



THE MAGIC GARDEN
Hampton Court Palace
London KT8 9AU

London Borough of Richmond

Post-excavation assessment

October 2014



**THE MAGIC GARDEN
Hampton Court Palace
London
KT8 9AU**

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Post-excavation assessment

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Executive summary

This report is intended to inform the reader of the results of the excavation at the Magic Garden, Hampton Court Palace, what was found on the site; what post-excavation analysis work has been done so far; what work still needs to be done and why; and how and where the results of the excavation should be made public. The report is written and structured in a particular way to conform with the standards required of post-excavation analysis work as set out in *Management of Archaeological Projects* (English Heritage, 1991 and 1997).

All field work and subsequent assessment was carried out further to the *Written Scheme of Investigation* (MOLA 2014).

Three trenches were excavated by MOLA in June to July 2014 as part of redevelopment of the site of former tennis courts. The site was located to the north west of Hampton Court Palace had been used as kitchen gardens since the late 17th century.

Prehistoric – a few undated features comprising post holes and a ditch may be prehistoric in date.

18th century – there were numerous phases of bedding trenches, with other features such as pits and post holes, that all relate to the kitchen gardens laid out in the late 17th century for William and Mary.

19–20th century – there were further garden features, including some bedding trenches, that relate to the gardens use by local market gardeners in the 19th and 20th centuries.

20th century – the area was later used as public tennis courts.

Post-excavation analysis is completed, no further work is required. This report will contribute to a later publication planned by the HRP.

A summary of this work will appear in the next *London Archaeologist* annual round-up.

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1 Introduction

1.1 Site background

The excavation took place at the Magic Garden, Hampton Court Palace, London, KT8 9AU. The site (NGR 515583 168790) is bounded by to the north and west by Hampton Court Road, and the south and east by the gardens of Hampton Court Palace (see Fig 1). It lies at the north-west corner of the gardens, some 200m to the north-west of the main Palace buildings. The site was occupied until recently by tennis courts and grassed areas over former tennis courts. Modern pavement level near to the site lies at c 10.2 OD immediately to the north of the site. A topographic survey prepared by HRP in 2000 shows heights in the area of the excavation at being between 10.52m OD and 10.57m OD.

1.2 Planning background

The legislative and planning framework in which the excavation took place was fully set out in the *Written Scheme of Investigation* (see Section 1.2, MOLA 2014). To summarise here:

Hampton Court Palace is a Scheduled Ancient Monument (LON 83, HA 1002009), and is a Grade 1 Listed Building of international importance.

The Palace and its grounds (including the area of the Magic Garden) lie within the Richmond Area of Archaeological Significance. The site also lies within the Hampton Court Registered Garden.

The excavation was carried out under Scheduled Ancient Monument Clearance (ref S00084650).

The development was subject to Local Authority Planning Consent (reference 13/3523/FUL). This did not apply an archaeological condition as this was covered by the Scheduled Ancient Monument Clearance.

1.3 Scope of the excavations and report

This report is a post-excavation assessment of the MOLA excavation of three trenches carried out in June-July 2014 (see Fig 2).

Other relevant documents include:

- Archaeological desk-based assessment (Gregory 2011). This presented the initial assessment of archaeological potential on the site.
- Archaeological Geophysical Survey of the Wilderness and Tiltyard Gardens report (Northamptonshire Archaeology 2011). This presented the results of a preliminary geophysical survey to the south and east of the present site.
- Archaeological Geophysical Survey in the north-west compartment of the Tiltyard Gardens report (Northamptonshire Archaeology 2012). This presented the result of a second phase of geophysical survey that included the present site.
- Further archaeological geophysical survey in the Tiltyard Gardens report (Northamptonshire Archaeology 2013a). This presented the results of a third phase of geophysical survey immediately to the south of the present site.
- An archaeological watching brief in the north-western compartment of the Tiltyard Garden report (Northamptonshire Archaeology 2013b). This presented the results of a watching brief in the area to the north of the proposed excavation trenches.
- Archaeological evaluation report (Oxford Archaeology 2013). This presented the results of an archaeological evaluation of the development site.
- Brief for Archaeological Excavation, The Magic Garden, HCP 104 – Hampton Court Palace (HRP 2014). This provides the brief for the present works.

