above the base and each bay is 5.44m wide from pilaster edge to pilaster edge apart from the easternmost which is 7.3m. The total length is 59.37m. The pilaster heads were linked by a moulded string course below the top of the wall. The bricks are laid in Flemish bond with many dark bricks between the pilasters although these are not arranged in any particular pattern. Each bay is decorated with two blind round headed arches with prominent projecting 'keystones'. The arch heads and 'keystones' are of rubbed brick. A four brick high impost connects the shoulders of the arches across the bay. There is a plinth across the bottom of the bay about four courses above the ground which is interrupted by the pilasters.

The easternmost bay is an exception as it is wider and there is a door in the centre which is surrounded by Doric pilasters with a pediment above (figure 5). These are made of rubbed brick. The door disappeared many years ago but is shown in a photograph dated 1951 and in a drawing in the Victoria County History.<sup>38</sup> The door was rectangular and had eight panels formed by one vertical bar and three horizontal ones. There were a pair of small panels at the bottom, then a larger pair, a smaller pair and a larger pair. The semi-circular space above the door was filled by two wooden panels divided by a vertical bar. The panels had raised rectangular centres with the edges tapering towards the frame. It seems likely that the door was original.

There are two blind arches on either side of the door similar to the ones in the other bays. However, in this bay each arch contains a segmental headed blind window. When the fill of these was demolished by vandals in 1984 and 1988 they exposed holes for pegs to secure window frames, so the blockings were later additions.

The whole wall is now in a poor condition but it was in a better state in the 1980s when it was drawn and the mouldings reconstructed on paper (figures 5-11).

The wall is capped with slabs which are a mixture of Portland stone and an artificial material. It seems likely that the latter dates from the repair of the wall after the flying bomb damage in the Second World War. The capping slopes southwards so the rain would have drained towards the inside of the orangery.

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<sup>37</sup> The bays are numbered from the east end.

<sup>38</sup> There is a copy of the photograph in the Sutton Local Studies Collection. The drawing is in *The Surrey VCH* vol. 4, p. 172.



Figure 2. The north side of the orangery wall from the west end.



Figure 3. The south side of the orangery wall from the west end,



34

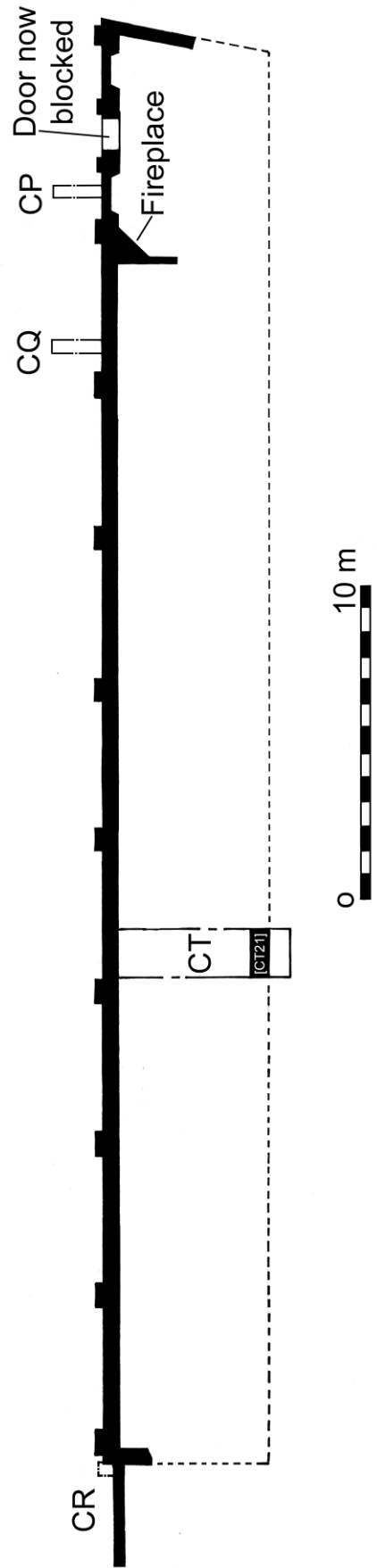
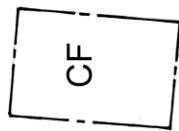


Figure 4. Plan of the wall showing the location of the trenches. North at the top.

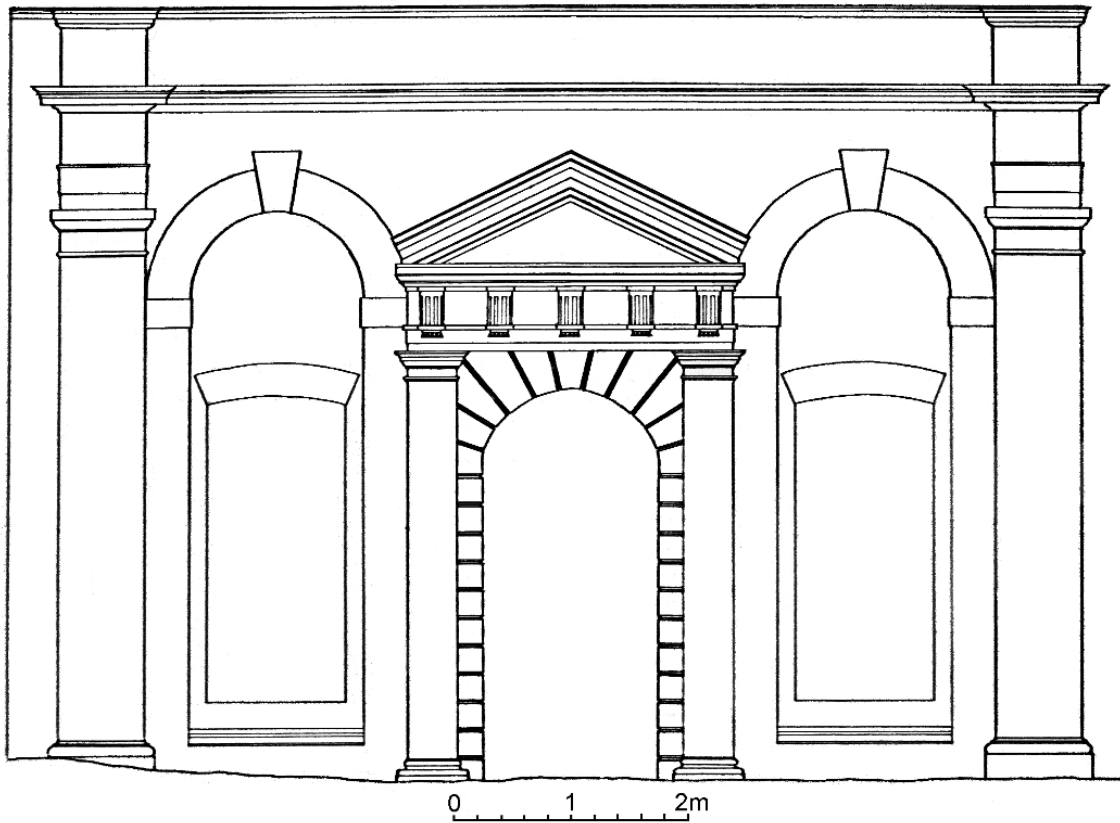


Figure 5. Reconstruction drawing of the orangery wall bay 1.

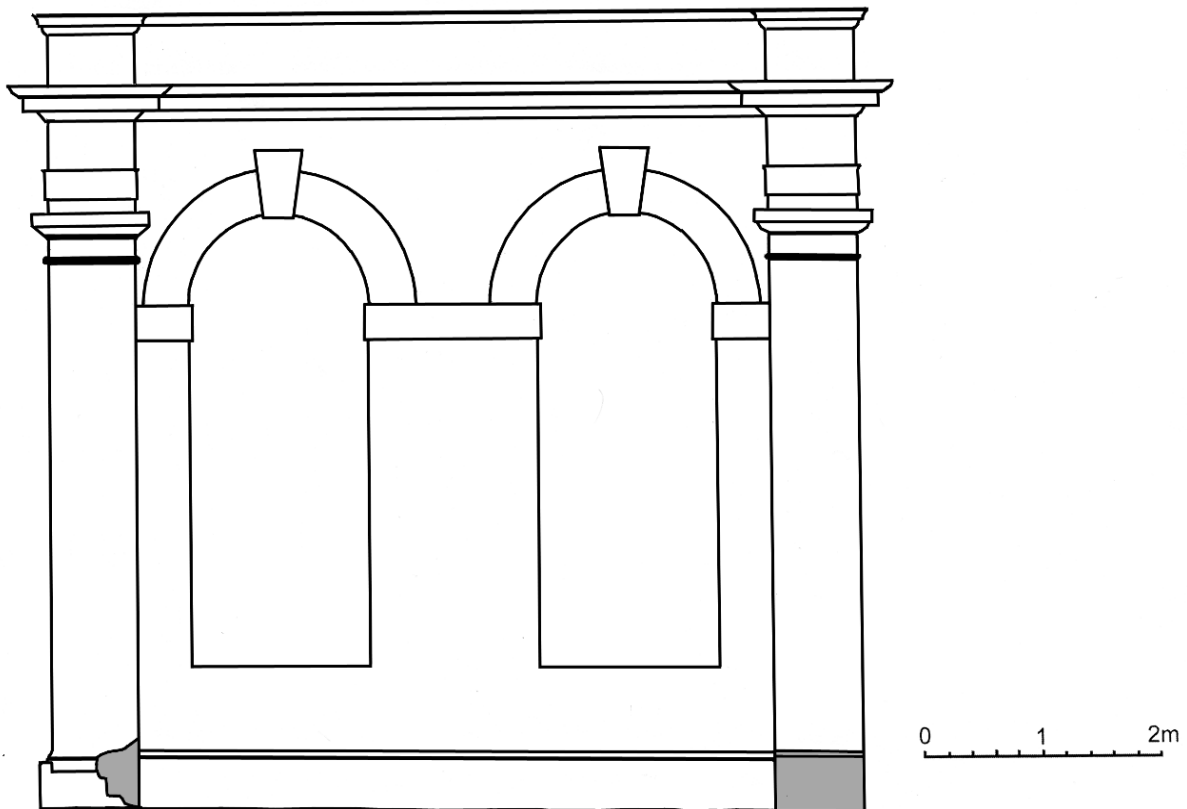


Figure 6. The orangery wall bay 7. The grey areas are damage or poor repairs.

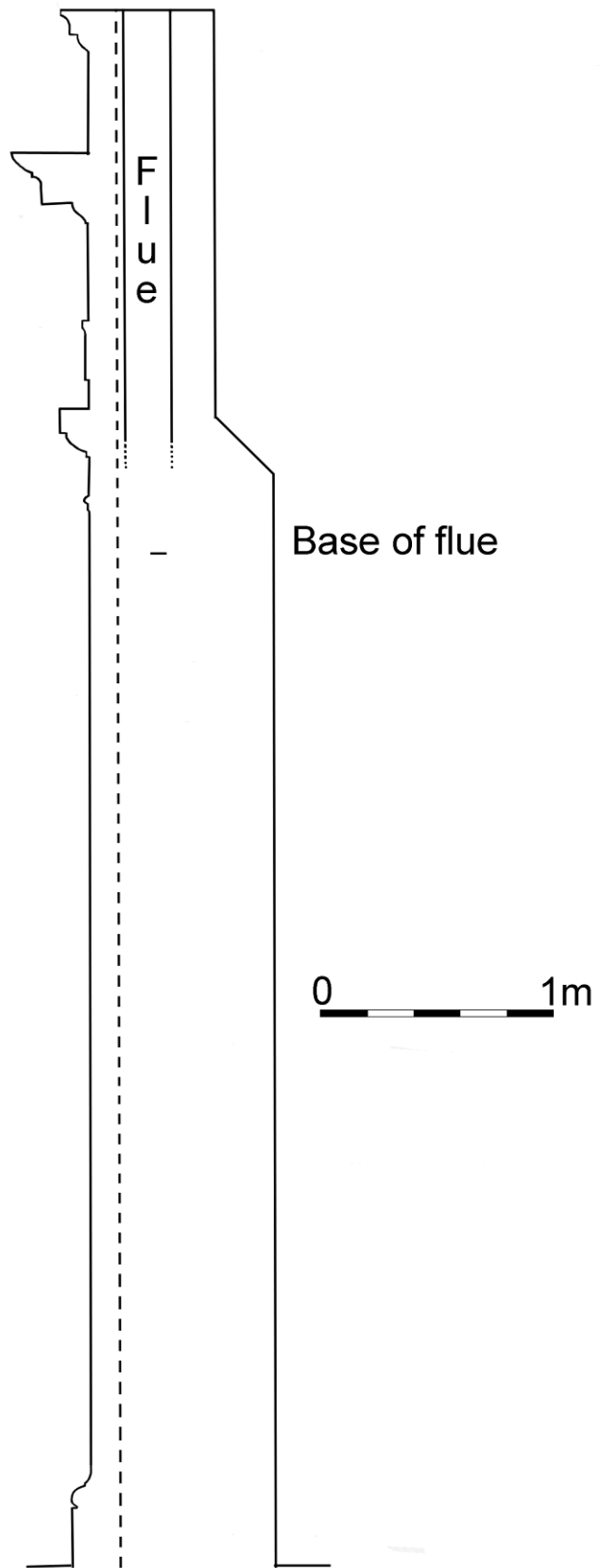


Figure 7. Section through the wall at the west-most pilaster.

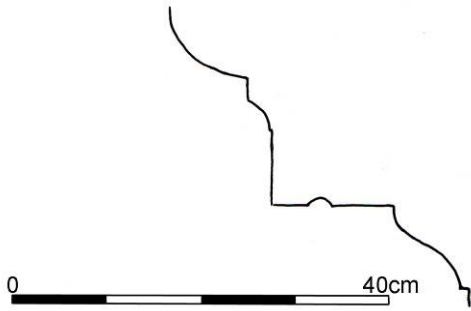


Figure 8. The orangery wall bay 7, profile of the cornice.



Figure 9. The orangery wall bay 1, The moulding on the bottom of the pediment over the door.

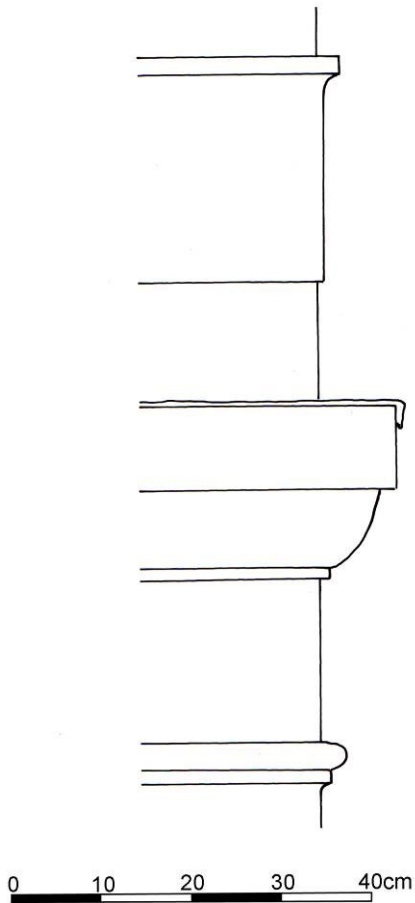


Figure 10. The orangery wall, capital moulding on pilaster 1.

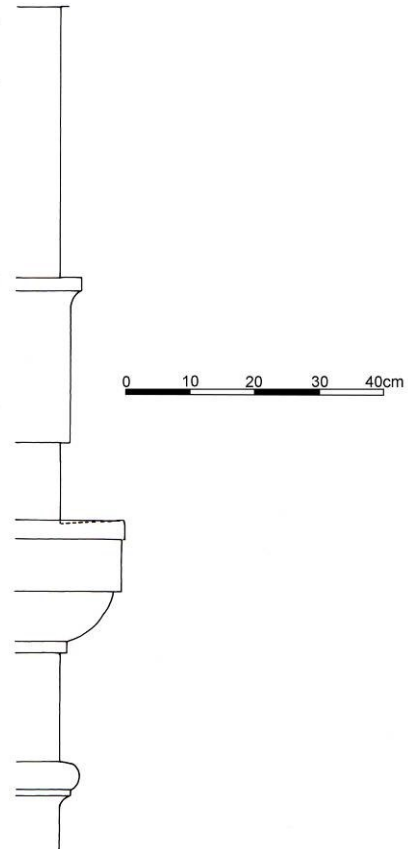


Figure 11. The orangery wall, the moulding at the top of pilaster 7.



Figure 12. The top of pilaster 2.



Figure 13. The east end of the wall.



Figure 14. The south side of the east end of the wall on 10 January 1988. The blocking of the western window has been partly demolished.



Figure 15. The head of the western window.

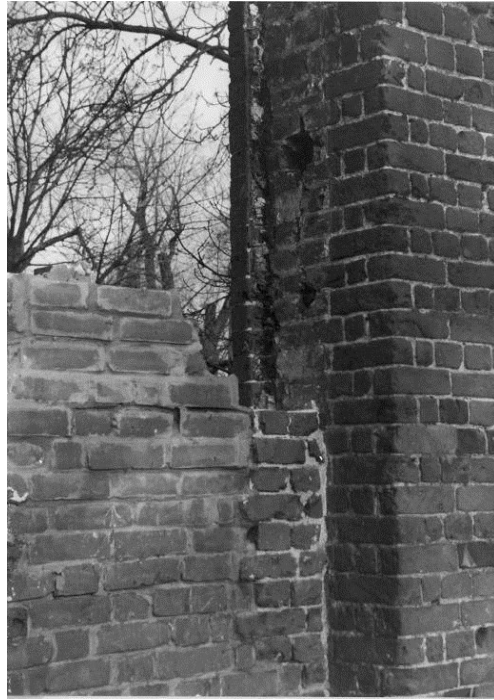


Figure 16. East side of the western window.

The western window on 10 January 1988 after the blocking had been removed by vandals.



Figure 17. Head of the western window.



Figure 18. The fireplace and flue in the north-west corner of the building at the east end of the wall.



Figure 19. Looking west along the top of the orangery wall from the second pilaster, 1985. The flue in the foreground rises from the fireplace shown above.



Figure 20. The west side of the west wall of the lean-to.

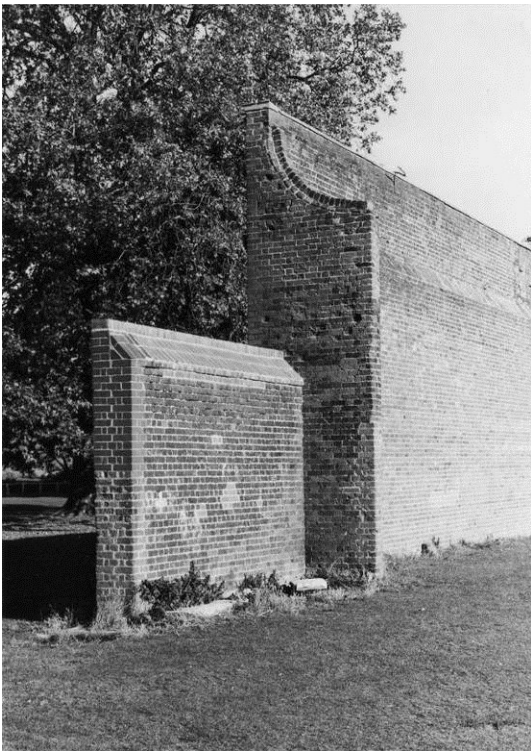


Figure 21. The west end of the orangery wall and the stub wall.