1.4 Circumstances and dates of fieldwork

The site is being developed to create a children's play area to be known as 'The Magic Garden'. MOLA excavated three areas (Trenches 21, 22 and 23) with a total area of approximately 546m², between 10 June and 21 July 2014. Historic Royal Palaces have employed their own archaeologist who will conduct a watching brief on subsequent ground works.

Each trench was excavated in a series of spits under the supervision of an archaeologist using a machine with a ditching bucket. Any features revealed were cleaned by trowel or hoe and were excavated using a sample strategy. A sufficient proportion of each archaeological feature revealed was excavated in order to ascertain their extent, date, and nature. For this project the *minimum* percentage excavated of each individual feature type was as specified in the brief (HRP 2014);

Feature Type	Minimum percentage of each example
Stake-hole	100%
Post-hole or pit	50%
Bedding trenches)	25%
Linear feature (less than 5m)	20%; all termini and intersections will be excavated
Linear feature (greater than 5m)	10%; all termini and intersections will be excavated
Deposits relating to funerary activity (e.g. burials, cremation deposits)	100% (subject to agreement with curator)
Deposits relating to domestic/industrial activity (postholes, hearths, floor surfaces/floor makeup deposits)	100%
Agricultural pits and features	50%

Site sampling included provision for bulk samples and pollen sampling. The latter await approval by HRP for analysis by an external specialist, guided by this report. Samples were taken from contexts 3372, 3376, 3379, and 3381.

1.5 Organisation of the report

The principles underlying the concept of post-excavation assessment and updated project design were established by English Heritage in the *Management of Archaeological Projects 2* (MAP2), (1991) and further developed in *The Management of Research Projects in the Historic Environment (MoRPHE) Project Planning Note 3: Archaeological Excavations* (1997). The project design has not been updated as this assessment work will not result in a MOLA publication; as a consequence any reference to further work for publication has been removed. The retained Historic Royal Palaces' archaeologist will collate the data from all of the archaeological investigations at the site in order to produce a final publication.

2 Topographical, historical and archaeological background

2.1 Topography

Hampton Court Palace is situated on the northern bank of the River Thames lying within its floodplain. The natural geology comprises first Terrace Gravel or Kempton Park Gravels which are overlain by fine alluvial deposits. The ground is relatively flat lying c 9.50m OD with a slight slope towards the south and east.

2.2 Historical and archaeological background

The archaeological and historical background of the site is well covered in the Desk Based Assessment of the Tiltyard and Wilderness (Gregory 2011) and the evaluation report (Oxford Archaeology 2013). The following provides a brief summary.

The natural geology is fine alluvial deposits, comprising a variable sandy brickearth overlying Kempton Park Gravels. The surface is seen at 9.30 - 9.40m OD. Although no prehistoric archaeology was found during the evaluation, residual Bronze Age pottery was recovered from HCP 85, 100m to the south of the site, and recent work across Home Park has returned an abundance of residual worked and burnt flints.

Little evidence has been found for Roman or Saxon activity in the area.

The Knights Hospitallers of St John of Jerusalem established a manor on the property by 1180. Cardinal Wolsey signed a lease for the property in January 1515, and he set about rebuilding the main house and the present site was developed as an orchard. King Henry VIII appropriated the property from Wolsey, and continued the rebuilding of the property

The walls that border the north and west of the site, although much rebuilt, date from the early 16th century. The archaeological evaluation revealed the Tudor foundations, and a spread of debris associated with the construction of the walls at 9.70m OD.

This area of the parkland subsequently became Henry VIII's Great Orchard; first mentioned in September 1530. In 1534–5, a brick banqueting house that was surrounded by five brick towers was built in the orchard (Gregory 2011, 10–11). These towers are thought to have lain to the east of the proposed Magic Garden site and are of exceptional significance as discussed in detail in the desk based assessment (Gregory 2011, 16–18). A residual majolica floor tile from the evaluation, dating c 1520–40, may have originated from one of the Towers.

A Tiltyard appears to have been set-out in 1537–8, but the position of the tilt itself remains unknown. The tilt at Hampton Court was used throughout the Elizabethan period and into the reign of James I last being used in the winter 1603/4 (Gregory 2011, 15). Throughout the majority of the 17th Century, however, the tilt yard stood as open pasture. The towers continued in use as lodgings etc, but gradually fell into disrepair and four were demolished during the 1680s, though one survives to the south east as part of the Tiltyard café.