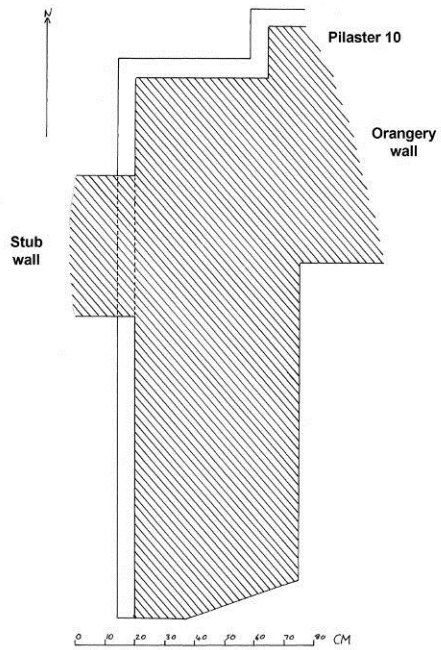


Figure 22. Plan of the west end of the orangery wall.



## 3.2 The south side

The south side is essentially a plain brick wall which rises to a height of 4.7m. Above this the wall slopes inwards and then rises vertically to stone capping about 6.7m above the ground. The bricks are laid in English bond. There is a short southward projecting stub at the western end (figures 3 and 4). This has a bevelled end which was once the side of a window showing that the stub is a surviving part of the western wall of the building (figures 21 and 22).

There is a blocked rectangular opening in the main wall immediately to the east of the stub wall. The top is formed by a slab 7cm thick 4.48m above ground level and two brick courses below the sloping section of the wall. There is a square opening in the wall capping above this with a shaft leading down through the wall. It seems likely that this was a flue which took the fumes from a stove around the orangery's temporary roof (figure 7).

In the early twentieth century there were three buildings against the eastern end of the wall. The easternmost building appears on the 1820 map. It probably originated as a room at the eastern end of the orangery. The elaborate door in the centre of bay once opened into it and it would have been lit by the two blocked windows to the left and right of the door.

The building's eastern wall (figure 13) was made of soft red brick and is obviously part of the original brick orangery. It is at an angle of about 89 degrees to the main orangery wall and respects the former alignment of the north-south section of the river Wandle on the northern side of the garden.<sup>39</sup> There is a tall blind window on the outside. The west side of the room was marked by a stub of wall which projected 2.46m south of the main wall (figure 20). There was a fireplace set into the northwest corner of the room with an opening above it which ran into the wall and upwards to an opening in the capping (figures 18 and 19). The room had a floor of blue bricks. There are traces of a first, or mezzanine, floor on the north and east walls above the window heads. This must have been the room converted into 'stabling for one horse and room for drying and storing earth for closets in or about 1877.

The other structures were a pair of lean-tos built against the orangery wall to the west of the first building. The Ordnance Survey maps show that they were erected between 1868 and 1897. They have now gone, leaving little trace apart from one blue bull-nosed brick projecting from the wall.

## 3.3 The stub wall at the west end of the orangery wall

A short section of wall projects 4.23m from the western end of the orangery wall (figure 21). It is 0.47m thick and of brick laid in English bond. At the western end there is a Portland stone faced foundation for a pillar. The bricks have a median size close to those in the orangery wall. A late nineteenth or early twentieth century photo shows that it linked the orangery wall to an urn-topped stone-faced pier which supported a set of wrought iron railings and gates. The details of the gates and pier are entirely consistent with an early eighteenth century date.<sup>40</sup>

## 4. EXCAVATIONS NORTH OF THE WALL, 1998

The excavations aimed to:

- Examine the footings of the north side of the orangery wall to see if there was any evidence for its Tudor predecessor or an earlier garden wall.
- Examine the relationship between the foundations of the orangery wall and the eighteenth century 'stub wall' which runs from its western end.

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<sup>39</sup> The alignment was altered when the river channel was re-graded in 1990-1.

<sup>40</sup> Phillips and Burnett 2008, p. 28-9.

- Look for a water course which appears to be shown running along the north side of the orangery wall on the first edition one inch Ordnance Survey map.

## 4.1 Location of the trenches

Three trenches were dug against the north side of the orangery wall (figure 4).

Trench CP was 2m north-south by 0.5m east-west. The east side of it was 6.9m from the east end of the orangery wall.

Trench CQ was 2m N-S by 0.5m E-W. The east side of it was 13.1m from the east end of the orangery wall.

Trench CR was in the corner between the west end of the orangery wall and the stub wall. The trench was rather irregular about 0.5m north - south by 0.65m east - west. The south side was formed by the stub wall and the east side by the orangery wall.

## 4.2 The stratigraphy

### 4.2.1 Trench CP

Layer [CP1] immediately below the turf consisted of soft brown soil interleaved with pockets of crushed soft brick and black coal ash (figure 23). It contained much brick rubble including some cut brick and occasional yellow stock brick. There was also some pan tile. Most of the finds were discarded.

Layer [CP1] rested on [CP2] which consisted of brown soil with much coal ash and rubble, the latter mostly brick and flint.

After this the trench divided into three zones numbered [CP3], [CP4] and [CP6] from south to north.

Layer [CP3] occupied the south end of the trench next to the orangery wall. It consisted of pale brown sandy soil with flecks of chalk, small flint and occasional pieces of tile.

Layer [CP4] to the north of this consisted of brown soil with much flint and some rubble.

Layer [CP6] consisted of coal and coal ash. It was mostly around 1cm thick but the deposit deepened towards the south end where it was probably interleaved with the edge of [CP4]. Layer [CP3] passed under [CP4] and [CP6] and occupied the whole area of the trench.

Layers [CP1] to [CP4] contained modern finds. Layer [CP6] was probably interleaved with [CP4] and consisted of coal and coal ash which is likely to be fairly recent. These layers must all be of nineteenth or early twentieth century date and can be grouped together. The bottom of [CP3] the lowest layer in the group sloped from 31.97m OD at the south end of the trench to 31.93m OD at the north end away from the wall.

Layer [CP3] was underlain by layers [CP7], [CP8] and [CP9] which again divided the trench into three zones from north to south.

Layer [CP8] consisted of rounded and sub-angular flint mostly around 2 to 3cm in light brown soil. There was 2% to 3% chalk and a few pieces of brick.

After layer [CP8] had been removed layers [CP7] and [CP9] were found to pass beneath it and join. They were therefore a single layer and will be referred to as [CP7]. This was similar to [CP3] and consisted of fairly hard light brown sandy soil with flecks of chalk and occasional flint pebbles. There were many pieces of clear window glass at the south end close to the orangery wall. A proportion of this was put in the finds tray. It consisted of slightly blue

green, lightly patinated glass which was mostly between 1.3mm and 1.7mm thick although some was 1mm and some 2mm thick. The latest object in layer [CP7] was two joining sherds of white straight-sided stoneware mug or jar decorated with low raised bands which was probably Staffordshire, c.1720-70. However, the layer also contained pink mortar, slate and coal shale. The last two are common in nineteenth-century deposits but are rare at Beddington in the eighteenth century, which suggest the layer may have been deposited or perhaps cultivated in the nineteenth century.

Layer [CP7] rested on layer [CP10] which consisted of light brown sandy soil with more chalk and small broken brick than the overlying layer and about 10% sub-angular flint. The layer was mostly loose and soft although there were some clayey patches. The deposit contained rough Tudor-type brick, peg tile, Reigate stone and bone.

Layer [CP10] rested on layers [CP11], [CP12] and [CP13] which occupied the floor of the trench from south to north. Layers [CP11] and [CP12] nearest the orangery wall were excavated together due to the lack of space. They consisted of light brown soil with large quantities of broken brick, chalk and mortar and occasional peg tile. One of the bricks had a rounded frog 33mm wide and 11mm deep coming to within 10mm of the end of the brick.<sup>41</sup> It had doubtful traces of white calcite on it. There was unequivocal calcite on five other pieces of rubble.

Layer [CP13] at the north end of the trench consisted of rounded and sub-angular flint of mixed size up to 6cm in a pale brown slightly green sandy matrix. There were many small flecks of chalk and a little larger chalk up to 2cm in size. There were no finds.

Layer [CP13] rested on [CP14] which consisted of fine dark silt with tiny pieces of chalk and snail shells. The layer contained a mortared flint, some pieces of peg tile and Reigate stone. Some of the latter was worked and most pieces were burnt or sooted and had yellow stain on the fracture. There were no closely datable finds.

Layer [CP14] rested on [CP15] which consisted of chalk and flint in fine dark silt. There were no finds.

Layers [CP11], [CP12] and [CP15] all rested on [CP16] which consisted of sand with small rounded chalk pebbles. When the top of the layer was cleaned there were several patches of fine dark brown silt which were initially thought to be stake holes. However, they changed shape on trowelling and appeared to be irregular inclusions. The main trench ended near the top of [CP16] but a small probe hole was dug down to 30.81m OD. The deposit became gravelly with depth but the gravel was still in a matrix of sand and chalk pebbles. There were no finds.

#### **4.2.2 Trench CQ**

Layer [CQ1] consisted of several deposits but they all contained nineteenth and twentieth century material so they were excavated as one unit (figure 24). There was fine brown top soil immediately below the turf layer. This passed into brown rubble soil with brick, flint and a little tile and chalk. The lowest part of the layer contained a great deal of coal ash. The base of [CQ1] was between 32m and 32.05m OD.

Layer [CQ1] rested on [CQ2] which consisted of soft medium brown soil with patches of rubble consisting of brick, chalk and flint with a scatter of mortar. There were some pieces of cut brick and also modern white pottery of late nineteenth or twentieth century date. The base of [CQ2] sloped down from 31.92m OD at the south end to 31.86m OD at the north.

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<sup>41</sup> Find <11>.

Layer [CQ2] rested on layer [CQ3] which also consisted of soft medium brown soil with patches of rubble. There was some cut soft red brick which is likely to have come from the orangery wall but no other datable finds.

Layer [CQ3] rested on [CQ4] and [CQ5]. Layer [CQ5] formed a metre wide strip next to the orangery wall while [CQ4] was away from the wall to the north. Layer [CQ5] consisted of light brown sandy earth without any finds. It overlay [CQ4] which passed underneath it and covered the whole area of the trench.

Layer [CQ4] consisted of brown earth with large lumps of brick, chalk and tile and a few pieces of Reigate stone. It contained smooth surfaced soft red brick with calcite on it. There was also peg tile, some with calcite; some rather doubtful pieces of pan tile; a piece of medieval floor tile and fragments of Reigate stone, some worked, some burnt and some with some yellow stain.

When [CQ4] had been removed a line of stone blocks was exposed as shown in figure 25. There were five main blocks, all of Reigate stone, forming a line along the west side of the trench and a number of small pieces of Reigate stone and chalk to the west and north of them ([CQ6]). The deposit around them consisted of crushed chalk and earth ([CQ7]). Two pieces of white ware were found in [CQ4] close to the line of Reigate stone blocks.

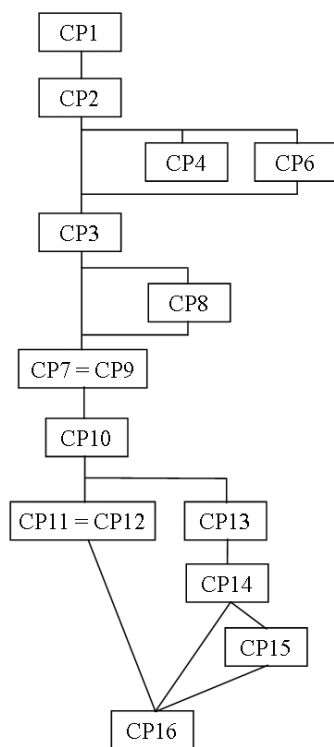


Figure 23. Site matrix for CP.

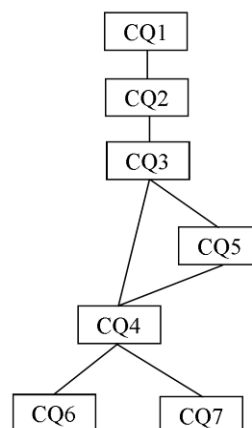


Figure 24. Site matrix for CQ.

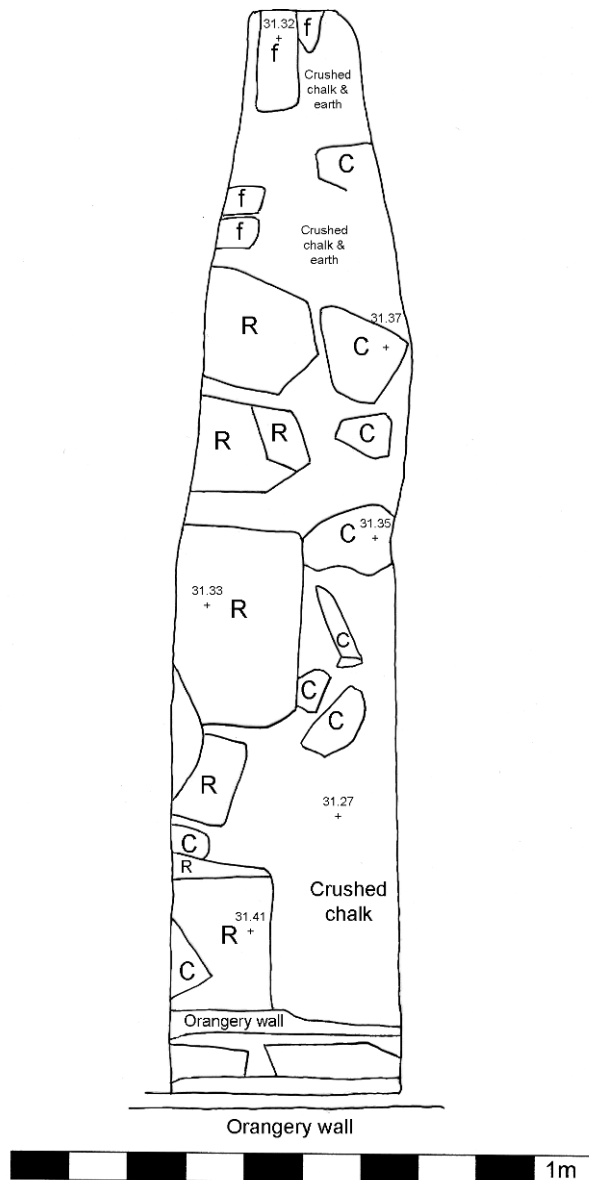


Figure 25. Reigate stone blocks [CQ6] and the top of layer [CQ7] as shown on the plan opposite. North at the top of the plan: south at the top of the photo.

### 4.2.3 Trench CR

Layer [CR1], below the turf, consisted of rubble in brown soil. The deposit contained soft red brick, yellow stock brick, a London Brick Company Fletton, concrete, Reigate stone, chalk and some clay. There was also modern window and bottle glass.

Layer [CR1] rested on [CR2] which consisted of very soft brown soil.

Layer [CR2] covered a small drain [CR3] (see figures 26 and 27). The roof and floor of the drain consisted of peg tiles laid with their lengths across the channel. The walls consisted of two courses of brick stretchers so each wall is one brick width thick. The drain had an inside width of 0.17m and a height of 0.15m. The bottom of the channel was at 31.45m OD.

One roof tile was 12mm thick, 158mm wide and had a surviving length of 259mm. A second one was 13mm thick, 156mm wide and had a complete length of 276mm.

The drain was aligned at an angle of about 18 degrees to the end of the orangery wall. The channel was inspected with a mirror. To the south it was blocked by an earth fall after about

0.5m. To the north the channel curved gently towards the east.<sup>42</sup> A tape was inserted to 3m and the channel curved out of sight beyond this. There was a thin layer of earth and scraps of chalk on the channel floor.

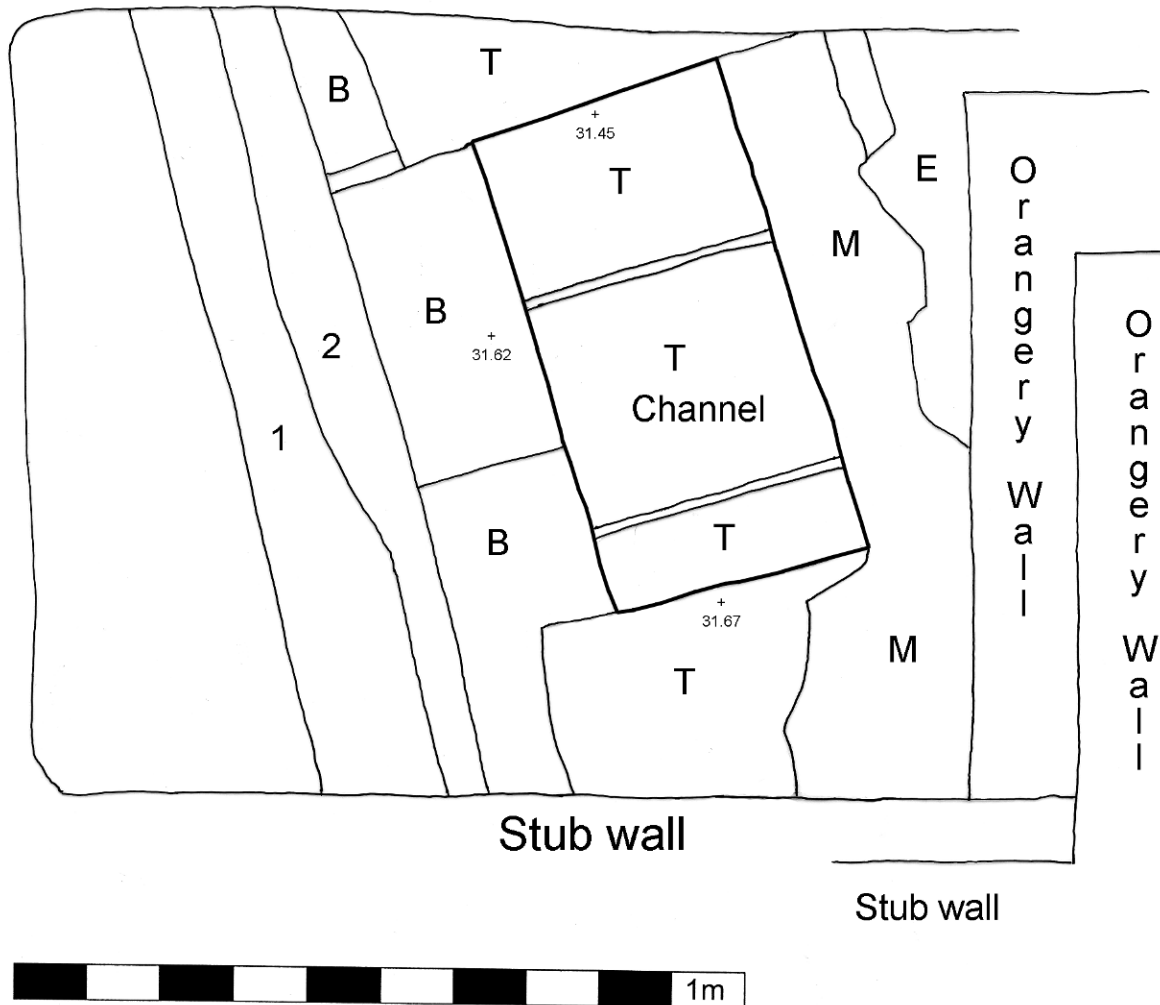


Figure 26. The brick and tile drain in trench CR with two tiles removed from the top exposing the channel.  
 B = Brick, E = earth, M = mortar; T = Peg tile.  
 M = Mortar.  
 1 = Brown soil with occasional flecks of chalk.  
 2 = Slightly darker brown soil.  
 North at the top.

<sup>42</sup> The notes made on site say that it curved to the east but my recollection is that it bent westward.



Figure 27. Trench CR with the drain. The end of the orangery wall on the left; the stub wall to the right.

### **4.3 The footings of the orangery wall and stub wall**

These were of smooth soft red brick like that in the wall above the foundation.

#### **4.3.1 Trench CP**

The wall footings in trench CP are shown in figure 28. The foundation widened by offset 1 at 32.04m OD about two courses of brick below the surface. There were twelve courses of brick below this with a total height of 0.92m. The foundation widened by a further four irregularly spaced offsets of varying width as shown in figure 28. The brick rested on broken chalk and

mortar at 31.12m OD. This went down a further 0.11m and rested on dark silt. The brickwork above the top of the offset was tuck pointed. There was no pointing below this and the bricks were carelessly laid.

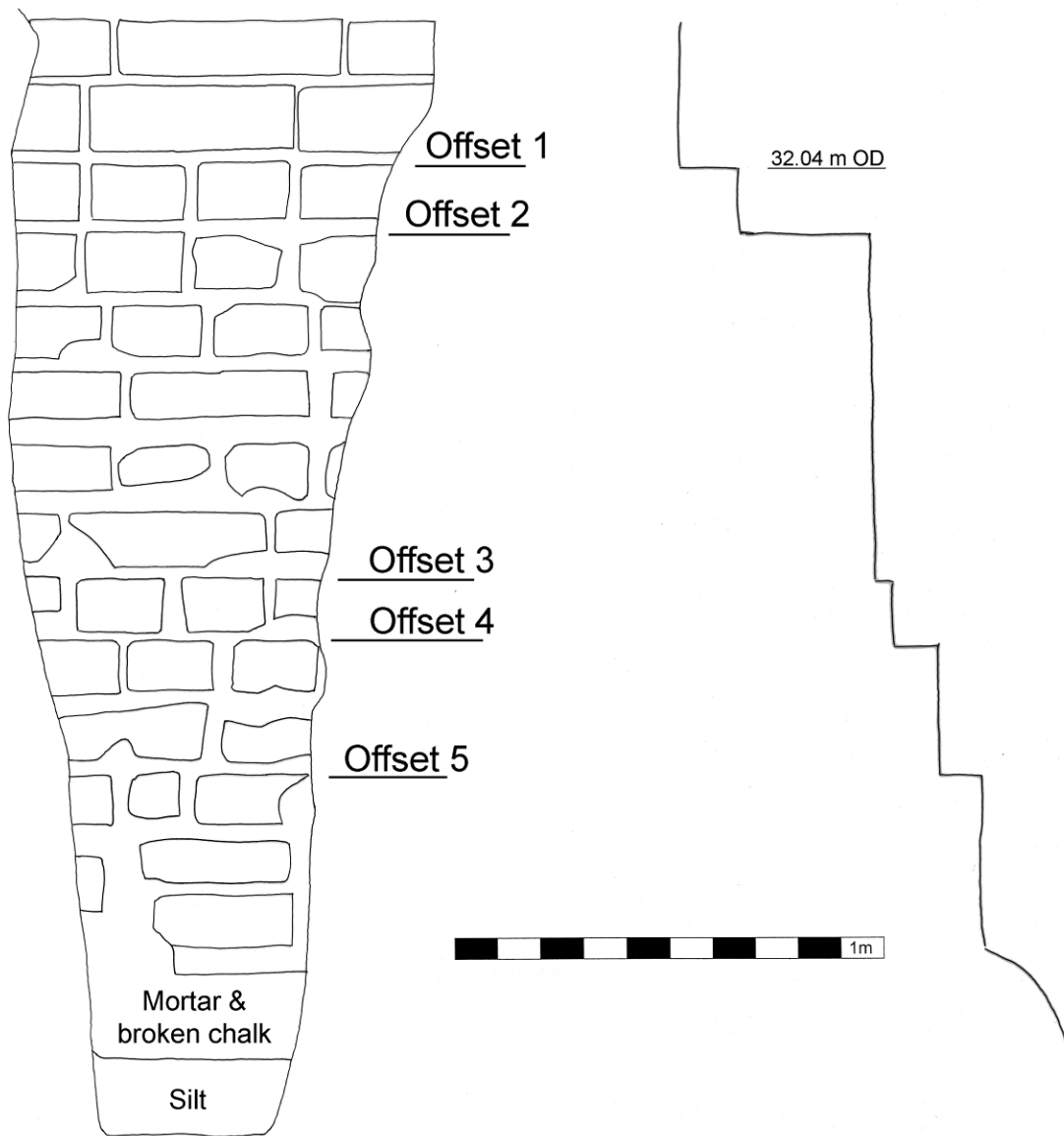


Figure 28. Elevation and profile of the orangery wall foundation in trench CP.

### 4.3.2 Trench CQ

The foundation widened by an offset at 32.02m OD two courses below ground level (figure 29). There were mortar and brick impressions on the top of the offset which showed that it had originally been at least one course higher. There were seven courses of brick below the offset followed by a projecting course of mortar about half a brick thick. The top of this projection was at 31.43m OD and 0.59m below the first offset. The top of the crushed chalk layer [CQ6] was at 31.29m OD which was below the bottom of the foundation.





Figure 29. The footings of the orangery wall in trench CQ.

### 4.3.3 Trench CR

The trench exposed the foundations at the junction between the orangery wall and the stub wall which runs west from it with the intention of revealing the relationship between them (figures 26 and 27). The drain [CR3] passed under the stub wall. There were seven courses of brick above the drain and there was then an offset close to ground level.

The stub wall bricks were firmly mortared to the top of the drain and look contemporary with it. The drain was also mortared to the orangery wall.

Above ground level the stub wall meets the orangery wall in a butt joint. At foundation level the stub wall has been broken away to the west of the drain. The edges of the break are rough and a hole has clearly been knocked through. The top of the break starts in the offset course which was damaged. Below this the original foundation has gone but a soldier course of bricks has been inserted. This rests on three flints. Below this there was soft brown earth. There was no evidence for the date of the break.

## 4.4 Discussion

### 4.4.1 Trenches CP and CQ

Small trenches provide a very limited view of features and their context so any conclusions must be of a tentative nature.

The earliest deposits in trench CP were layers [CP14] to [CP16] which appear to represent the sand and gravel bed and overlying silt of a pond or slow-flowing watercourse. The only finds were from the silt layer [CP14]. These consisted of a mortared flint, a number of pieces of peg tile and Reigate stone including some worked pieces and some which were burnt and had yellow stain. The peg tile shows that the silt is medieval or later.

The silt appears to extend beneath the orangery wall as it was found in an auger hole sunk near the fireplace on the south side of the wall (appendix 7.12). The top of the silt there was at about 31.99m OD and the silty gravel was a further 0.9m down at 31.09m OD. The top of the silty gravel in the south end of CP was at 31.07m OD which agrees with the height in the auger hole. The highest point on the silt in CP was at 31.34m OD, 0.25m below the top in the auger hole. This suggests that the silt in CP has been partly cut away.

The bottom of trench CQ was around 31.3m OD where the silt was not present. The foundation of the orangery wall was far more substantial in CP than CQ (see section 4.3 above) which suggests that the wall builders were aware of the former pond and that the site of trench CQ was outside it.

Several former water courses are known near the eastern end of the orangery wall. One was a deep channel which was excavated in trench CF 13m to the north of CP (see figure 4). It was filled with pale brown silt which consisted of a mixture of calcium carbonate and fine sand presumably with a very low organic content. The top of the silt there was at 31.61m OD. There was also a lake which lay at the eastern end of the eighteenth-century garden, which contained fine pale brown silt similar to the deposit in trench CF and with the top at about the same height – 31.64m OD.<sup>43</sup>

In the nineteenth century a branch of the river Wandle flowed into the garden to the south of the orangery wall. A branch or spill way from this passed immediately east of the orangery wall and emptied into the lake. The water in this must have been fairly clear as it would have affected the deposits in the lake. A contractor-dug ditch (AJ) cut through the edge of the lake and the deposits to the south. The lower part of these may have been the silt from a former pond but they were pale coloured and clean.<sup>44</sup>

The light brown silts in these deposits were unlike the dark silt found in the bottom of trench CP which suggests that the latter was not connected with them. Dark silt was found at the bottom of the southern end of the moat around the house, the eastern edge of which was probably about 58m west of trench CP.<sup>45</sup>

At the north end of trench CP, away from the orangery wall, the silt was overlaid by rounded and sub-angular flint in a pale brown slightly green sandy matrix ([CP 13]). This looks like material from the nearby Thanet beds which was presumably dumped to fill the water feature.<sup>46</sup> The deposits at the south end of the trench next to the orangery wall ([CP 11] and

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<sup>43</sup> Details of the east lake and the water course in trench CF can be found in Phillips and Burnett 2008 p. 33-39.

<sup>44</sup> Trench AJ see Phillips and Burnett 2005 p. 33-4.

<sup>45</sup> Phillips and Burnett 2005 p. 21-2.

<sup>46</sup> The Thanet sands underlie the southern part of the garden and the land to the southeast of it. There is a large old sand pit by Croydon Road at TQ297650 about 100m from the garden wall.

[CP12]) consisted of light brown soil with much broken brick, chalk and mortar. This must be the fill of the construction trench for the orangery wall so the watercourse was filled before the wall was constructed. The rubble in the construction trench included a brick with a narrow semicircular frog unlike the eighteenth-century bricks in the orangery or elsewhere on the site.

In trench CQ the stone and chalk deposits at the bottom of the trench ([CQ5] and [CQ6]) were overlaid brown soil with large lumps of brick, chalk tile and a few pieces of burnt Reigate stone with yellow stain. This appears to be the same as the fill of the orangery wall construction trench in CP. The deposit of flint and greenish sand at the north end of CP was absent from CQ.

The brick from [CP11] / [CP12] had a median thickness of 65mm and a width of 108mm. This is thinner than the brick from the orangery wall and was similar to the bricks used at Carew Manor around 1715.<sup>47</sup>

The sand and the deposits in the orangery wall construction trench were covered by a layer of light brown sandy soil ([CP7] and [CP10]) which was probably deposited to form the top soil in the early-eighteenth-century garden. The upper part of the deposit contained part of a Staffordshire stoneware mug of c.1720-1770 and also some coal and a piece of pink mortar which may be signs of nineteenth-century cultivation. The layer also contained a large amount of window glass although the significance of this is unclear. At the top of these deposits a layer of gravel and soil [CP8] may be the foundation of an east-west running path about 1.2m wide and 0.25m from the wall. The underlying finds suggest that the path dated from the nineteenth century.

The deposits above the 'path' contained nineteenth and twentieth century finds and deposits of coal ash which may have been the foundation of a path.

The deposits in the upper part of CQ were similar to those in CP. The orangery wall construction trench was covered with soil which contained some rubble including cut brick from the orangery wall. This deposit was covered with soil, rubble and coal ash which contained nineteenth and twentieth century finds.

#### **4.4.2 The orangery wall**

In trench CP the orangery wall foundation went down 12 courses below the first brick offset while there were only 7 in CQ. In trench CP the foundation widened by four additional offsets: in trench CQ there were none. This suggests that the builders of the wall were aware that the west end rested on the soft silts of the former water feature and strengthened the foundations accordingly.

#### **4.4.3 The drain in trench CR**

The drain [CR3] was mortared onto the orangery wall and was below the stub wall which runs west from it. This suggests that the stub wall is later than the orangery although the difference in date is probably slight as the bricks are very similar. It was impossible to be certain about the point as the key part of the stub wall foundation had been destroyed in the past. The damage may have been associated with the erection of a telegraph pole which is shown on a photo of 1951 on the south side of the stub wall at the end of the orangery.<sup>48</sup>

The brick and tile drain at the west end of the wall is most likely to have collected rain water from the roof. It may have emptied into the culvert which is known to run from a collapse

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<sup>47</sup> Phillips and Burnett 2005 p. 149-151.

<sup>48</sup> Photo taken for the London County Council now in the Sutton Local Studies collection.

near the western end of the orangery wall westwards to a culvert in the former moat around the house.<sup>49</sup>

## 5. TRENCH CT SOUTH OF THE WALL IN 1999

### 5.1 The location of the trench

In 1999 a single trench 7m from north to south by 2m east to west was excavated against the south side of the wall. The west side of the trench was 19.37m east of the stub wall which projects from the south side of the west end of the orangery wall (figure 4).

### 5.2 The stratigraphy

The first layer [CT1] consisted of turf and top soil which covered the whole area of the trench. [CT1] rested on layers [CT2], [CT3], [CT4] and [CT5] as shown in figures 30 and 31.

Layer [CT2] occupied the south end of the trench. It consisted of crushed brick, rounded and angular flint pebbles with occasional larger flint and stone. The top was level and appeared to be the surface of an east-west aligned track which can often be seen as a burn mark on the grass. The north edge of the track was defined by [CT3], a line of 10 stone blocks of various sizes with some smaller stone. Most were Portland stone with clear signs of reuse. There was some nineteenth or early twentieth century brick and tile at the west end of the layer.

There was a line of four boulders [CT4] parallel to [CT3] in the western part of the trench. From west to east these were:

- White oolitic limestone rubble.
- Pale brown oolitic limestone with a smooth face to the north and fractures on the other sides.
- A rounded red-brown sandstone boulder.
- A rounded boulder of grey granite or similar rock with a flattish facet.

There was an nineteenth or twentieth century brick lodged against the west side of the gap between the oolitic limestone and sandstone boulders and a piece of asbestos cement resting against the east side of the granite block. There were pieces of stone and brick beneath these which seem to have been used as packing to hold the blocks in place. The blocks may have been inserted in a cut in the underlying layer [CT5] but if so there was no sign of it.

Layer [CT5] which filled the trench to the north of the track consisted of brown soil which was slightly more orange than the overlying layer [CT1]. It contained a scatter of flint brick and chalk and some modern pottery.

The track surface [CT2] rested on layer [CT6] which filled the south end of the trench as shown in figure 34.

Layer [CT6] consisted of small tightly-packed rounded and sub-angular orange gravel with a patch of brick in the northwest corner of the trench. The gravel was of mixed shape and up to 50mm in size although most was 10 to 20mm. There was enough sand to ensure that the layer was so densely packed that it was hard to mattock. There was a group of nineteenth or early twentieth century finds at the east end of the trench above the brick foundation [CT21] which is described below. They were probably in an undetected cut in the gravel which had damaged the top of [CT21]. The finds were in a gravel matrix similar to or identical with [CT6].

The northern edge of [CT6] sloped downwards so the southern edge of layers [CT5] and

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<sup>49</sup> Phillips and Burnett 2005 p. 8-12.

[CT8] lapped over it. The soil beneath the stone line [CT3] was numbered [CT7] but was indistinguishable from [CT5] and almost certainly part of it.

The greater part of [CT5] rested on layers [CT8], [CT9], [CT10], [CT11] and [CT12]. Layer [CT8] occupied the southern part of the area and [CT9] the northern with the other three layers between them as shown in figure 34.

Layer [CT8] consisted of medium brown fairly sandy soil with 5% small flint pebbles.

Layer [CT9] consisted of yellowish brown soil with a scatter of small pebbles although less than [CT8]. There were also chalk flecks and scraps of brick.

The deposits between [CT8] and [CT9] consisted of three patches of darker soil numbered [CT10], [CT11] and [CT12] separated by lines of sand with areas of gravel on the north side which were later found to be part of [CT6] as described below. When [CT10], [CT11] and [CT12] were excavated the deposits turned out to be ill-defined, so they were treated as part of [CT8]. When they were excavated they were found to rest on a layer of gravel which was numbered [CT13] but which was in fact the same deposit as [CT6]. The gravel was about 0.2m thick at the southern end of the trench above the foundation [CT21]. The top of the deposit started to slope downwards 1.8m from the south end of the trench and thinned to about 2 or 3cm. It then continued northwards. About 3.95m from the south end of the trench, it sloped up ending in a vertical cut against [CT9] 4.2m from the south side of the trench and 2.8m short of the orangey wall (see figures 35 and 43).

When layer [CT6]<sup>50</sup> had been removed a substantial east-west brick foundation [CT21] was uncovered. This divided the trench into two areas, one to the north of the foundation and the other to the south.

### **5.2.1 The deposits to the north of foundation [CT21]**

The northern part of [CT6] was removed and an L-shaped cut was made to try to resolve the stratigraphic sequence. This produced the situation shown in figure 36.

There were five deposits in parallel east – west strips across the trench. From south to north these were:

- [CT17] Brown silty soil with occasional flint chalk and brick.
- [CT15] A thin layer of crushed brick and green (Reigate?) stone dust with patches of soil showing through.
- [CT14] As [CT17]
- [CT16] Thin layer of crushed brick.
- [CT18] Medium brown soil with about 5% chalk flint and brick. The deposit was less silty than [CT14] and [CT17] and contained less rubble.

Layers [CT15] and [CT16] were only a few millimetres thick and were very similar apart from the stone content of [CT15]. They could originally have been one deposit which later had a cut across it filled with [CT14]. This could not be detected when the deposits were excavated. Layers [CT14] and [CT17] appeared to be part of the same deposit which was subsequently excavated as [CT17]. However [CT14] was later found to cover a brick culvert [CT 20] suggesting that a cut was almost certainly present (figures 37 and 39).

A patch of brick and mortar on the east side of the trench was treated as [CT19] (see figure 37). The soil on the west side of the patch was burnt. The deposit was covered by layer

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<sup>50</sup> Numbered [CT13] in the site file.

[CT17] and, on excavation, [CT17] was found to run below it. [CT19] was therefore a lens of material within [CT17].

Layer [CT17] rested on [CT28] which consisted of dark brown soil with occasional mortar and chalk.

### 5.2.2 Deposits to the south of foundation [CT21]

When the gravel layer [CT6] was removed there were three deposits south of the foundation [CT21] as shown in figure 38. There was a deposit [CT23] of loose crushed mortar and brick with flint pebbles which filled a narrow gap between [CT21] and a second less substantial foundation [CT22] described in section 5.3.3. To the south of these was layer [CT24] which consisted of crushed chalk and small gravel in a sparse orange clay matrix.

Layer [CT24] rested on layer [CT25] at around 32.04m OD. This consisted of dark sandy silt with some areas of lamination where dark and light silt alternated. It looked similar to layer [CT17] on the opposite side of the foundation [CT21].

Layer [CT25] rested on layers [CT32] and [CT26] as shown in figures 40 and 41. Layer [CT26] filled cut [CT31] in [CT32]. Layer [CT26] consisted of mortared brick rubble and one large flint in a matrix of pale brown soil. The median brick sizes were:

	Median size (mm)	Number
Height	60mm	19
Width	105mm	5

The bottom of the cut was between 31.57 and 31.58m OD. A small probe hole was dug in the bottom of the cut. It passed through dark silty soil and reached gravel at 31.2m OD.