The Tiltyard was converted into a kitchen garden c 1690 for William and Mary. Three large growing plots were set out on each side of a central north-south spine wall. By 1698, additional cross walls further emphasised this compartmentalisation to give six walled gardens; the north west of which was

the site of the Magic Garden excavation. Each had a perimeter path, and the evaluation showed successive paths from the earliest layout of the kitchen garden through to the 20th century.

The layout as depicted by Rocque in a map of 1736 (see Fig 16) was evidenced during the Oxford Archaeology evaluation by intercutting bedding trenches that respected an inner border. These 18th century bedding trenches were seen at c 9.40m OD (c 1.15m below modern ground level), they cut directly into the natural and were, on average, 0.40m deep.

The central bedding trenches were truncated and sealed by a wider-reaching 18th century cultivation horizon. This homogenous layer at c 9.90m OD, was cut by occasional 19th century features, before the garden was again truncated and sealed by a 19th century cultivation horizon. The kitchen garden supplied food for the royal household until the beginning of the 19th century. After a period first leased to local market gardeners and a brief spell again supplying the royal household, it was leased as market gardens from 1850 until the 1920's. This only ceased when six tarmac tennis courts with an associated pavilion were laid out for visitors.

3 Original research aims

3.1 Original research aims

All research was/is undertaken within the priorities established in the Museum of London's *A research framework for London Archaeology*, 2002. Specific research aims were also established in the Written Scheme of Investigation (section 2.1 MOLA 2014).

The following research objectives were compiled after consultation with appropriate experts, and in particular on consideration of the results of previous archaeological investigations both on the site and on other sites in the area.

Natural topography and the prehistoric environment

- Confirm the level and nature of the natural soil

Prehistoric

- Is there any evidence for prehistoric activity as indicated by the residual finds found in the general vicinity?

Roman/Saxon

- Is there any evidence for Roman or Saxon activity?

Medieval

- Are there any remains associated with the manor of the Knights Hospitaller?
- Can any further detail be recognised of the nature and date of the buried soil horizon found on the evaluation?

Post-medieval

- Is there any evidence for Cardinal Wolsey's orchard?
- The evaluation found no evidence for the Tudor Royal Tiltyard. However, it is possible that surfaces or remains of peripheral or temporary buildings associated with it might be revealed.
- The location of the five towers of 1534-6 is uncertain. Is there any evidence for them in the present site?
- Can the form, extent and distribution of the bedding trenches for the kitchen garden be further defined? In particular can phases of activity be identified, and is there any evidence for the nature of the plants sown?

4 Site sequence: interim statement on field work

4.1 Natural and topography

In Trench 21 and Trench 23, truncation meant the underlying natural gravels were starting to become visible at c 9.10m OD. These were overlain by natural sandy brickearth deposits, [3167], [3475] and [3390], varying across the site in height between 9.10m OD and 9.20m OD. Slight variations in the heights found in each trench are more to do with the truncation due to gardening activities rather than real changes in the site topography, though a slight fall towards the south was noted.

Above the natural brickearth there were some sandy subsoil deposits, [3389] and [3474] varying in height across the site between 9.30m OD and 9.40m OD. These subsoil deposits were generally between 0.20m and 0.30m thick.

4.2 Undated/prehistoric

In Trench 21 there were three large post holes or pits, [3500], [3503] and [3505], forming a north east to south west line (see Fig 3). Although these were undated, so may be prehistoric in date, they could have been for tree planting as when overlain on the Rocque map of 1736 (see Fig 16) this trench appears to fit with a row of trees parallel to the adjacent garden wall. If this is true, this would put them in the post-medieval period.

In Trench 23 there was a linear feature [3387] and [3508] aligned south west to north east and curving slightly towards the east (see Fig 10). A fragment of post-medieval glass recovered from its fill is probably intrusive coming from later features cutting this ditch. If this is the case, this ditch was undated so may be prehistoric in date.

4.3 Post-medieval

The post-medieval archaeology of each trench will be considered by phases of activity starting with the earliest (lowest) phase cutting the subsoil or natural deposits.

Trench 21

Phase 1 (see Fig 4). Cutting the natural deposits, [3167], in this trench there was a series of bedding trenches parallel to the eastern trench edge. Running north east to south west, the longest recorded were just over 10m long and 1.0m wide. One fill [3059] was dated 1730–1780 and another [3061] to 1680–1800. Along the west side of the trench the ends of a series of bedding trenches running north west to south east were also exposed. The depth of the bedding trenches in this phase was between 0.30m and 0.40m deep. The fills of the bedding trenches were very similar; a sandy silt with occasional fragments of pottery, glass and clay tobacco pipe. The exception was the fill of [3160] which contained several brick fragments that were dated to the late 15th–mid 16th century. These may represent redeposited construction debris relating to the nearby garden walls that date from the early 16th century or possibly from the demolition of the brick towers of the tiltyard.

There was a noticeable gap c 1.0m wide, located between the two sets of bedding trenches. This may be a path allowing access between various sections of the garden, though no gravel or hardcore was noted suggesting this was left as grass.

Phase 2 (see Fig 5). This was a series of features of a variety of shapes and sizes that probably represent pits or cuts for individual plants, though [3046] was noticeably bigger than the others and was possibly for a small tree. Two of the features, [3038] and [3040], were linear so are probably bedding trenches. The fill of [3038] was dated 1800-1900.

These phases of activity were sealed by an undated dump [3152] of soil c 0.50m thick.

Phase 3 (see Fig 6). There was a further phase of activity in this trench cutting into this dump. These were a series of shallow cuts, often difficult to define, that tended to be identified by more distinctive darker fills. This phase dates to the 19th/early 20th century when the former Royal kitchen gardens were being used as market gardens. The final feature recorded was a narrow land drain [3001] running north east to south west. As the fill contained fragments of tarmac, it was clearly cut through the early 20th century tennis courts.

The Phase 3 activity was sealed by a dump [3034] of soil c 0.40 thick and dated 1805–1900, over which the tennis courts were laid in the early 20th century.

Trench 22

Phase 1 (see Fig 7). Although recorded as cutting into the natural deposits, [3475], of this trench seven linear features aligned north west to south east were probably dug through the overlying subsoil deposit [3474]. These features were very shallow and narrow when compared with later bedding trenches, and although undated, these are probably 18th century bedding trenches.

Phase 2 (Fig 8). Cutting through the subsoil deposit [3474], were a series of bedding trenches that show a variety of different lengths and widths that probably reflect what was being cultivated at the time. The amount of redigging, particularly in the north west area of this trench, made identification of individual bedding trenches difficult until an undifferentiated layer of garden soil [3364] was removed. This deposit included a fragment of 'delftware' wall tile with a Biblical scene and dated to the mid-18th century. The majority of the bedding trenches are aligned north east to south west, with a small number [3391], [3393], [3395], [3397] found just within the south west corner of the trench aligned north west to south east. The north east to south west aligned trenches are arranged roughly in two rows with a gap of approximately 2.5m between them. This gap approximately relates to the position of a path shown on Rocque's map of 1736 (fig 16), though it is not possible to absolutely relate the location of the trenches to this map. The westward continuation of this path was not discernible where it ought to have crossed trench 21. A line of short bedding trenches subsequently infilled the gap, suggesting that the path may have been dug over at a later date. The only obvious intercutting of the bedding trenches was where short bedding trench [3421] cuts bedding trench [3430] in the northern row.. This may suggest this row of shorter trenches were dug later. In section 22-1 intercutting of bedding trenches [3485], [3480], [3378], [3375] was recorded and showed they were dug or redug starting from the south east and progressing to the north west. A single bedding trench [3479] aligned north west to south east cut through a series of earlier trenches aligned north east to south west. Presumably more aligned this way were located further to the south east of this trench. Some of the bedding trenches located in the northern area of the trench, such as [3450], [3448] and [3446], may actually represent two separate features that have been recorded together as the fills were too similar to distinguish apart. A few gaps found where no bedding trenches were recorded may have been left undug to allow access to different areas of bedding. As no gravel or other hardcore was found they were presumably left as grass.

The Phase 2 activity was sealed by undated dumps [3363] and [3461] of undifferentiated soil c 0.30m thick.

Phase 3 (see Fig 9). Cutting through the dump was a phase of activity that appeared more scattered. It includes an area with roughly dug bedding trenches in the northern part of the trench and aligned north east to south west. Some larger features such as [3301] and [3401] were probably dug for small trees or bushes. A scatter of smaller features such as [3305] and [3341] look like post holes, so were possibly to support individual plants. An unusual feature was [3303]; this was a circle of spade cuts along with smaller cuts dug around a small off- centre post hole (see Fig 20). It is possible these cuts were to hold something, such as posts or canes supporting a single plant. It should be noted this feature appears to be located near the centre of this compartment of the garden. Three more features, [3311], [3291] and [3293], stood out as being different. Here circular trenches had been dug leaving the central area untouched; these may have been for drainage around an individual plant or bush. One of the fills, [3310], was dated 1800–1900. This phase of activity is probably dated to the 19th century when the former Royal kitchen gardens were being used as market gardens.