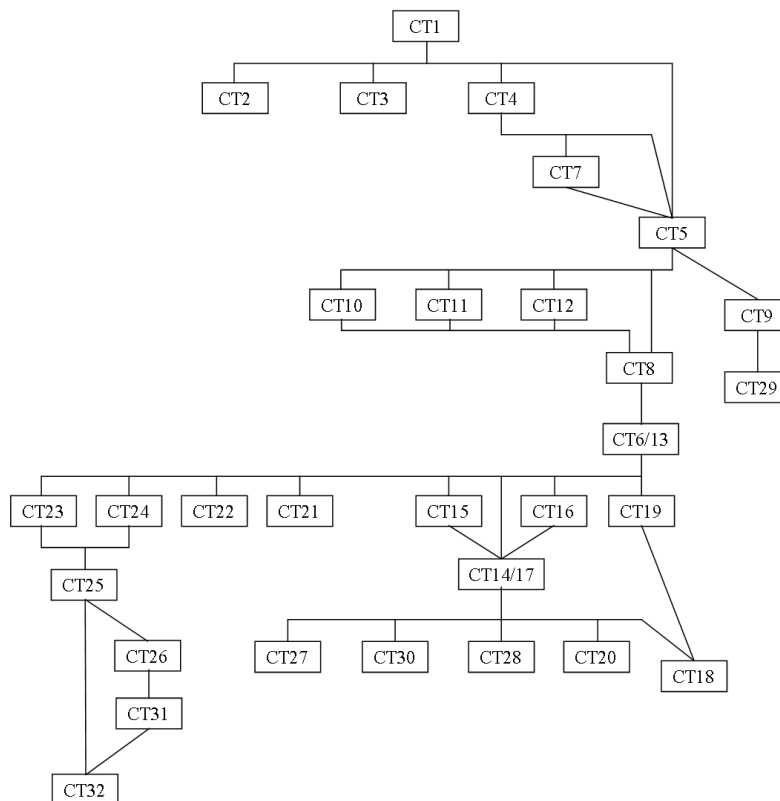


Figure 30. The site matrix for trench CT.

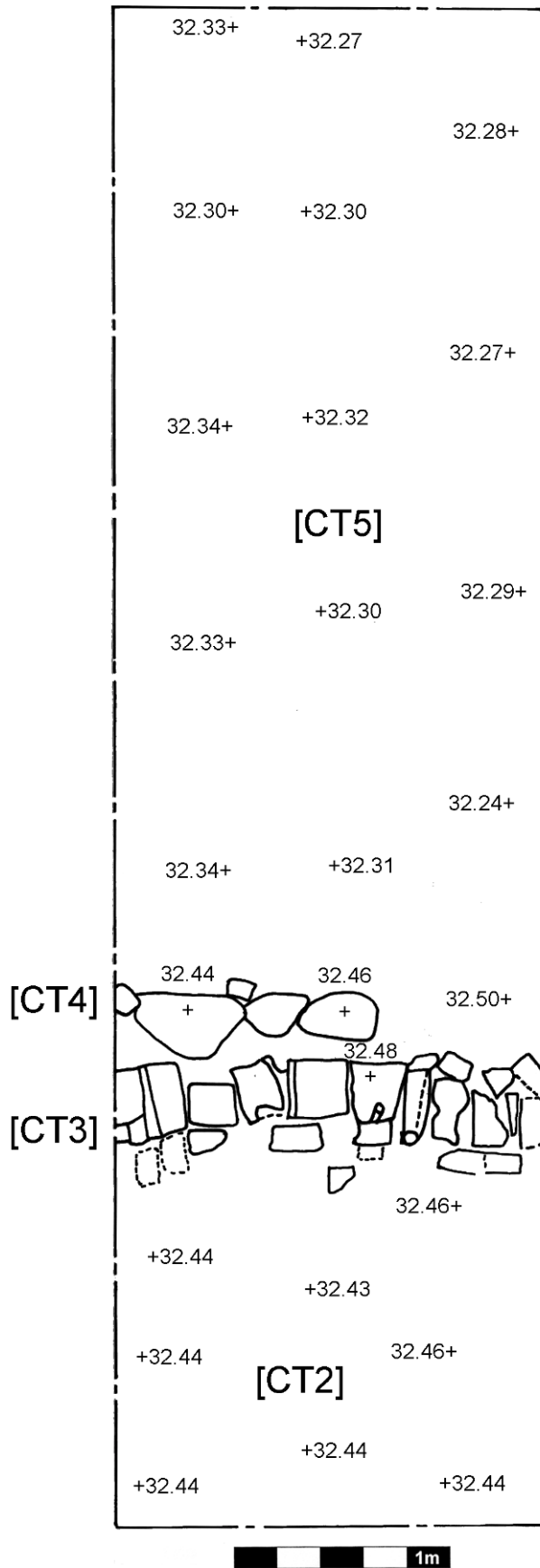


Figure 31. The tops of layers [CT2], [CT3], [CT4] and [CT5].

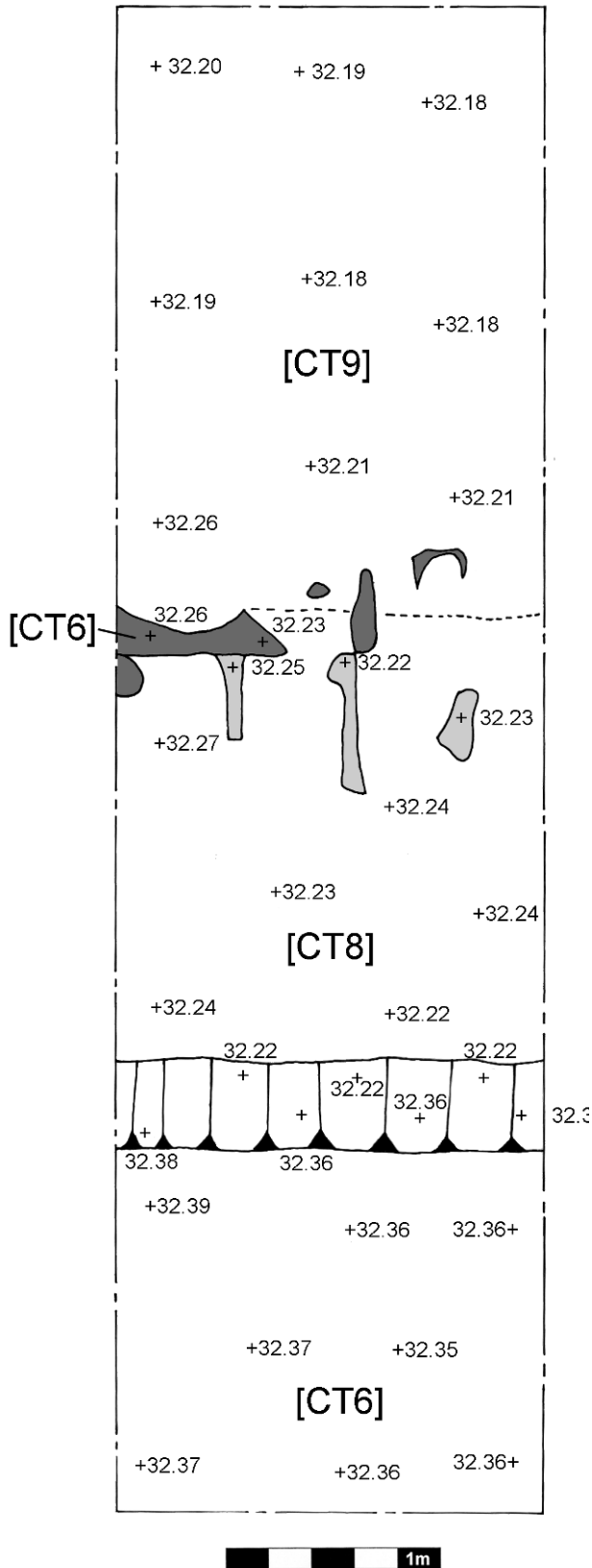


Figure 32. Stone lines [CT3] (left) and [CT4] (right) looking west.



Figure 33. Stone line [CT3] with line [CT4] in front of it looking southwest.





Dark grey = gravel    Light grey = sand

Figure 34. The tops of [CT8], [CT9] with part of the top of [CT6]. The deposits between the lines of sand were initially numbered [CT10], [CT11] and [CT12] but on excavation were found to be part of [CT8].

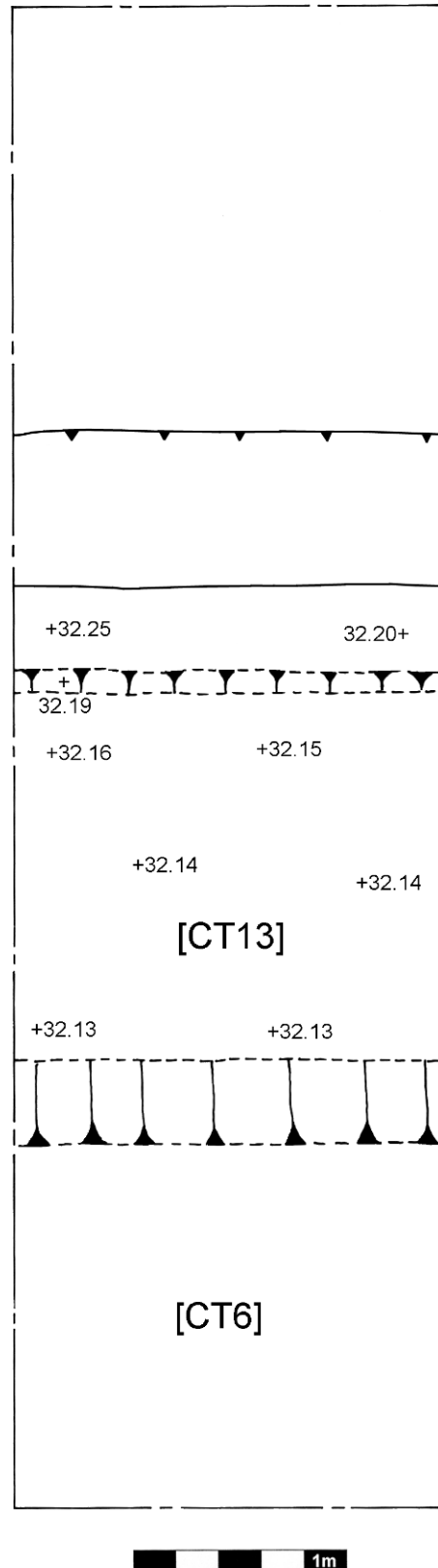


Figure 35. The tops of [CT6] and [CT13]. These two layers were later found to be the same.

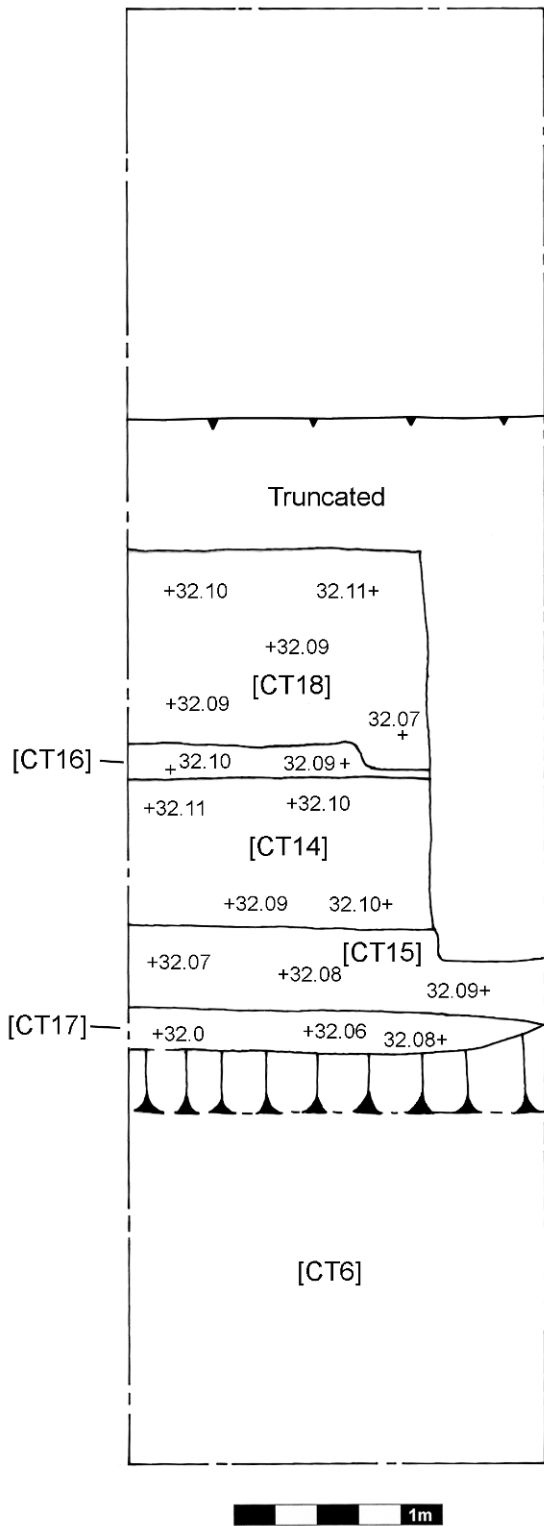


Figure 36. The tops of [CT14], [CT15], [CT16], [CT17] and [CT18]. After the removal of [CT13].

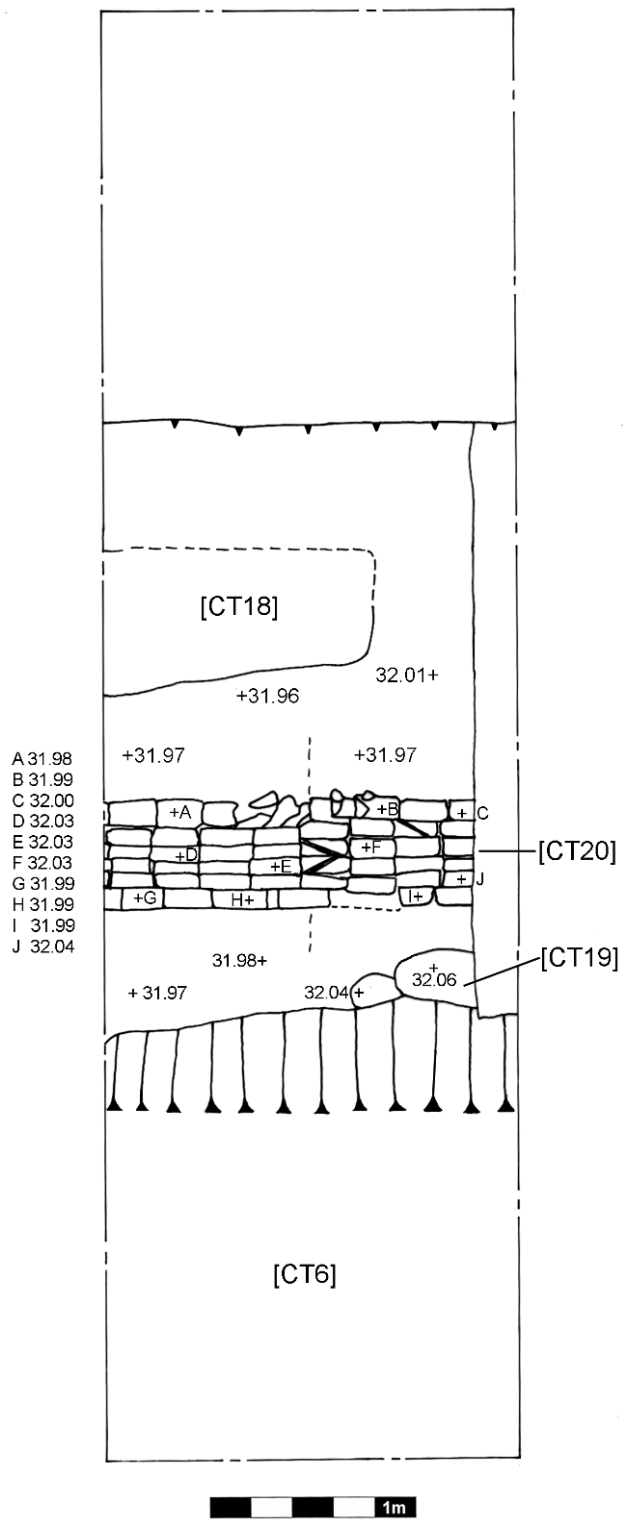


Figure 37. The top of culvert [CT20] and burnt area [CT19].

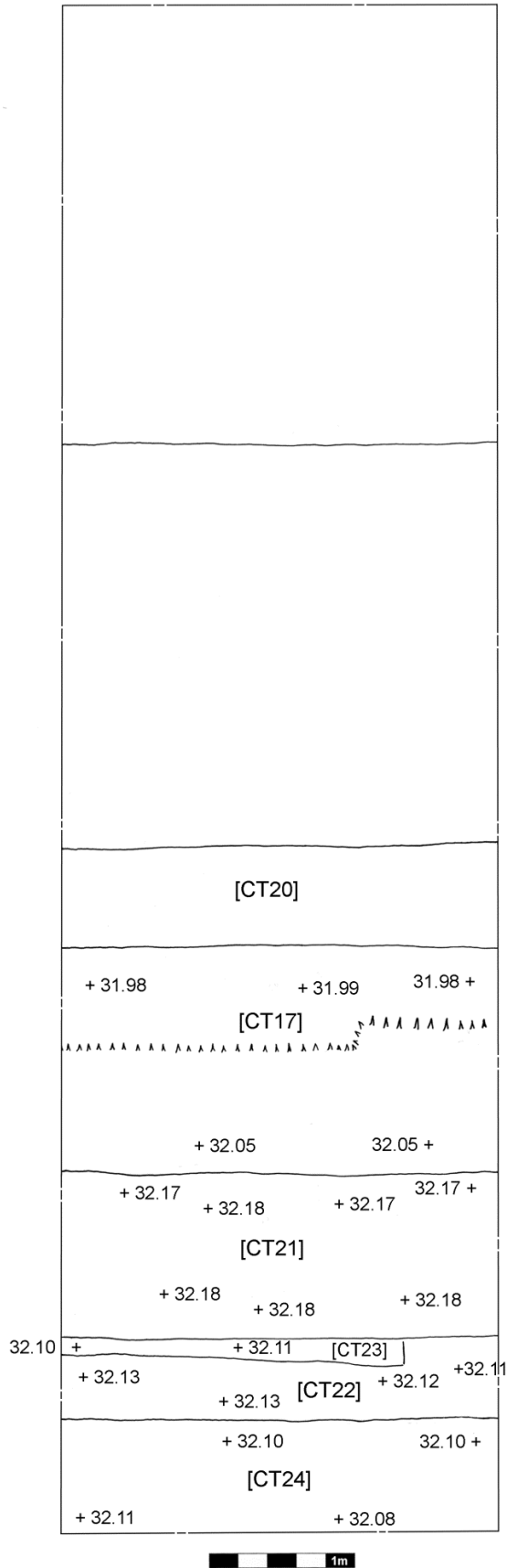


Figure 38. The trench after the removal of [CT6] showing [CT17] and the tops of [CT20], brick wall [CT21], brick feature [CT22], [CT23] and [CT24].



Figure 39. The tops of layers [CT14] (with the scale resting on it), [CT15] to the right and [CT16] to the left. In the foreground these deposits have been excavated exposing the top of brick culvert [CT20]. Layer [CT14] appears to be the fill of a cut for the culvert.

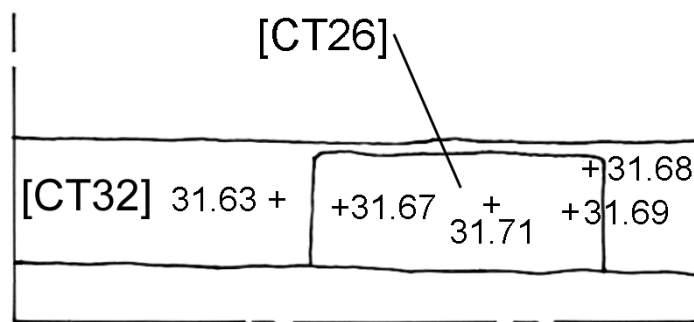


Figure 40. The top of layers [CT32] and [CT26].



Figure 41. The top of layer [CT26] at the south end of the trench. North at the top of the photo.

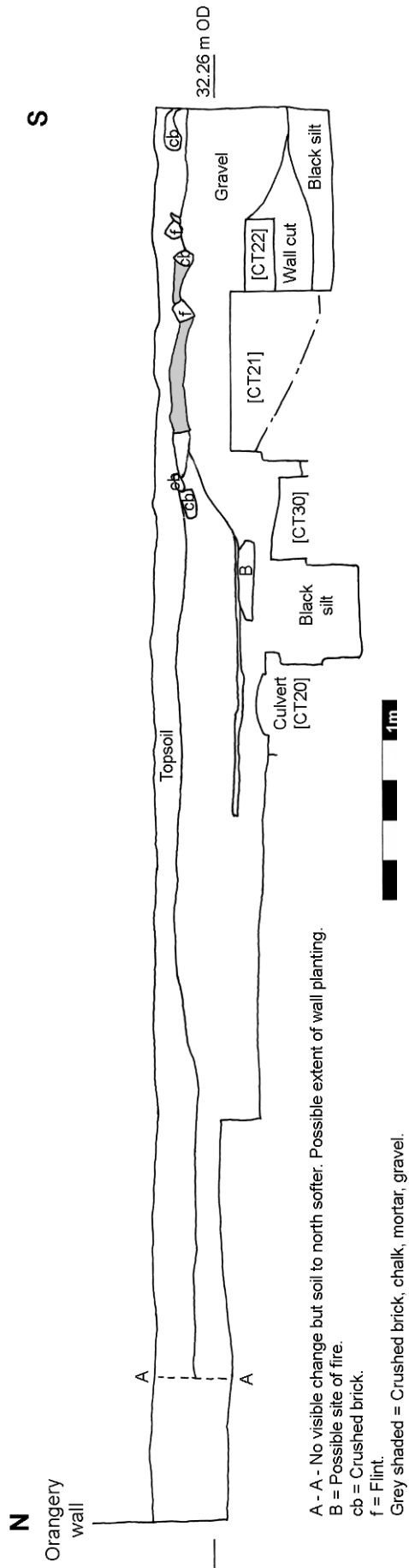


Figure 42. The east side of trench CT.

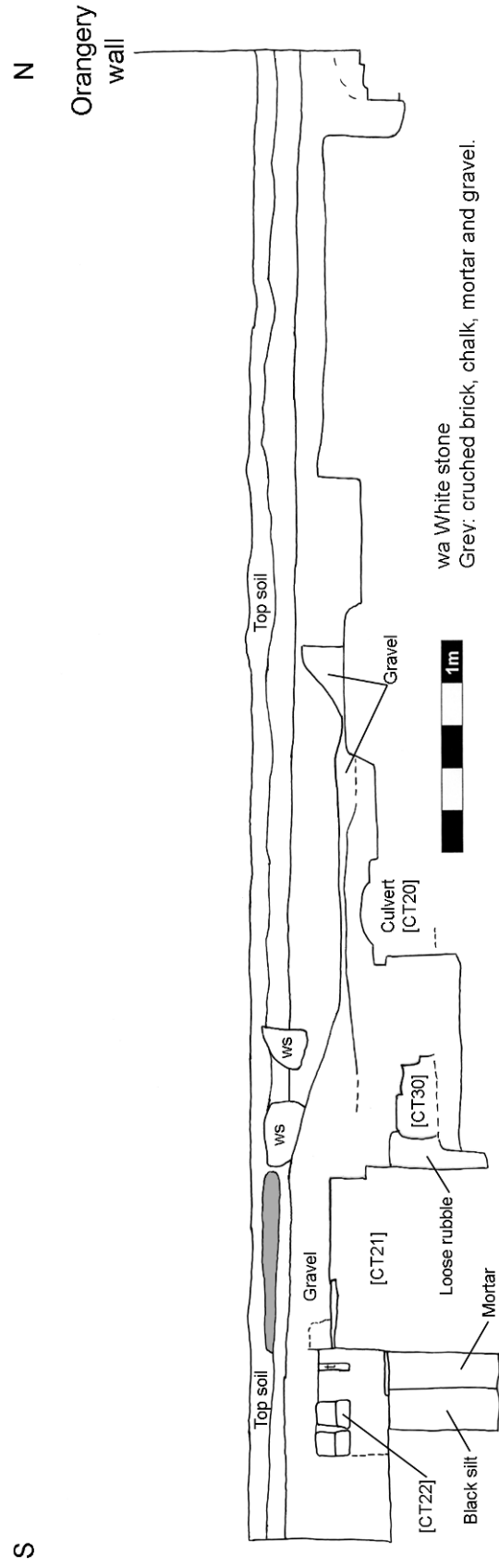


Figure 43. The west side of trench CT.

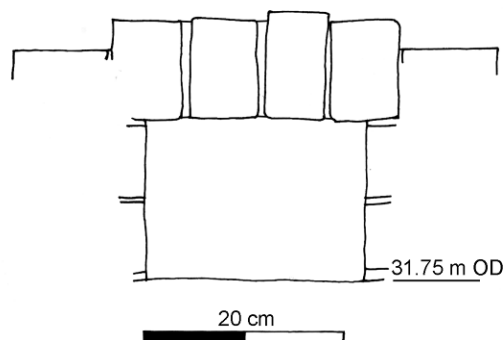
## 5.3 The structures in trench CT

### 5.3.1 The brick culvert [CT20]

See figures 37, 46 (plans), 42, 43, 44 (sections) and 45 (photo).

The culvert was aligned east-west with its northern edge 3.84m from the south side of the orangery wall. A short section of the top was removed for internal inspection. The culvert had an internal width of 0.22m to 0.23m. The sides consisted of three courses of brick. The top course was stepped outwards to form a ledge to support the roof. This consisted of a very flat 'arch' of four bricks set on edge and laid lengthways along the culvert. The floor consisted of bricks laid flat across the culvert. The floor was at 31.75m OD and was covered with a thin layer of fine silt. The inside was examined with a mirror and a steel tape was run out to give some idea of distance. To the west the culvert started to bend gently to the north after about 3m. To the east the culvert appeared to be straight for the 6m to 8m it was possible to see. There were pieces of mortar hanging down from the joints between the bricks which showed that the 'vault' was constructed without any formwork.

The bricks were soft reds with clear diagonal hack stacking marks. The median thickness of ten measured bricks was 65mm (range 63 – 69mm). The mortar was grey-brown with large chalk inclusions very similar to the mortar in the core of foundation [CT30] immediately to the south.



Above:  
Figure 44. Section of culvert [CT20].

Left:  
Figure 45. The top of culvert [CT20] looking west.

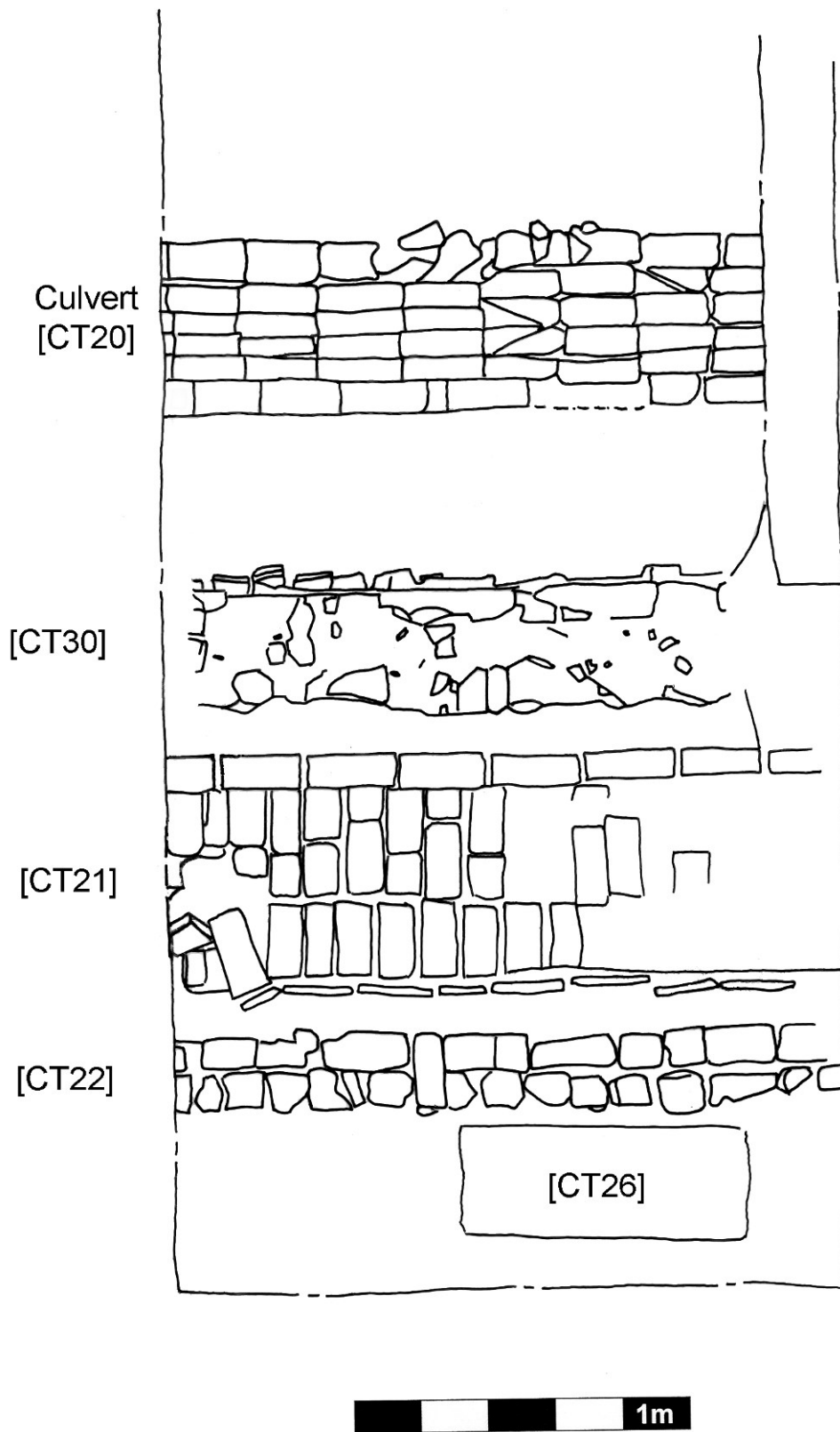


Figure 46. The south end of trench CT showing the foundations and culvert top.

### 5.3.2 The major foundation [CT21]

See figures 46, 47 (plans), 48 and 49.

This brick foundation was aligned east-west. The excavated top had a width of 0.74m. There was a 0.06m wide offset on the north side 0.16m below the top giving a total width of 0.8m. The top of the southern side of the foundation consisted of a line of headers. To the north of this the wall had a thickness of 1½ stretchers made up of bricks and half bricks laid as headers. The top of the offset consisted of stretchers.

The south side of the wall was faced with two courses of mostly broken peg tiles which had been mortared to it. The mortar fixing the tiles to the wall was of two types. The upper course of tiles, and the upper part of the lower course, was bonded with very soft grey mortar containing chalk and charcoal. The lower part of the lower course was fixed with soft light brown mortar. The junction between the two types of mortar was wavy and irregular. The bottom course of tiles rested on a layer of mortar similar to the upper mortar. Below this there was a mixture of orange brown and dark brown soil with mortar and brick. This filled a gap between the wall and the soil layer [CT25]. The deposit was 0.15m wide at the east side of the trench and 0.1m at the west. The top was between 31.82 and 31.84m OD. The deposit was followed down the face of the wall to the bottom.

On the south side of the trench the main brick foundation [CT21] rested on rubble at 31.29m OD.

The bricks in [CT21] were soft reds similar to those used in the orangery wall. Their median dimensions were:

	Median size (mm)	Number
Length	230	15
Height	69	10
Width	104	18

The mortar was pale grey, fairly hard, with chalk inclusions mostly 1 to 2mm in size.

### 5.3.3 The southern rough foundation [CT22]

See figures 46 to 49.

This foundation consisted of two courses mostly of half bricks with a total thickness of one stretcher. In places there was a third course of half brick under the north side and at the eastern end it was three half bricks wide. It partly rested on a line of flat peg tile projecting from the bottom of the tiles facing the foundation [CT21]. The bricks were soft red, worn and almost certainly reused, with the following median dimensions:

	Median size (mm)	Number
Length	220	1
Height	65	25
Width	105.5	22



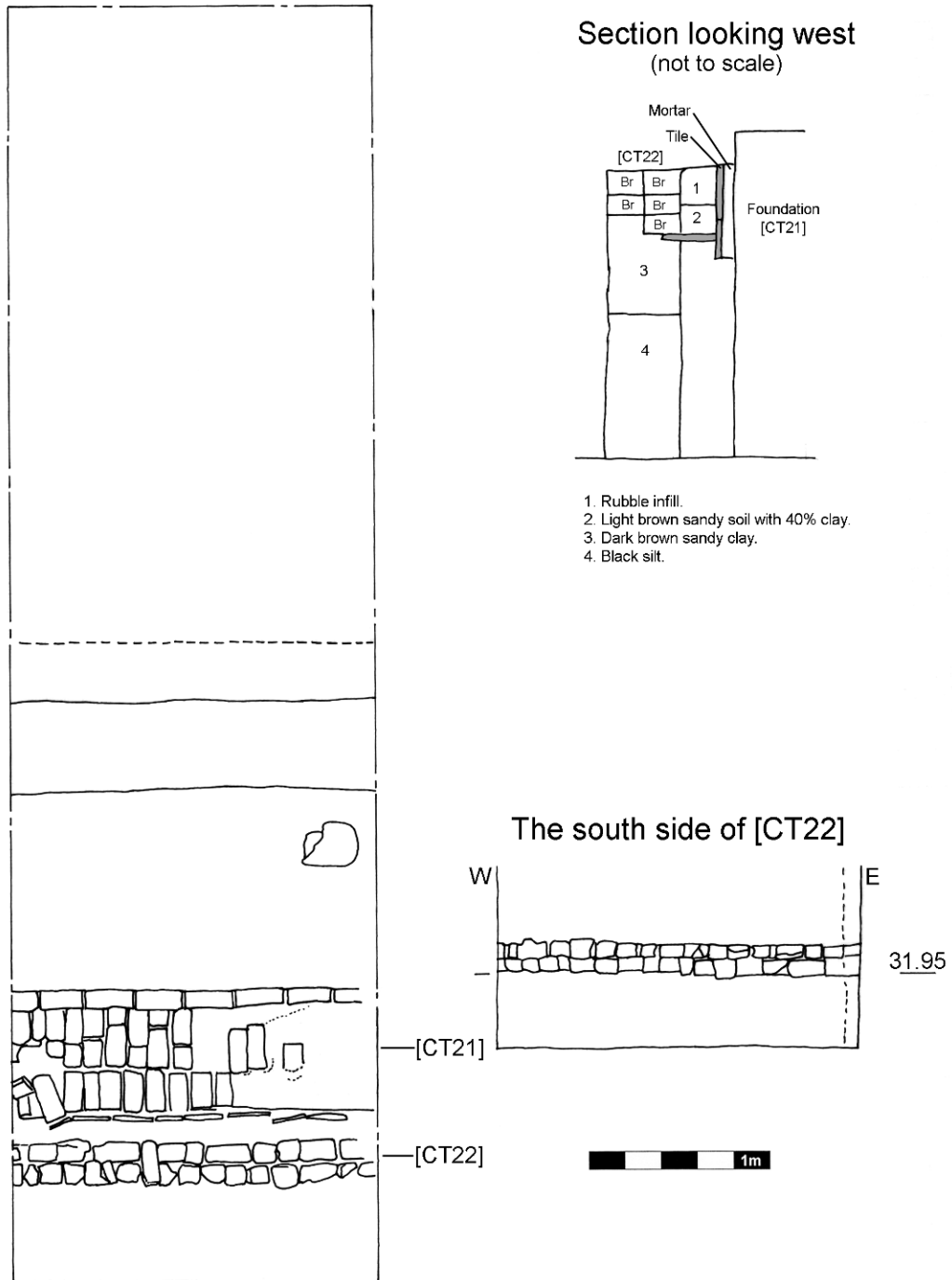


Figure 47. The top of foundations [CT21] and [CT22] with details of the latter.



Figure 48. A section of foundation [CT22] has been removed to expose the peg tiles fixed to the south face of foundation [CT21].



Figure 49. The top of foundation [CT22] with [CT21] on the right. Looking west.

### 5.3.4 Foundation [CT29] next to the orangery wall

See figures 50, 51 and 52.

This consisted of chalk with the remains of brick on the top. The brick was bonded with grey slightly chalky mortar. There was a marked crack between [CT29] and a brick offset from the base of the orangery wall.

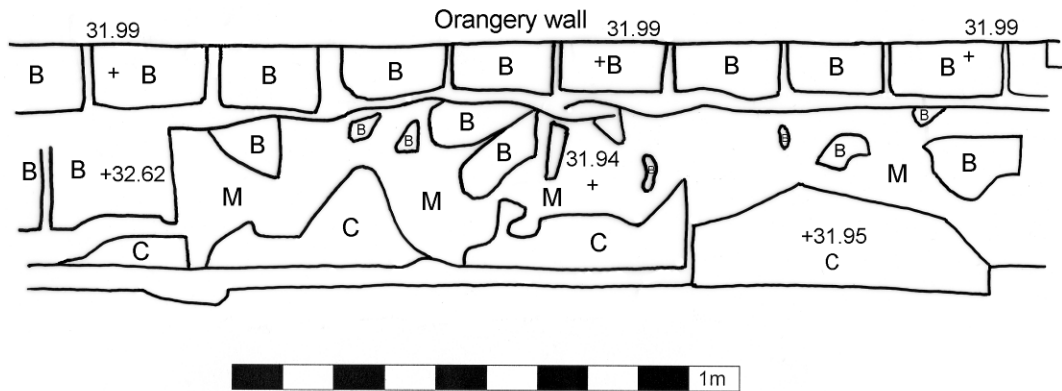


Figure 50. The top of foundation [CT29].



Figure 51. The top of foundation [CT29] next to the orangery wall.



Figure 52. Foundation [CT29] looking west with the orangery wall on the right.



Figure 3. Foundation [CT30] with [CT21] to the right.

### 5.3.5 The northern rough foundation [CT30]

See figures 43, 53, 54, 55 and 56.

This was aligned east-west. It consisted of three poorly and irregularly laid courses of soft red smooth finished bricks. The centre and west end was bonded with medium grey brown mortar. The mortar on the outside was browner, softer, and not spotted with chalk.

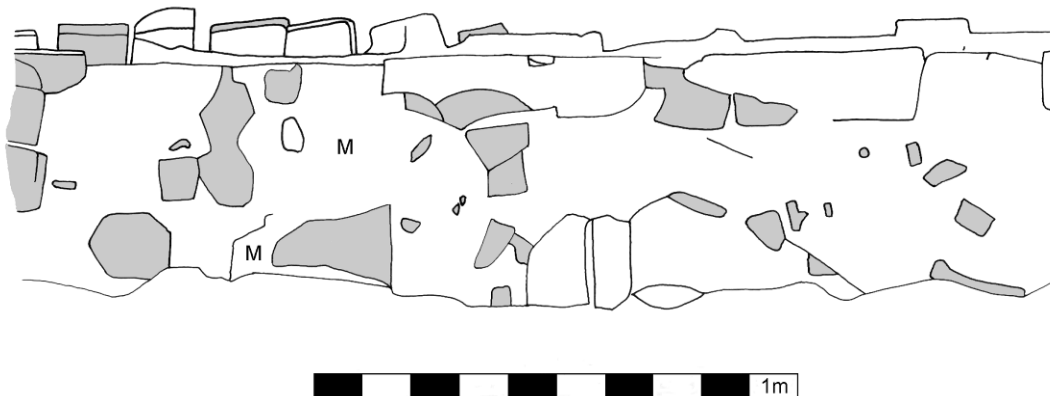


Figure 54. Plan of foundation [CT30]. M = mortar; grey shading = brick.