The Phase 3 activity was sealed by an undated dump, [3362], of soil c 0.30m thick, over which the tennis courts were laid in the early 20th century.

Trench 23

Phase 1 (Fig 11). Natural deposits, [3390], were overlain by a subsoil deposit [3389]. Cutting through these deposits there were a series of bedding trenches aligned north east to south west. These formed two slightly disjointed lines with no discernible gap between them. These features were c 1.0m wide and c 0.40m deep, though no total lengths were recorded. Two bedding trenches, [3163] and [3165], may be continuations of trenches further to the north seen in Trench 21.

There were two noticeable gaps where no bedding trenches were dug; these must have been left undug to allow access to parts of the garden, though no deposits such as gravel or clinker were recorded. The top of a large domed bell jar or cloche and a large number of pipe fragments dated c 1730–1770 were recovered from bedding trench [3211].

The latest activity in phase 1 was a single bedding trench [3483] aligned north west to south east that cut through the previously orderly rows of bedding trenches. Presumably more bedding trenches on a similar alignment lie to the north east outside this trench. A large, amorphous, feature, [3219], that was also cut through the bedding trenches was dated 1807–1900.

The Phase 1 activity was sealed by a dump, [3168] and [3101], of soil 0.20m thick dated 1800–1900.

Phase 2 (see Fig 12). This dump was cut by a series of bedding trenches aligned north east to south west. These were more scattered than in the previous phase and were c 1.0m wide and c 0.20m deep. A group of six narrower bedding trenches presumably had been used for a different type of planting. To the east there were two intercutting pits, [3091] and [3092], and a pit, [3064], these features were possibly for larger trees or bushes.

A bedding trench, [3100], (see Fig 24) had spade cuts visible in its base. Nearby there was an open area where a pit, [3166], had been consolidated with dumped material. This included burnt material [3155] and gravel [3156]. Both of these contexts contained broken flower pots dated c 1680-1740 and c 1720-1780. Several Dutch paving bricks dated 1630-1800 and a fragment of unglazed Low Country floor tile dated 1580/1600-1800 were also recovered from this pit.

Finally there were two small land drains, [3096] and [3098], and part of a modern land drain [3066]. The latter continued into Trench 21 to the north and contained a complete late 19th-century glass bottle marked 'T H HAWKES THAMES DITTON'.

The Phase 2 activity was sealed by an undated dump, [3388], of soil c 0.30m thick, over which the tennis courts were laid in the early 20th century.

This trench did not have any obvious phase of scattered features, such as those recorded in Trench 21 and Trench 23 as Phase 3 and thought to be evidence of market gardening. It may be they were too indistinct to be recognised in this upper dump [3388].

5 Quantification and assessment

5.1 Post-excavation review

The following have been done to complete the post-excavation assessment:

- site matrix checked and on ARCED
- all plans digitised
- all photographs cross referenced and indexed
- all ceramic dating done
- all work on other finds and environmental samples done (in appropriate specialist assessment)

5.2 The site archive and assessment:

5.2.1 Stratigraphic

Type	Description	Quantity	Notes
Contexts	paper	440	
Plans	'A4'	102	no. of sheets
Sections	'A4'	36	no. of sheets
Matrices		Yes	digital and paper copies
Photographs	digital	109	includes duplicate images (and 35 others)

Table 1 Stratigraphic archive

5.2.2 Finds and environmental

Category	Description	Weight
Building material	One shoe-box of bulk building material retained	10.72kg
Prehistoric pottery		
Post-medieval pottery	426 sherds	11507g
Accessioned finds	25	
Clay pipes	2 boxes; 199 fragments	
Bulk Soil Samples	1 box: 11 dry flots	
Animal Bone	112 frags 2 standard archive boxes	1580g

Table 2 Finds and environmental archive general summary

5.3 The post-medieval ceramic building material

Ian M. Betts

Introduction/methodology

All the building material has been recorded using the standard recording forms used by the Museum of London. This has involved fabric analysis undertaken with a x10 binocular microscope. The information on the recording forms has been added to an Oracle database.

There are 56 fragments of building material weighing 10.72kg and all are of post-medieval date.

Fabrics

Tudor fabrics

3046, 3065

Later fabrics

2275, 2850, 3036, 3086, 3202, 3259, 3289

Undated fabrics

2271, 2276, 2586, 2816, 3094, 3216

Forms

Low Countries 'Flemish' Floor tile

Fabric 2850

From context [3155] is part of a plain unglazed Low Countries floor tile measuring 287mm in length by 34mm in thickness. A 2mm diameter round nail hole is present in one corner. This is probably of 1580/1600–1800 date.

Tin-glazed wall tile

Fabric 3086 near 3067

A fragment of decorated tin-glazed 'delftware' wall tile was recovered from context [3364] <14>. The surviving fragment shows the top-right of a blue on white biblical scene set in a circular border with a barred ox-head corner. The tile was probably made in London in the mid-18th century. Not enough of the design survives to be certain, but the surviving decoration closely matches a London tile of 1730–50 showing 'Abraham dismissing Hagar' (Genesis 21 v.14) illustrated by Horne (1989, 78, no. 450).

Roofing tile

Peg tile

Fabric 2271, 2276, 2586, 2816, 3094, 3216

Much of the ceramic building material from the site is fragments of post-medieval peg roofing tile. The majority are of two round nail hole type (c 9 to 14mm diameter), although one tile would have had two diamond shaped holes measuring 10 x 10mm (context [3314]). A few part complete peg tiles were recovered from context [3155].

Pantile

Fabric 2275, 3202, 3259

A few fragments of pantile were present on the site. These pantiles have a general 1630–1900 in date, although one pantile (fabric 2275, context [3155]) may be somewhat earlier: probably 1630–1800. Only two tiles are of note (contexts [3156], [3358]) as these are unusually thin (10–12mm)

Ridge tile

Fabric 2276

Both peg tile and pantile roofs would have been covered by plain curved ridge tiles, fragments of which were recovered from contexts [3136] and [3364].

Brick

Contexts	Fabric	Size (mm)	Date range
3093	3289	? x ? x 69	1850–1950
3136	3046 near 3065	?	1450/70–1550
3155	3036	156 x 65–66 x 33	1630–1800
3156	3036	155 x c 67 x 31–34	1630–1800
3065	3065	? x 110–115 x 47–54	1450/70–1550

Table 3 Post-medieval brick

The sandy orange and slightly overfired dark red bricks from context [3159], and the small fragment from [3136], probably date to the late 15th–mid 16th century. Sunken margins are present on a number

of examples. Bricks made with similar sandy clay and of similar thickness, although a little smaller in breadth, were used in a building in Greenwich dated to 1532–33.

Small hard yellow Dutch paving bricks, dating to around 1630–1800 were recovered from contexts [3155] and [3156]. One brick (context [3156]) has a worn stretcher face.

Of Victorian or later date is the corner of a cream coloured machine-made brick from context [3093]. This would have had holes through the brick to aid firing, part of one of which still survives. This brick has been brought into London from a brickyard located elsewhere in the country.

Analysis of potential

All the building material is of post-medieval date. Most of the building material assemblage comprises roofing tile and brick, but there are two higher status items, a Low Countries floor tile and a decorated tin-glazed wall tile. With the exception of the floor tile, the Dutch paving bricks and perhaps some of the pantiles, all the building material probably derives from production sources in or close to London.

Significance of the data

The earliest building material from the site is the exceptionally sandy bricks from contexts [3159] (and possibly the fragment from context [3136]) which are probably of late 15th–mid 16th century date. The plain glazed Low Counties floor tile probably derives from a tiled floor installed in the 17th or 18th century. The roofing material derives from buildings with both peg tile and pantile roofs, the latter of which are unlikely to date before 1630.

Also unlikely to date before 1630 are the two hard yellow Dutch paving bricks, which would have been set in a herringbone pattern in an internal or external floor surface. They were frequently used in courtyards and stable blocks where a hard wearing surface was required. The decorated delftware wall tile with the biblical scene would probably have come from a mid-18th century fireplace surround. Delftware tiles could be used in other areas, such as around wash basins and in kitchen areas, but the majority of 18th century examples were used around fireplaces in south-east England.