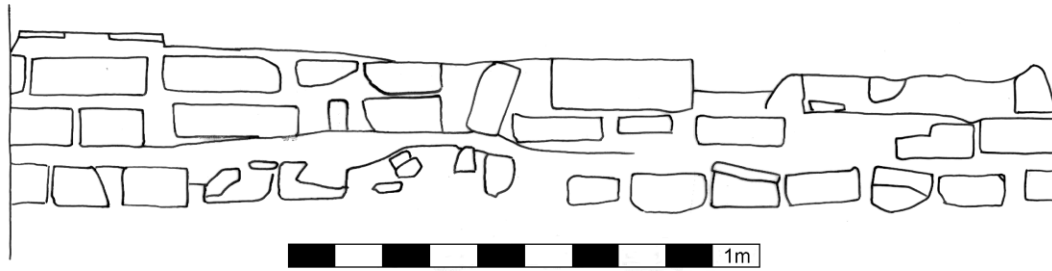


Figure 55. The north side of foundation [CT30].



Figure 56. Foundation [CT30] looking west of south. [CT21] in the background and culvert [CT20] in the foreground.

### 5.3.6 A comparison of brick sizes

The median brick sizes from the structures in millimetres are:

Structure	L	H	W
[CT29] Foundation by orangery wall			
[CT20] The culvert	222.5	65	103
[CT30] Northern rough foundation			
[CT21] Main wall foundation	230	69	104
[CT22] Southern rough foundation.	220	65	105
[CT26] From the pit fill	-	60	105

The bricks fall into three groups:

1. The thick long bricks from the main wall foundation [CT21].
2. Thin bricks from the pit fill [CT26].
3. A group of intermediate thickness from the southern rough footing and the culvert.

The first group are similar in size and appearance to the bricks used in the orangery wall. This would fit with the foundation being for the south wall of the orangery which is consistent with its size and the quality of construction.

The bricks associated with the earliest stages of the eighteenth-century garden had a thickness of around 60mm and a rather rough finish. It seems likely that the second group belong to this period.

The third group is more difficult to parallel. However, the southern rough foundation [CT22] partly overlies the construction cut for the main foundation [CT21]. It must therefore postdate the construction of the orangery. The rough work and different mortars makes it hard to see it as contemporary so it must be either a modification or something post dating the demolition of the orangery. There is stratigraphic evidence that culvert [CT20] also post-dated the orangery.

## 5.4 Discussion of trench CT

Foundations [CT29] and [CT30] are set at a lower level than the eighteenth-century orangery and it is tempting to see them as the footings for the cover of the wooden orange house. [CT29] was largely of chalk and had clearly been cut away to construct the orangery wall so it must be earlier. It is therefore very likely that it was connected with the wooden orange house. However, there is no way of knowing whether it was a low footing for a wooden structure or the remains of a higher wall which formed the north side of the winter cover with the wooden structure built against it.

It is hard to see [CT30] as anything other than a rather rough foundation and it is in the right position to provide a base for the south side of the wooden orange house which would have had an internal width of about 4.56m. It is, however, very different from [CT29] as it was roughly made mostly of part bricks and mortar.

The brick filled pit [CT26] might have provided a soakaway for the wooden orange house although it was 1.5m south of foundation [CT30]. It contained a substantial amount of haphazardly arranged brick. These had a median thickness of 60mm and had a smooth eighteenth-century finish – not a rough Tudor one. A comparison with other bricks around the site and at Stone Court, Carshalton suggests that these were made around 1690-1710 although they had mortar on them indicating re-use.<sup>51</sup>

The large foundation [CT21] must have supported the southern wall of the eighteenth-century orangery. This would give the structure an internal width of 5.34m.

The thin deposits [CT15] and [CT16] look like a work surface for either demolition or construction. If they were for construction they would surely have been destroyed by cultivation around the trees, so they are likely to relate to the demolition of the south wall [CT21]. If this is the case they mark the ground level within the eighteenth-century brick orange house at 32.07 to 32.11m OD. The ground level on the north side of the orangery wall is now slightly higher at about 32.2m OD but this need not have been the case in the past as the upper parts of trenches CP and CQ cut through relatively modern deposits.

The top of the south wall [CT21] was between 31.82 and 31.84m OD, slightly above the demolition surface. The south wall was therefore demolished to just above ground level. The gravel walk [CT6] rested directly on top of it and it seems likely that it was already planned at the time of demolition. If this is the case the brickwork [CT22] was added to the south side of the south wall of the orangery when it was still standing.

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<sup>51</sup> Phillips and Burnett 2005 p. 149-151.

The fine laminations in layer [CT25] to the south of [CT21] and therefore outside the eighteenth-century orangery are not consistent with dumping. They suggest that the sandy soil to the south of the orangery was occasionally being washed down against the structure most likely by heavy rain. The tile and brickwork against the south side of [CT21] may have been a response to this perhaps because the higher external soil level was making the wall damp. The gravel walk [CT21] appears to have been laid to respect the new higher soil level.

The small brick culvert [CT20] appears to have been constructed in a cut through the demolition surfaces [CT15] and [CT16]. It therefore post-dates the demolition of the south wall of the orange house but predates the gravel walk [CT6]. If the gravel walk was laid as soon as the orangery was demolished the culvert must be contemporary with it. It is hard to see it being made while the orange trees were growing as it would cut through their roots. The culvert could have been laid to drain the surface water from the walk but, if so, there was remarkably little gravel in it.

The walk extended beyond the southern end of the trench while the north side was 2.82m from the orangery wall giving a total width of over 4.2m.<sup>52</sup> This wide walk appears on the enclosure award map of 1820. It is probably also shown on the tithe map of 1840 but the first edition Ordnance Survey map of 1868 shows that the track had become narrower with the northern edge further from the wall. This accords with the archaeology which suggests that the northern side of the track had been dug away and replaced with soil.

The southern edge of the track was subsequently resurfaced with a mixture of gravel and broken brick and stones were laid to define the northern edge.<sup>53</sup>

## 6. CONCLUSIONS

### 6.1 The Tudor orange house

The eastern end of the eighteenth-century orangery wall overlaid a silt-filled pond or channel of uncertain medieval or early post-medieval date. If it was contemporary with the wooden orange house the eastern end of that building must have been between 7m and 13m west of the end of brick structure.<sup>54</sup> The brick wall is 59.37m long and Gibson's description says that the wooden orange house was above 200 feet long (60.96m). This suggests that the orange house may have been shifted east when it was rebuilt in brick. It would have been able to cover some of the old trees but not all of them.

The excavation did not throw any light on the origin of the Tudor orange house so we are dependent on the documentary sources. These are simply summarised: Sir Francis Carew bought trees in Paris in 1562 but there is no mention of the orange house until the payment for the clearance of snow in 1608. There was clearly a significant collection of oranges and other Mediterranean plants when the garden was described in 1611.

The use of wooden houses to overwinter oranges developed in Italy and had spread to elite gardens in northern France in the first half of the sixteenth century.<sup>55</sup> Sir Francis Carew would have had the opportunity to see oranges growing in and around Paris and to study the methods of overwintering them in 1561-2. It is often assumed that he bought a significant number of plants, shipped them to England, and then established the Beddington orange house.<sup>56</sup> This

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<sup>52</sup> [CT6] and [CT9].

<sup>53</sup> The surface was [CT2]. The blocks were [CT3] and [CT4]. The soil layers were [CT5], [CT6] and [CT7].

<sup>54</sup> Between trenches CP and CQ.

<sup>55</sup> Woods and Warren 1988 p. 4-9.

<sup>56</sup> For example Woods and Warren 1988 p. 12.

may have been so but it is probably rather unlikely. The trees were very expensive. The two myrtle trees bought for Cecil's cost a crown each and the lemon an exorbitant 15 crowns. Sir Francis was a rich man but nowhere near as rich as Cecil so it is likely that he also bought a small number of trees. He may have augmented them at a later date but it is more likely that he and his gardeners learnt how to propagate them. The stock of the orange house could have been built-up over time and the wooden building gradually expanded to accommodate the increasing numbers.

John Evelyn thought Beddington 'famous for the first orange garden in England'. With his long interest in gardening and his wide circle of contacts he was in a position to know and was probably correct. Cecil's letter to Windebank shows that he had oranges before Francis bought his trees but he was clearly not growing them on a large scale. It was Francis who was the first to do this and he could because he had learnt to overwinter them and almost certainly to propagate them.

The descriptions of the wooden orange house in the seventeenth and early eighteenth centuries are reasonably consistent. The structure was about 200 feet (60.96m) long, was of wood heated by stoves and was erected in the autumn and taken down in the spring. It seems likely that the main timbers were left in place all year. Late medieval and early modern timber buildings generally stood on a low dwarf wall to keep the wood off the ground so it is likely that this was the case with the orange house. Miller says that the orangery had a shelter wall on the north side for which the chalk structure [CT29] may have been the foundation. The brickwork on the south side of the orangery wall is English Bond, the north side Flemish. This would be consistent with a decorative brick structure being added to the north side of an existing wall. This is, however, unlikely as the bricks are the same size on both sides of the wall and there is evidence for significant changes in brick thickness in the first two decades of the eighteenth-century.<sup>57</sup>

The wooden orange house seems to have been subjected to a series of major rebuilds. In 1652 the Earl of Warwick paid £60 for carpentry for a new orange house and £15 for two new iron stoves 'the said orange house being made so much bigger than it was before that the old stoves would not serve the turn'. Gibson says that a new house had been built in 1691. This seems to be evidence of ongoing adjustment: as the trees got larger the house was expanded to accommodate them.

The rough brick structure [CT30] may have been the footing for the south wall of the wooden orange house. If so it may have related to the reconstruction in 1691 mentioned by Gibson as the bricks did not look Tudor. If this is the case the orange house would have had an internal width of about 4.56m. This, however, does not fit with one of the trees having a span of 21 feet (6.4m) which was also greater than the 5.34m internal width of the eighteenth-century brick orangery. Could part of the wooden orange house have been wider to accommodate this exceptional old tree which was perhaps pruned to fit it into the brick structure? It is interesting that the tree was said to be asymmetric, 9 feet one way, 12 feet the other. The 9 foot span was presumably towards the north wall, the 12 feet southwards. If the tree was pruned to make it 18 feet wide and symmetrical it would have a span of 5.48m still slightly more than the eighteenth-century brick orangery.

## 6.2 The eighteenth-century brick orangery

The wooden orangery was still standing in 1718 and Miller suggests that it was still there the following year but it had been replaced by 1721 when John Evelyn visited Beddington. The

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<sup>57</sup> Phillips and Burnett 2008 p. 149-151 and section 5.3.6 above.



architectural style of the north side of the wall is in the manner of Vanbrugh and fits comfortably with the date.

The 1748 edition of Defoe's tour says that the greenhouse was erected around the trees. This is consistent with the archaeological evidence. The northern shelter wall is still standing and [CT21] would provide a foundation for an equally substantial south wall giving the building an internal width of 5.34m. The excavation suggested that there was an earth floor which agrees with construction around the original trees. The structure was said to have sash windows on the south side. These would have been above the excavated foundations but there were traces of the side of a window frame on the end of the stub which projects south from the western end of the standing wall. This would have been in the west wall. The temporary roof presumably rested on a ledge which is now covered by the sloping brickwork on the south side of the wall. This is about 4.7m above present ground level and about 5.1m above [CT15] and [CT16] which appear to mark the original soil floor.

The ornamental door in the easternmost bay appears to have opened into a room in the last bay of the building which was probably a summer house. The existing wall contains two short vertical flues one at the western end and the other in the northwest corner of the 'summer house'. These presumably served stoves to keep the frost at bay.

It seems likely that the wall separating the 'summer house' and the main orangery was part of the original brick structure. However, only the lower thirty courses are fully bonded into the wall. They have a total height of 2.58m leaving a substantial gap to the top of the building. This has been filled with soft red brickwork very similar to that below but it is rather roughly bonded into the wall. The reason for this is unclear. The top of the wall has clearly been rebuilt and the western end extensively repaired presumably as part of the nineteenth-century alterations. The wall no longer extends to the position of the former south wall.

The brick orangery was built by Nicholas Carew, 1st Baronet, who owned the estate from 1707 to 1727. He remodelled the house about 1710-12 and also re-landscaped the garden. Francis Carew's layout was swept away and replaced by an axial arrangement with a central vista running east from the house. The wooden orange house had faced south into a walled garden which was, until about 1700, the normal setting for an orangery. A different approach was taken at Wanstead where the early-eighteenth-century greenhouse was on the north side of the east-west aligned garden axis. This turned the greenhouse into a conspicuous feature in the main part of the garden and also in the view from the house. The 1st Baronet had the opportunity to follow this design at Beddington. The early eighteenth century garden had an east-west axis and there was space to construct an orangery on the north side with the trees planted in tubs in the usual early-eighteenth-century manner. The 1st Baronet ignored this possibility and rebuilt the Orangery in its original position with the trees in the ground and the back of the building facing the house and the main axis of the garden. Moving the orangery would have involved the destruction of the old trees and it seems that the 1st Baronet had a strong desire to keep them, probably because they were fairly famous. The unusual compromising between a temporary and fixed orangery and the need for a decorative north wall flowed from this desire.<sup>58</sup>

Planting orange trees in the ground still had its advocates in the early eighteenth century, such as Richard Bradley who thought that the trees did better in the ground than in pots or cases.<sup>59</sup> However, the new arrangement at Beddington was not a success. The 1748 *Tour* says that it

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<sup>58</sup> Skelton 2010 p.49-50. Thanks are due to Andrew Skelton for pointing out the significance of the location of the brick orangery.

<sup>59</sup> Quoted in Miller 1724 vol. 2 in the article on oranges. (there are no page numbers).

caused the trees to decay as the walls funnelled the wind which damaged the trees.<sup>60</sup> The new orangery was perhaps more showy than practical although the trees – or some of them – survived until the bitter winter of 1739-40. The 1st Baronet was dead by then and the estate was in the hands of trustees as his son Nicholas Carew was a minor. He came of age in 1741 and would have inherited the orangery without its oranges. He seems to have suffered from financial problems and after his death the trustee of his will described him as ‘indolent’.<sup>61</sup> There was still ‘a room at the end of the greenhouse in the garden’ in 1764 when his probate inventory was compiled.<sup>62</sup> At some point between this and the tithe award map of 1820 the south side of the orangery was demolished leaving the room at the east end. A gravel track was laid leaving a gap between it and the wall. This would have been a warm place to grow plants but there is no evidence of any cover there. In the 1870s the room was converted into a stable and a place to dry earth for the closets in the Orphanage which then owned the site. This room was still roofed in 1946 and the decorative brickwork was in a reasonable state. The roof of room has now gone, as has its eighteenth century wooden door and the ornamental brickwork as been severely damaged by vandals. The wall was listed grade II in 1954 and is now on the English Heritage register of listed buildings at risk.

## 7. THE FINDS

### 7.1 Pottery

#### Layer [CP1]

##### Porcelain

- Pale grey porcelain ‘box’. Exterior 18 by 15 by 11mm high. Open top. Possibly from a water colouring set. Iron-stained especially on the outside and bottom.

##### Post-medieval redware

- Rim of a large flower pot.

##### Modern

- Plate with white body and plain white glaze. Part of rim and centre.
- Plate with white body and plain white glaze. Rim sherd.

#### Layer [CP3]

##### Flower pot

- Part of base with central drainage hole 20 to 25mm across.
- Rim and scrap of base angle from a shallow flower pot 30mm high.

#### Layer [CP4]

##### Modern white pottery

- Rim sherd with white body and white glaze on both sides. 19th or 20th century.

##### Flower pot

- Red body with rounded rim.

#### Layer [CP7]

##### Stoneware

- Joining base angle and base sherd, two wall sherds and one rim probably from one white straight-sided mug or jar decorated with low raised bands. Walls and base about 2.5mm thick. Diameter about 84mm. Probably Staffordshire, c.1720 - 70.

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<sup>60</sup> Defoe 1748 vol. 1, p. 255.

<sup>61</sup> TNA C12/1543/14 recto.

<sup>62</sup> Surrey History Centre 281/3/1.

### Tin glaze

- Worn pale brown sherd. Off-white glaze on the interior. No glaze on exterior.

### Flower pot

- Rim and wall sherd from a fairly straight-sided red flower pot. Pointed rim diameter 120mm. Surviving height 75mm.
- Rim sherd from a red flower pot. Pointed rim diameter 180-200mm.
- Two joining sherds base and side of a red flower pot. Base diameter 100mm. Central drainage hole.
- Side and base angle from red flower pot. Base diameter just under 80mm.
- Part of side and base of a red flower pot. Base diameter 120mm. A few splashes of clear glaze on the interior base.

### **Layer [CQ1]**

#### Stoneware

- Pale brown glaze on both sides, 2 pieces.
- Sherd from a bottle. Pale grey exterior. Unglazed interior. 19th or early 20th century.
- Shoulder of a bottle. Exterior has grey side with pale brown shoulder. Inside glazed grey. 19th or 20th century.
- Rim sherd from a jam jar. 19th or early 20th century.
- Pale grey rim sherd from a straight-sided vessel with very smooth exterior.

#### Porcelain

- A scrap probably from the side of a bowl near the base. Two thin blue lines on the interior, white exterior.
- Blue and white hand painted decoration on one side, 2 scraps.
- Sherd from a bowl or jar. Blue (stencilled?) floral decoration on the exterior.

#### Transfer print wares

- White glaze on both sides. One side decorated with green flowers and ribbons.
- Rim sherd from a plate. Blue and white decoration on the inner side.

#### Modern white pottery

- Base angle sherd from a plate. White glaze on both sides. Modern.
- Rim sherd, white glaze on both sides. Modern.
- Small sherd with cream glaze on both sides. Exterior has scrap of green and yellow hand-painted decoration. 18th or 19th century.
- Rim sherd. White exterior with scraps of blue decoration. Ochre line on the rim. Blue and white decoration on the interior.
- Sherd with white glaze. Hand-painted blue decoration on outside.
- Sherd with white glaze decorated with blue stencilled flowers on the exterior- the blue has spread into the white glaze. 18th or 19th century.
- Three sherds with white glaze both sides. Modern.
- White glaze on both sides. Probably from a plate. 9 pieces. Modern.
- Sherd from bowl or jar. White glaze on both sides.
- Base of a plate. White glaze on both sides
- Rim sherd from a saucer (?). White glaze on both sides. Modern.
- Plate rim. White glaze both sides. Raised moulded floral decoration. 2 pieces. Modern.
- Rim probably from a shallow bowl. White glaze on both sides. Modern.
- Base angle of a plate. White glaze on both sides. Modern.
- Bowl. White glaze with wide blue and white stripes on the exterior. Modern.

## Layer [CQ2]

### Modern white pottery

- Plate or shallow bowl. White body with white glaze on both sides. 3 pieces. Modern.
- White body with blue glaze on one side and white on the other. A scrap. 19th or 20th century.