5.4 The post-medieval pottery (c 1500–1900)

Jacqui Pearce

Introduction

The pottery (426 sherds 304 ENV 11507 g) was spot-dated and recorded in accordance with current MOLA practice, using established codes for fabric, form and decoration. Some additional form codes were created with specific reference to the nature of the site (detailed below). The data were entered onto the Oracle database, along with quantification by sherd count (SC), estimated number of vessels (ENV) and weight in grams.

Dating, fabrics and forms

No medieval pottery was identified in the excavated material – the main ceramic sequence runs from the later 16th to mid-19th century. The pottery comes overwhelmingly from small contexts in 91% of which fewer than 10 sherds were recorded. Moreover, almost three-quarters of the sherds identified (81%) were found in contexts with no more than five sherds. Of the 90 contexts that yielded pottery, only two can be classed as of medium size: contexts [3034], with 38 sherds, and [3155], with 52 sherds. This does seriously impair attempts at chronological refinement, especially when the emphasis on horticultural ceramics is taken into account. These are difficult to date closely because of their limited typological development and relatively few diagnostic features. Contexts in which one or two body sherds from flowerpots were the only finds, have necessarily been given a broad date range based on fabric. The large proportion of small contexts with a handful of small sherds also conforms to a pattern of frequently turned over garden soil, which further hinders close dating, especially in the absence of associated fabrics and forms that can be more easily dated.

The two apparently earliest contexts have been given a TPQ of c 1550, based on the presence of sherds of Surrey-Hampshire border ware. However, this ubiquitous fabric remained in use across

London throughout the 17th century (whiteware, BORDY/G/B) and well into the 19th century (redware, RBOR). The contexts so dated could have been deposited at any time within this broad span. The same applies to post-medieval redware (PMR), which developed out of redware fabrics in widespread use during the 16th century (PMRE) c 1580. The flowerpot sherds recovered during excavation of the Magic Garden have all been recorded as PMR, with the exception of two sherds from flowerpots made in a buff earthenware fabric, the source of which is as yet unidentified. Use of this fabric code does, however, encompass a number of variations and no doubt a variety of sources that can broadly be encompassed within the red earthenware industry of the London area. Some of these will likely have specialised in garden ceramics and perhaps other heavy-duty, non-household wares, such as sugar-refining vessels. Further work is required to identify fabric variants and, if possible, the centres at which they were made. Table 4 shows the high proportion of PMR present on the site (57.7% of all sherds), and the great majority of these come from flowerpots of one type or another (accounting for 52.6% of all pottery).

Source	SC	% SC	ENV	% ENV	Wt	% Wt
Surrey-Hampshire border ware	33	7.7%	28	9.2%	623	5.4%
London-area redware	246	57.7%	147	48.4%	9055	78.7%
Tin-glazed ware	35	8.2%	33	10.9%	284	2.5%
English stoneware	22	5.2%	18	5.9%	554	4.8%
English porcelain	1	0.2%	1	0.3%	11	0.1%
Essex redware	1	0.2%	1	0.3%	6	0.1%
Imports, Continental	3	0.7%	3	1.0%	60	0.5%
Imports, Oriental	11	2.6%	10	3.3%	71	0.6%
Factory-made refined earthenwares	41	9.6%	38	12.5%	355	3.1%
Factory-made refined stonewares	16	3.8%	12	3.9%	129	1.1%
Midlands wares	12	2.8%	8	2.6%	217	1.9%
Unidentified	3	0.7%	3	1.0%	59	0.5%
Slipwares	2	0.5%	2	0.7%	83	0.7%
Total	426	100.0%	304	100.0%	11507	100.0%

Table 4 the main sources of post-medieval pottery from the site

As far as possible, flowerpots were separated into major types during assessment. This was based on the classification presented in the report on excavations at the King's Privy Garden at Hampton Court Palace (Thurley 1995, 110–11, fig 146). Not all types recognised during this earlier excavation were identified in the HCP104 finds. The main distinctions are based on size and rim form. New form codes were created for 'small' flowerpots (FLP SM), with rim diameters measuring up to 240mm, and typically with simple ('upright'), beaded (rounded) or thickened and bevelled profile. Some have a light cordon below the rim and some have a single incised groove. Where enough of the base has survived this has a single central drainage hole. Most flowerpots recorded from the site are of this kind (32.4% of all sherds, 27% ENV, 23.3% weight). There seems to be a chronological distinction in the form of flowerpots with a deep collar rim (FLP SMCL). Earlier work at Hampton Court suggests that these may date to the 19th and 20th centuries (ibid, 111), and associated finds from HCP104 tend to bear this out.