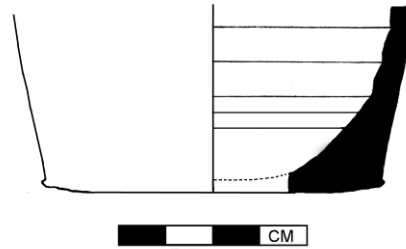
## Layer [CQ4]

### Medieval?

- Red fully oxidised gritty body 5mm thick.

### Unidentified yellow-glazed whiteware

<1> Base angle sherd with pale brown body containing pink quartz. Base diameter of 70mm with steeply sloping sides. Exterior has a few splashes of yellow glaze with traces of green around bubbles and imperfections. Interior has prominent wheel throwing marks. Exterior is slightly reduced and sooted especially on the base. Same fabric as the alembic find <50> from trench CF.



- <2> Wall sherd which joins <25>. Same fabric as <1>. Splash of yellow glaze on the exterior. Slight throwing marks on the interior.
- <25> Wall sherd which joins <2>. Same fabric as <1>. Several small splashes of yellow glaze on the exterior and two splashes of grey material. Slight throwing marks on the interior.

## Layer [CR1]

### Transfer print ware

- Rim of a chamber pot with blue design on both sides. Inside has renaissance style foliate pattern. Outside has strap work scrolls framing domed buildings and the top of a minaret? 19th or early 20th century.

## Layer [CT1]

### Flower pot

- Flower pot, 8 pieces, 58g.

### Stoneware

- Stoneware, 2 pieces, 11 g. probably 19th century
- White glazed stone ware 1 piece, 114g. Possibly a cistern or basin. Modern.

### Tin glaze

- Tin glaze with off white decoration, 1 piece, 4g.

### Porcelain

- Porcelain, hand painted blue and white decoration, 1 piece, 1g.

### Transfer print

- Transfer print, 5 pieces, 17g.
- White glazed earthenware with transfer print label, 4 pieces, 36g.

### Modern white pottery

- Modern white pottery, 7 pieces, 48g.

### **Layer [CT3]**

#### Flower pot

- Flower pot, 1 piece, 7g.

#### Porcelain

- Porcelain with scrap of hand painted blue decoration, 1 piece, 3g.

#### Modern white pottery

- Modern white pottery, 1 piece, 3g.

### **Layer [CT5]**

#### Medieval

- Grey ware, Limpsfield? 6g.

#### Unidentified yellow-glazed whiteware?

<8> Corner of a thick square vessel possibly a crucible. Upper surface a fracture with scraps of glassy slag. Fabric similar to alembic from trench CF but overburnt. Three joining pieces. 33g.

<9> Wall sherd. Same fabric as the alembic find <50> from CF. Turning marks on interior. Splash of yellow brown glaze on exterior. 6g.

<10> Heavily over-fired partly vitrified pot – possibly crucible. 6g.

#### Flower pot

- Flower pot, 8 pieces, 77g.

#### Porcelain

- Porcelain, possibly dolls furniture, 4 pieces, 6g.

#### Transfer print

- Transfer print, 2 pieces, 21g.

#### Modern white pottery

- Modern white body, 12 pieces, 62g.

### **Layer [CT6]**

#### Flower pot

- Flower pot, 1 piece, 22g.

### **Layer [CT6] cut fill**

#### Flower pot

- Flower pot. Rim 110mm diameter, base 70mm diameter, height 120mm. 247g.
- Base of flower pot 55mm diameter, 152g.

#### Stoneware

- Large straight-sided stoneware jar, grey body with brown glazed rim. Height 155mm, 95mm diameter. 3 joining pieces. 418g.
- Base of straight-sided stoneware jar 60mm diameter, 65g.

#### Modern white pottery

- Shallow bowl with white body with white glaze. Rim diameter about 220mm, 7 pieces of which 5 join. 373g.
- Plate white body with white glaze. Rim about 220mm diameter. 270g.
- Jug base white body and white glaze, 70mm diameter, 5 pieces 170g.
- Base angle of platter white body and white glaze, 107g.
- White mug white body and white glaze. Straight sides and base of handle 78mm high, base 70mm diameter, 83g.
- Rim of mug or straight-sided jar 80mm diameter, 35g.
- Handle and part of side of stoneware mug. Dark brown top light brown below. 48g.
- White with white glaze 4, 36g. modern.

### **Layer [CT7]**

#### Flower pot

- Flower pot, 1 piece, 9g.

#### Stoneware

- Rim from very large pale brown stoneware bowl with white interior, 1 piece, 87g. 19th century.

### **Layer [CT8]**

#### Medieval

- Greyware, 13th or 14th century, 13g.

#### Flower pot

- Flower pot, 1 piece, 1g.

#### Transfer print

- Transfer print, 3 pieces, 11g.

#### Modern white pottery

- Modern white pottery, 1 piece, 2g.

### **Layer [CT9]**

- Stoneware, 1 piece, 5g. 19th century.

### **Layer [CT9] by orangery wall cut to look at footings**

#### Medieval or earlier

- Shell-tempered possibly Saxon. 4g.
- Greyware, Roman or medieval, 7g.
- Earlswood with green glaze, 3g.

### **Layer [CT10]**

#### Flower pot

- Flower pot, 1 piece, 9g.

### **Layer [CT11]**

#### Unidentified yellow glazed whiteware?

<7> Base angle 100mm diameter. Pale pink-brown with darker wash on exterior. Same fabric as <1>. 9g.

#### Modern white pottery

- Modern white pottery 1 piece, 16g.

### **Layer [CT14]**

#### Medieval or earlier

- Greyware possibly Limpsfield, 13g.
- Surrey Whiteware, unidentified site, 9g.
- Hard, grey surface red core, possibly Roman, 2g.
- Grey core, well oxidised one side, slightly oxidised the other, possibly Roman, 5g.
- Surrey whiteware from unidentified kiln, 3g.

#### Porcelain

- Probably tea bowl with scrap of hand painted blue decoration. 3g.

### Layer [CT25]

#### Medieval or earlier

- Shell-tempered with red to grey body. 2 pieces, 11g.
- Shell and flint-tempered, thin scatter of mica. Red to grey body. 10g.

#### Flower pot.

- Red flower pot with darker slightly reduced exterior. 9g.

### Layer [CT28]

#### Medieval or earlier

<11> Grey-brown body with rounded quartz. Fabric unknown. An 'x' and other scratch marks on the exterior as shown in the photo. 12g



- Shell-tempered, grey core with red surface. Prehistoric or early medieval. 1g.
- Grey brown core with black surface. Roman? 5g.
- Grey body with black sooted surface on both sides. Scatter of shell. Fairly hard. Two thumbing marks. Earlswood. 14g.
- Earlswood, no glaze, darker surface. 3g.
- Scrap of Earlswood with green glaze, 1g.

#### Tin glaze

- Scrap of tin glaze with blue and white decoration. 1g.

## 7.2 Tobacco pipes

### Layer [CP2]

- Scrap of bowl.

### Layer [CP7]

Pipe stem:

Length mm	Dia. mm	Bore mm
34	9.5	2

### Layer [CT1]

Pipe stem:

Length mm	Dia. mm	Bore mm
40	6-7	2
16	6	2
18	6	1.5

### Layer [CT5]

- Bottom of back of bowl with 48 mm of stem which tapers to oval 6mm x 5 mm. 19th century.

Pipe stem:

Length mm	Dia. mm	Bore mm
21	5	1

### 7.3 Stone

#### Layer [CP1]

##### Slate

- Purple, 2 pieces.

#### Layer [CP2]

##### Flint

- Burnt flint, 1 piece.

#### Layer [CP3]

##### Slate

- Grey, 1 piece.

#### Layer [CP4]

##### Flint

- Burnt flint, 2 pieces.

##### Portland stone?

- Rubble, white, probably Portland. 1 piece, size 60mm.

##### Slate

- Grey, 1 piece.
- Slate pencil, 1 piece.

#### Layer [CP7]

##### Sandstone

- Greenish sandstone with smooth surface. Similar to Reigate stone but harder. 1 piece, size 65mm.

##### Slate

- Purple and grey, 1 piece.

#### Layer [CP10]

##### Reigate stone

- One partially smooth and one probable rough surface at right angles. The partially smooth surface is heavily burnt so the stone is darkened to a depth of 30 – 40mm. Size 100mm.
- Rubble, size 50mm.

#### Layer [CP11/12]

##### Chalk

<12> Chalk. Two possible areas of rough surface at about 85 degrees. Areas of unequivocal yellow calcite on the surface and the fractures. Size 100mm.

##### Flint

<10> Large flake of knobby flint with cortex. One side struck off to form a more or less flat surface. The cortex has traces of mortar and patches of yellow calcite. Over half of the struck face is covered with yellow calcite. Size 110mm.

<14> Knobby flint with white cortex. A few flakes have been struck off. Much of one side



is covered with yellow calcite which also covers some scraps of mortar. The other side has traces of mortar but little calcite. Size 140mm.

### **Layer [CP14]**

#### Chalk

- Rubble. Iron stain on the fracture. Size 110mm.
- Rubble, size 35mm.

#### Reigate stone

<18> Block of Reigate stone. Two surfaces meeting at an angle of about 45 degrees, one with a surviving length of 195mm the other 70mm. Both surfaces have diagonal tool marks probably from a comb chisel with widely spaced teeth. Both surfaces are burnt.



- One smooth burnt surface with chisel mark. Fracture has yellow deposit or stain. Size 85mm.
- Rubble. Yellow stain on the fracture. Size 60mm.
- Two surfaces at right angles, both deeply burnt, 1 sooted. Yellow stain on the un-burnt fractures. Size 90mm.
- One burnt surface. Yellow stain on the fracture. Size 40mm.
- One burnt surface and a small piece of doubtful surface at right angles to it. Both burnt. Yellow stain on the fracture. Size 65mm.
- Rubble. Part of the fractures burnt and part yellow stained. Size 35mm.
- Rubble with a patch of rust. Size 35mm.
- Two surfaces at right angles, one smooth and one rough. Both burnt and sooted. One fracture sooted. Another fracture parallel to the smooth surface has yellow stain. Size 100mm.
- Burnt smooth surface with sooted fracture at right angles to it. Yellow stained fracture parallel to the smoothed surface. Size 100mm. Surface size 85mm.

#### Flint

- Large flake knapped from a knobbly flint. Mortar on the surface and the fracture. Size 110mm.

### **Layer [CQ1]**

#### Sandstone

- Part of a slab of micaous grey-brown sandstone 19mm thick.
- Part of a slab of brown sandstone 20mm thick.
- Piece of brown sandstone, size 90mm.

#### Slate

- Purple slate, 1 piece.
- Grey slate, 3 pieces.

## **Layer [CQ2]**

### Sandstone

- Slab of fine grey sandstone 51mm thick. One side very smooth. The other side is smooth where visible but is largely covered with mortar. The edge is rough and has rounded corners especially on the mortared side. It looks as if the slab may have been turned and reused. Size 280mm.

### Slate

- Grey, 1 piece.
- Slate pencil, a point.

## **Layer [CQ4]**

### Chalk

- Rubble. Size 130mm.
- Scrap of chalk with a smooth surface.

### Flint

- Dark flint with mortar. Size 30mm.

### Reigate stone

- Small area of doubtful surface with tool marks. Size 65mm.
- Worked surface with tool marks. A second doubtful uneven surface at an angle of about 85 degrees to it. Size 55mm.
- Rubble size 60mm.
- Rubble size 25mm.
- One surface with two deep parallel tool marks possibly from a blade 6mm wide. Size 55mm.
- One heavily burnt and sooted surface. Size 75mm.
- Rubble size 80mm.
- One smooth and one doubtful surface at an angle of about 85 degrees. Size 60mm.
- Rubble size 95mm. Scattered traces of yellow stain.
- Small area of doubtful surface with sooting and doubtful calcite. The Reigate has a scrap of ironstone embedded in it. Size 55mm.
- Rubble, size 70mm.
- One uneven burnt surface. Size 55mm.
- Pieces of rubble without worked surfaces. Sizes 100, 40, 40, 30, 45 and 25mm.
- One flat surface with chisel mark. Small area of burning on the surface. Size 100mm.
- One nearly smooth burnt surface. Size 65mm.
- One smooth and one rough surface at an angle of just under 90 degrees. A scrap of iron stone in the Reigate. One fracture burnt. Size 80mm.
- One chiselled surface. A patch of iron (?) stain. Size 60mm.
- Edge of block. One flat burnt surface and part of another surface at right angles. Size 65mm.
- One flat surface. Size 10mm.
- Small scraps of Reigate, 8 pieces.
- One smooth and one possible rough surface at right angles. Both burnt. The rough surface has some soot. Size 60mm.

### Limestone

- Flake of hard white limestone. Size 50mm.

### Tufa and calcite

<15> Slab of grey tufa with some siliceous inclusions. About 50mm thick. One face cut flat the other rough. The edges are fractures. Size 190mm.



- Piece of hard grey tufa-like calcite with some traces of red-brown colour. Size 45mm.

### **Layer [CR1]**

#### York stone

- Piece of edge of a slab. Top smooth, partly covered with a black substance, possibly tar. Underside rough. Greatest thickness 36mm. Size 100mm.

### **Layer [CR2]**

#### Sandstone

- Hone of pinkish sandstone. Broken at both ends. Width 40mm, height 35mm, surviving length 65mm.

### **Layer [CT1]**

#### Flint

- Burnt flint, 3 pieces.

#### Portland stone

- Portland stone. One smooth surface. Size 70mm.
- Portland stone, edge of a block. Size 45mm.

#### Sandstone

- Medium brown sandstone with one smooth surface. Two pieces sizes 85 and 75mm.
- Medium brown sandstone slab 53mm thick, size 80mm.
- Medium brown sandstone, size 40mm.
- Medium brown sandstone with small sparkly micaceous inclusions. Slab 32mm thick with one smooth and one rough side. Size 80mm.
- Oval hone of brown sandstone. Heavily worn. 26 by 32mm tapering to 27 by 20mm. Length 35mm.

#### Slate

- Grey slate. 4 pieces 3 of which are about 7mm thick and have sawn edges.
- Slate pencil, 1 piece.
- Stub of a slate pencil pointed at both ends

#### Amphibolite?

<3> Hard black to dark green with patch of white quartz. Possibly amphibolite and quartz. Size 60mm.

#### Unidentified

- Dark grey stone with tarmac size 65mm.

**Layer [CT2]**Sandstone

- Medium brown sandstone with one flat surface. Size 80mm.
- Medium brown sandstone slab 45mm thick. 1 smooth and 1 rough surface.

**Layer [CT3]**Reigate stone

- One chiselled surface (straight-bladed chisel). Surface size 220mm. Overall size 250mm.
- One smooth chiselled surface. Size 90mm.
- One smooth surface. Size 110mm.
- Reigate rubble. 4 pieces sizes 90, 85, 50 and 40mm.

**Layer [CT5]**Flint

- Burnt flint 2 pieces.

Slate

- Grey slate, 2 pieces.

**Layer [CT7]**Flint

- Rounded flint pebble burnt with red surface.

Slate

- Slate pencil (part).

**Layer [CT8]**Slate

- Purple, a scrap.
- Slate pencil, 1 piece

**Layer [CT14]**Flint

- Slate grey, 1 piece.

Slate

- Burnt flint, 1 piece.

**Layer [CT25]**Flint

- Burnt flint, 1 piece.

Reigate stone

- Reigate stone. One smooth surface burnt grey to a depth of 10mm. Surface sooted. Size 70mm.

Sandstone

- Pale brown sandstone, 1 piece.

**Layer [CT28]**Flint

- Burnt flint 1 piece.

### Reigate stone

- Reigate stone rubble Size 70mm. 1 piece.

## 7.4 Coal and coal cinder

Context	Number of pieces			
	Coal	Cinder	Coal shale	Coke
[CP1]		1		
[CP7]			1	
[CQ1]		10	4	
[CQ4]		1		
[CT5]	4	1	1	6
[CT7]				4
[CT8]	1	1	1	
[CT9]	2			
[CT10]	1			

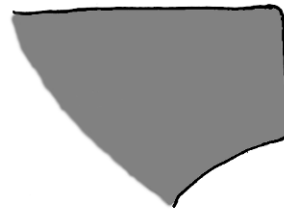
## 7.5 Ceramic building materials

Brick, peg tile, pan tile, stoneware drain pipe, broken cement and mortar are only individually catalogued here if they have some unusual feature. Further details can be found in the archive.

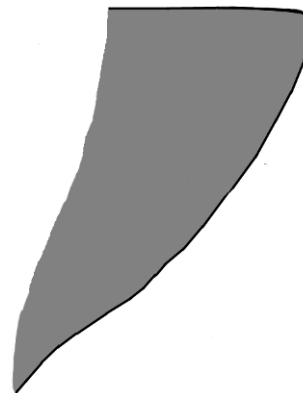
### 7.5.1 Brick

#### Layer [CP1]

- <19> Soft red brick with hollow moulding cut into it.

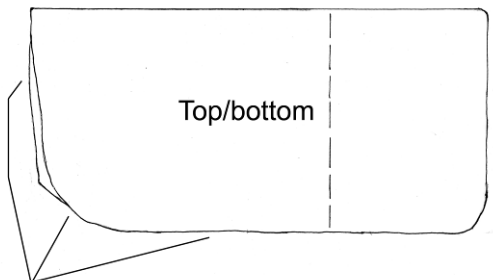


- <20> Tip of a bull nosed brick. Moulded top and cut curve. One rubbed side. The other surfaces are fractures.

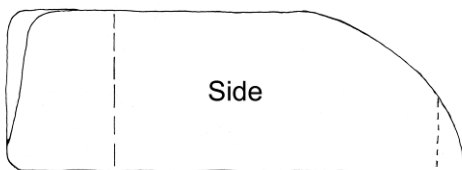


- <21> Cut brick. Part of three smoothed faces two of which converge at an angle of 50 degrees.

<22> Soft red brick with a neatly cut bull nose across the width of one end. One side has been roughly cut so that the width of the brick tapers from 85mm to 83mm. The end of this side has been cut into a rough curve which turns to a roughly cut end. The top, bottom and one side of the brick has a smooth 18th century finish. Height 61mm, width 85mm, length 175mm.



Roughly cut



### Layer [CP10]

L mm	H mm	W mm	Fabric	Mortar surface	Mortar Fracture	Note
	55-66		SR	Y	N	Rough finish

### Dimensioned brick discarded on site

These pieces probably all had a smooth 18th-century-type finish. Many had mortar on both the surface and the fracture. Several had a yellow deposit on the surface which (in retrospect) was almost certainly calcite.

H mm	W mm
65	
68	105
63	113
65	113
65	125
65	
65	107
65	108
	101
57	
65	
68	108

**Layer [CP11] / [CP12]**

- <11> Soft red brick with rounded frog 33mm wide and 11mm deep coming to within 10mm of the end of the brick. Mortar (not spotted with chalk) about 8mm thick on the top – clearly the bond with another brick. A few very doubtful traces of white calcite on the brick. Size 95mm.
- <13> Overburnt brick with reduced core. Rough finished. Most of the surface covered with unequivocal yellow calcite. Yellow and grey calcite on the fractures and traces of white calcite on the mortar, Size 70mm.

There were also 12 pieces of soft red brick with a surviving height or width. All probably had a smooth 18th-century-type finish. Many had mortar, often on both surface and fracture. Several had a yellow deposit on the surface. The dimensions were:

H mm	W mm
65	
68	105
63	113
65	113
65	125
65	
65	107
65	108
	101
57	
65	
68	108

**Layer [CQ3]**

- <17> Brick. Length 248mm, height 55-58mm, width 108mm. Smooth top, rough bottom. Shallow uneven cut across the top 120-125mm from one end. Mortar on the top end side and fracture. Yellow calcite on the top.
  - o Soft red brick. 4 cut faces at right angles one of which may have been rubbed. One is saw cut. Size about 30 by 50 by 23mm.

**Layer [CQ4]**

- <3> Soft red with smooth finish. Height 63mm, width 107mm. Mortar on the surface. Possible white calcite on the fracture.
- <4> Soft red brick with smooth surfaces. Mortar or calcite on the fracture and much of the surfaces. Some convincing calcite on the fracture. Brick of 18th-century type.
- <16> Part of a smooth brick with calcite and mortar. Height 60-62mm.

**Layer [CT25]**

L mm	H mm	W mm	Fabric	Mortar surface	Mortar Fracture	Note
	58			N	N	Overburnt rough finish. Fabric possibly groggy red.
			Groggy red	Y	N	
			Groggy red	Y	N	
			Groggy red	Y	N	
			Groggy red	Y	N	

- Groggy red fabric – colour very similar to soft red. Very soft rather granular fabric that contains some flint and appears to have brick grog very similar to the main fabric.
- Parts of two bricks - one groggy red and the other soft red bonded by grey/brown chalky mortar.

**Layer [CT28]**

- Heavily overburnt brick with one sooted surface. 1 piece.
- Heavily overburnt brick with a heavily blackened surface. 1 piece.
- Heavily overburnt brick with two blackened surfaces rough finish. 1 piece.
- Overburnt brick. 1 piece.
- Overburnt brick with some blackened fracture. Mortar on the fracture. 1 piece.
- Overburnt ceramic building material (tile?). 1 piece.

**7.5.2 Brick sizes**

All 18th century soft reds.

<b>Culvert [CT20].</b>		
225	65	225
222	64	222
220	63	220
222	66	222
223	65	223
215	64	215
228	68	228
227	65	227
230	69	102
212	64	104

<b>Brick foundation [CT21]</b>		
L mm	H mm	W mm
230	-	-
232	-	102
226	-	104
227	-	105
220	-	104
225	-	104
230	-	105
230	-	104
225	-	107
230	-	68
-	67	104
-	68	107
228	70	-
233	73	105
230	70	107
230	68	119
233	71	103
-	60	101
-	68	103
-	70	103

**Bricks from [CT22]**

L mm	H mm	W mm	Type
-	64	108	Soft red
-	65 – 71	-	Soft red. Comb chisel marks across the width. Tapered?
-	65	105	Soft red
-	66	103	Soft red
-	63	103	Soft red
-	70	106	Soft red
-	65	110	Soft red - soft in places.
-	65	97	Soft red



L mm	H mm	W mm	Type
-	71	102	Soft red
-	64	96	Soft red.
-	66	110	Soft red
-	65	105	Soft red
-	55	110	Soft red. Tudor with edge indentation.
-	65	104	Soft red
-	65	104	Soft red
-	55	110	Soft red. Tudor?
220	55	105	Soft red. Mortar on chips but full length survived.
-	56	110	Tudor - Hardish orange - pink fabric.
-	65	-	Soft red
-	65	112	Soft red
	62	108	Soft red
	66	102	Soft red
	57	111	Soft red. Tudor?
	55	114	Soft red. Tudor?
	63	-	Soft red

#### Bricks from [CT26]

L mm	H mm	W mm	Finish
-	-	-	Rough
	62	-	Rough
	55 – 59	94	Rough
	64	-	Rough
	60 – 69	-	Rough?
	58	104	Rough
	54?	-	Rough
	58	-	Rough
	62	-	Rough
	56	-	Rough?
	58	-	Rough
	62	105	Rough
	57	-	Rough?
	59	107	Rough
	64	-	Rough
	63	-	Rough
	-	-	Rough
	-	-	Rough?
	-	-	Rough
	60	-	Rough
	65-67	105	Rough
	66	-	Rough
	-	-	Rough
	-	-	Not visible
	60	-	Rough?
	-	-	Rough

### The median sizes of the bricks

Context	Length mm		Height mm		Width mm	
	Median	Sample	Median	Sample	Median	Sample
[CT20]	222.5	10	65	10	103	2
[CT21]	230	15	69	10	104	18
[CT22]	220	1	65	25	105.5	22
[CT26]	-	-	60	19	105	6

### 7.5.3 Pan tile

Context	Thickness mm							Total
	12	13	14	15	16	17	18	
[CP1]	1		2	2				5
[CP3]				1				1
[CP7]		1						1
[CQ4]			1			1		2
[CT1]		1						1

### 7.5.4 Other roof tile

#### Layer [CP11/12]

<9> Peg tile. One corner, no peg holes, hard. Traces of mortar on one face and edge. Unequivocal patches of yellow calcite on the other face and a small part of the fracture. Size 120mm.

#### Layer [CQ4]

- Valley tile 14mm thick curved at an angle of about 45 degrees to the edge. One narrow round peg hole about 8mm across. Rough surface. Hard. No mortar.

#### Layer [CT27]

- Peg tile. Full width 162mm.

### 7.5.5 Floor and wall tiles

#### Layer [CP1]

- Red unglazed floor tile 33mm thick. Width greater than 100mm. Mortar on the underside.

#### Layer [CP3]

- White body with clear glaze on both sides. 8mm thick. Modern.

#### Layer [CQ4]

<5> A corner. Fairly soft red brick-like body 19mm to 20mm thick. Decorated with pattern of thin white clay set in shallow impression. Clear glaze on the top, the sides and around the edges on the bottom.

#### Layer [CR1]

- Corner of a large red floor tile. 38mm thick at the edge thinning to 20mm towards the centre probably through wear on the top. The fabric is red and is rather softer and more brick-like than is usual for a tile. It contains pebbles to 15mm. Surviving length of the sides 210mm and 130mm, edges not bevelled.

**Layer [CT1]**

- Green-glazed tile 19th or 20th century. 4 pieces.

**Layer [CT3]**

- Floor tile hard red machine-made. Marked:  
MADE IN  
BCM / TRITON  
ENGLAND  
Thickness 22mm. Full width 150mm. Modern.

## 7.6 Glass

**Layer [CP1]**

- Brown bottle, a scrap. Modern.
- Slightly curved, heavily patinated. Colour uncertain. 1 scrap.
- Wall sherd from a clear bottle. Unpatinated. Modern.
- Base of clear bottle about 35mm diameter. Modern.
- Side and base angle of clear bottle, 2 pieces. Modern.
- Clear flat glass 1.5mm thick with slight patination, 1 piece. Probably modern.
- Clear flat glass 2mm thick with slight patination, 2 pieces. Probably modern.

**Layer [CP2]**

- Part of the base of a black wine bottle with a deep frog.
- Flat clear glass 1.5mm thick, lightly patinated, 1 piece
- Flat clear glass 1mm thick with traces of putty, 1 piece.

**Layer [CP3]**

- Lightly patinated flat clear glass. 3 pieces 1.5, 1.2 and 2mm thick.

**Layer [CP4]**

- Flat clear glass. Three pieces 3.5, 2 and 1mm thick.

**Layer [CP7]**

- Flat, slightly blue-green with light patination. These were divided into three groups by comparing thickness when flat on a table:
  - 2mm thick, 4 pieces.
  - 1.3 to 1.7mm thick, 47 pieces.
  - 1mm thick, 10 pieces.The above pieces were similar in colour and patination.
- Flat, heavily patinated light blue-green glass:
  - 2mm thick, 6 pieces.
  - 1.3 to 1.7mm thick, 4 pieces.
  - 1mm thick, 3 pieces.
- Clear blue-green glass 5mm thick, lightly patinated, 1 piece.

**Layer [CQ1]**

- Dark green bottle glass, 7 pieces. Modern.
- Curved brown bottle glass, 3 pieces. Modern.
- Pale green bottle, 8 pieces. Modern.
- Clear bottle, 9 pieces. Modern.
- Bottle with raised spots on part of the exterior, 2 pieces. Modern.

- Clear bottle decorated with raised lines which are probably intended to represent flowers each with five long petals. 1 piece. Modern.
- Moulded ‘cut’ glass. Clear. 1 piece. Modern.
- Flat clear glass. 2 pieces probably modern. A third piece moderately patinated.
- Dark blue glass, a scrap. Modern.
- White glass with a red stripe, 1 scrap. Modern.

#### **Layer CQ4**

- Flat clear glass 1.5 thick. Lightly patinated.

#### **Layer [CR2]**

- Neck probably from a cylindrical wine bottle. The neck top suggests a date of about 1770-80.<sup>63</sup>
- Strongly base angle from wine bottle. Strong sag at wall bottom. Probably mallet form c.1730-50.
- Green bottle glass about 2mm thick, heavily patinated.
- Scrap of green bottle glass, heavily patinated.

#### **Layer [CT1]**

- Half of the bottom of a clear glass bottle 51mm diameter. Modern.
- Clear glass bottle, 4 pieces.
- Clear glass, probably partly melted in a fire. Modern.
- Drip of melted glass or slag, 1 piece.

#### **Layer [CT2]**

- Green and white glass marble, modern.
- Clear glass bottle modern.

#### **Layer [CT5]**

- Clear bottle glass base marked (possible) “united” on the base. The “ed” is clear but the rest is very fragmentary – milk bottle? Modern.
- Scrap of clear bottle glass. Modern.
- Shoulder of a thin square or multi-angular bottle (probably) with letters “ABL”. Modern.
- Clear glass bottle scrap. Modern.
- Dark blue glass, a scrap. Modern.
- Dark brown bottle glass, a scrap. Modern.
- Green bottle glass, 1 piece.
- Flat clear glass, 5 pieces modern.
- Glass tube, U shaped, sealed at one end. Possibly laboratory glassware.
- White glass, very burnt, 1 piece.

#### **Layer [CT6]**

- Flat clear window glass 1.5mm thick. 8 pieces.

#### **Layer [CT6] cut fill**

- Base of clear glass bottle with shield like ridge base 80mm diameter.
- Rim of clear glass jar. Rim diameter 70 mm. 19th century.
- Clear patinated glass sheet not flat, 3 pieces.
- Clear window glass, 1 piece.

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<sup>63</sup> Dumbrell 1983 p. 92.

**Layer [CT7]**

- Clear green bottle glass, 1 piece. Modern.

**Layer [CT8]**

- Light green bottle glass 1 piece. Modern.
- Flat clear window glass, 2 pieces. Modern.

**Layer [CT9]**

- Base of green glass wine bottle, heavily patinated, 18th century?
- Flat greenish glass, patinated, 1mm thick.

**Layer [CT10]**

- Base angle fragment from green glass wine bottle, 1 piece. Modern.
- Clear flat glass. Slightly patinated, 1 piece. Modern.

**Layer [CT14]**

- Flat glass clear heavily patinated scrap.

**Layer [CT24]**

- Piece of clear flat glass 2 thick modern.

## 7.7 Iron

**Layer [CP1]**

- Strip 15-18mm wide, about 0.5mm thick and 230mm long. Bent. Greenish coating on the surface. Possibly galvanised.

**Layer [CP2]**

- Strip 3mm thick, 50mm wide and 265mm long. Slightly bent at one end.
- Square nail 36mm long.

**Layer [CP3]**

- Nail 25mm long, section uncertain. Head off centre.
- Square nail 29mm long. Head off centre.

**Layer [CP4]**

- Pipe 50mm long. Internal diameter 31mm, external diameter about 40mm. Threaded inside. Heavily rusted with attached flint. Probably a gas pipe fitting. Modern.

**Layer [CP7]**

- Rectangular nail 44mm long. Clenched over apparently through a plank 37-38mm thick.
- Sheet iron, 7 pieces heavily rusted.

**Layer [CQ1]**

- Iron rod 88mm long, diameter 33mm.
- Square nail 77mm long.

**Layer [CQ3]**

- Scrap of iron bar about 8 by 5mm in section with a piece projecting from the side. Length 58mm.

- Rectangular nail 50mm long.
- Point of a rectangular nail.

**Layer [CQ4]**

- Rectangular nail 55mm long. Flat off-centre head about 20mm wide.
- Rectangular nail 45mm long.
- Square nails 33 and 55mm long.
- Nails of uncertain section 35, 35 and 56mm long.
- Nail about 70mm long. Clenched over at about 50mm. Section uncertain. Heavily rusted.

**Layer [CR1]**

- Tin lid about 116mm in diameter. Possibly from a paint tin. 3 pieces. Modern.

**Layer [CT1]**

- Cast iron angle plate. Broken, minimum size 43 by 42mm. Plate thickness varies from 2 to 5mm.
- Iron staple rectangular cross section. Surviving length 40mm.
- U-shaped piece of iron wire. Width across the U is 50mm. Length of whole wire 138mm.
- Part of iron hook or staple. Diameter about 5mm.
- Slab of cast iron 5mm thick. Size 55.
- Slab of cast iron 3mm thick. Size 30.
- Metal button.
- Square nails lengths 95, 77, 62mm.
- Rectangular nails length 65, 70mm.
- Scrap of a square nail length 27mm.
- Nails, shape uncertain. Lengths 50, 47 and 80mm.
- Cast iron pipe 8mm thick, 1 piece.

**Layer [CT5]**

- Rectangular iron nails lengths 35, 35 and 40mm.

**Layer [CT8]**

- Nail 33mm long square with neat square head.
- Nail 33mm long with flat head. Shape unknown.
- Nail 37mm, shape unknown.

**Layer [CT9]**

- Rectangular nails 25 and 35mm long.

**Layer [CT14]**

- Rectangular nail 43mm long.
- Rectangular nail 48mm long, broken.

**Layer [CT24]**

- Nail 43mm long. Shape unclear.

**Layer [CT28]**

- Nail 70mm long bent into an “S” shape. 1 piece.

- Nail? 65mm long. 1 piece.
- Nail 50mm long bent. 1 piece.

## 7.8 Non-ferrous metals

### Layer [CP1]

- Offcut from lead sheet about 1.5mm thick. One end rolled up.

### Layer [CP4]

- Sheet lead about 120mm long by 40mm wide, twisted and bent.

### Layer [CT1]

- Brass? spoon bowl.
- Piece of non-ferrous metal sheet about 35 by 20mm. 0.5mm thick.

### Layer [CT5]

- Square section flat headed copper (?) nail 39mm long.
- Watch chain bar.

### Layer [CT6]

- Brass cupboard or door handle. Modern.

### Layer [CT9]

- <6> Sheet lead 32mm high, 28mm wide, 2mm thick with '49' stamped on it.



## 7.9 Bone

### Layer [CP7]

- <6> Deer? Two joining pieces of jaw with 5 teeth.  
 <7> Part of jaw with molar and two pre-molars.  
 <8> Pig. Part of jaw bone and two teeth.

### Layer [CP14]

- An incisor.

### Layer [CQ4]

- <23> Sheep. Part of jaw bone and tooth m3.  
 <24> Sheep. Part of jaw bone and teeth p4, p3, p2.  
 ○ Sheep molar  
 ○ Part of large molar – possibly cattle.  
 ○ Small incisor 27mm long and 5mm wide at the top.

**Layer [CT5]**

<1> Deer molar.

**Layer [CT14]**

<2> Dog claw.

**Layer [CT25]**

<5> Cow tooth m<sub>1</sub>.

**Other bone**

Context	Pieces
[CP7]	9
[CP10]	1
[CP14]	2
[CQ4]	31
[CR1]	1
[CR2]	1
[CT1]	7
[CT5]	4
[CT10]	3
[CT11]	1
[CT14]	2
[CT25]	6
[CT28]	4

**7.10 Shell****Layer [CP7]**

- Oyster shells, 2 and one part.

**Layer [CP14]**

- Mussel, 2 scraps.

**Layer [CQ4]**

- Oyster shell, 5 pieces
- Blue mussel shell, 1 fragment and 2 scraps.

**Layer [CT1]**

- Dog whelk shell, 1 piece.

**Layer [CT9]**

- Oyster shell, 1 piece.

**Layer [CT28]**

- Oyster shell, 1 piece.



## 7.11 The latest finds from contexts

- [CP1] Modern pottery and bottle glass.
- [CP2] Base of wine bottle with deep kick up and scrap of pipe bowl.
- [CP3] Flower pot. Modern white tile.
- [CP4] Modern white ware.
- [CP6] No finds.
- [CP7] Stoneware, probably Staffordshire c.1720-70, tin glaze, pink mortar, lightly patinated window glass, slate, coal shale. The latest firmly-dated object is the stoneware but the pink mortar and the state of the window glass suggest this is more recent. Noticeable lack of modern material. 19th century?
- [CP8] No finds.
- [CP9] No finds.
- [CP10] Rough brick, peg tile, Reigate stone, bone.
- [CP11] Rubble with calcite including a brick <11> with a probable frog.  
/12]
- [CP13] No finds.
- [CP14] Worked and burnt Reigate stone, peg tile and mortared flint.
- [CP15] No finds
- [CP16] No finds.
- [CQ1] 19th- or 20th-century stoneware, transfer print ware, modern white pottery, modern drain pipe, modern bottle glass.
- [CQ2] Modern white pottery, slate.
- [CQ3] Cut soft red brick.
- [CQ4] Medieval sherd, 18th-century-type brick with calcite, doubtful pan tile, medieval floor tile, Reigate stone.
- [CQ5] No finds.
- [CQ6] No finds.
- [CQ7] No finds.
- [CR1] Transfer print ware.
- [CR2] Green bottle glass.
- [CT1] Modern pottery, concrete, asbestos cement, modern glass, plastic.
- [CT2] Modern pottery and glass, concrete.
- [CT3] Modern pottery and machine-made floor tile.
- [CT4] No finds.
- [CT5] Modern pottery and glass.
- [CT6] Brass handle.
- [CT6] (Cut fill). Modern pottery. 20th century.
- [CT7] Asbestos cement, modern glass.
- [CT8] Modern pottery and glass. 19th or 20th century.
- [CT9] 19th century stoneware?
- [CT10] Modern glass. 19<sup>th</sup> century?
- [CT11] Modern pottery. 19th or 20th century.
- [CT12] No finds.
- [CT13] Renumbered [CT6].
- [CT14] Grey slate.

[CT15]	No finds.
[CT16]	No finds.
[CT17]	No finds.
[CT18]	No finds.
[CT19]	No finds.
[CT20]	Structure.
[CT21]	Structure.
[CT22]	Structure.
[CT23]	No finds.
[CT24]	Piece of clear flat glass 2mm thick. Modern. It seems likely that this was contamination. There was no other datable find from the deposit.
[CT25]	Flower pot. 18th century (?) brick.
[CT26]	Bricks. Early 18th century?
[CT27]	Nothing closely datable.
[CT28]	Scrap of tin glaze. 17th or 18 <sup>th</sup> century?
[CT29]	Structure.
[CT30]	Structure.
[CT31]	Cut.
[CT32]	No finds.

## 7.12 Below the east end of the orangery wall

On 6 June 1999 a small trial hole was dug through the yellow stock brick floor on the west side near the fire place. The layers were levelled to the orangery TBM.

OD height	Details
32.33	Top of yellow stock brick. Brick and mortar rubble below with some glass. Brick clearly 18th century.
32.08	Top of gravel
31.99	Top of silt. Occasional chalk and tile mostly towards the bottom.
31.09	Top of silty gravel.
30.89	Ends in grey sandy gravel.

## 7.13 Note on heights

Trenches CP and CQ were levelled to a TBM on the concrete slab at the entrance to the nature reserve near the east end of the orangery wall. This was levelled to the orangery wall TBM. A survey of 20 May 1990 found that the orangery wall TBM was at 32.44m OD. The TBM for CP and CQ was at 32.38m OD.

Trenches CR and CT were levelled to the orangery wall TBM.

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