The other main category of flowerpots identified on the site have been classed as 'large' (FLP LG), with rim diameters measuring between c 240 and 370mm. These are more substantial containers, of sturdy construction, with heavy bases, thickened rims and usually with a pronounced cordon below. Where bases have survived, most appear to have a central drainage hole, and one (from context [3156]) has an additional circular hole in the side wall, just above the base-angle. These larger forms of flowerpot all come from contexts dated to the 1680s and later, the time when part of the former tiltyard was turned over for use as a kitchen garden under William and Mary. There are two near-complete (but fragmented) examples in the medium-sized context [3155] (c 1680–1740), and sherds from three in [3156] (c 1720–80), with five more vessels represented in the similarly dated context [3157].

No flowerpots in obviously 16th-century fabrics were recorded, and none of the saucers or dishes that were (and still are) widely used to prevent water draining away from the pot. There was also no evidence for ceramic watering pots of any kind. Part of the guard from a rose-type watering pot was recovered during excavation of the King's Privy Garden (Thurley 1995, 111, fig 146, no 5). These forms are most common in 16th-century contexts (Pearce 2013), and their absence from the HCP104 finds is perhaps not surprising given the chronological bias of this material.

Contexts dated to the 17th century include a range of fabrics and forms, aside from flowerpots, common across the London area. Although the small size of most contexts must always be taken into consideration, closer dating is possible for those in which distinctive fabrics were found. The presence of tin-glazed ware (TGW) with plain white glaze or decoration typical of the mid-17th century provides a TPQ of c 1630 for a small number of contexts. The main forms are drug jars, chamber pots and porringers. After c 1660, sherds of plates or dishes and porringers in Staffordshire-type slipware (STSL) and bowls in Staffordshire-type mottled brown-glazed ware (STMO) are found, as well as Westerwald stoneware with manganese and cobalt decoration (WEST PURP). These occur with Surrey-Hampshire border red- and whitewares, and with PMR (mostly flowerpots). A notable feature of the pottery of this period from the site is the absence of cooking and large, heavy-duty storage vessels. Cauldrons and pipkins in PMR and BORDG/Y usually form a key component of domestic assemblages from the London area in the 16th and 17th centuries. The lack of identifiable kitchen forms from this part of the Hampton Court gardens is significant, especially when considered alongside the large number of horticultural wares. Household pottery, when it does occur, is limited chiefly to vessels used for eating and drinking. This may well be a result of the location of the site in relation to the kitchens, and suggests that broken and unwanted cooking vessels were discarded in separate areas, away from the gardens.

Contexts dated by pottery to the 1680s and turn of the 17th/18th century include TGW decorated in styles typical of this period (chiefly bowls and plates), as well as bowls, dishes and chamber pots in BORDG/Y and RBOR, and the ubiquitous flowerpots in PMR. There are also a few small sherds of Chinese porcelain, both blue and white wares and enamelled Imari. The presence of sherds of white salt-glazed stoneware (SWSG), chiefly from plates and mugs, dates a number of contexts after c 1720, while sherds of creamware (CREA) with the pale glaze developed in the 1760s point to deposition in the later 18th or early 19th century. By this date CREA was very much standard fare for dining and tea wares in households across the country, alongside pearlware (PEAR) from c 1770 onwards and refined white earthenware (REFW) from the beginning of the 19th century. All are represented in the finds from HCP104, with other 18th-century finewares including Chinese porcelain and black basalt ware (BBAS). More mundane household pottery consists of sherds from bottles, mugs and jars in English brown salt-glazed stoneware (ENGS), alongside the usual redwares (RBOR and PMR, including flowerpots).

About a quarter of all contexts have been dated after c 1800 (25.6%). Some of these include sherds from the small flowerpot form with collar rim that appears to be chronologically distinctive. However, the chief diagnostic fabrics and forms are transfer-printed wares with underglaze blue decoration (TPW2), postdating 1807, and refined whitewares with printed decoration in other colours (TPW3, TPW4), as well as Sunderland-type coarseware (SUND), REFW, English stoneware with Bristol glaze (ENGS BRST) and Isleworth-type slipware (ISLE SLIP). These mostly give a TPQ in the first quarter of the 19th century, and there is little if any pottery that can definitely be dated after c 1850.

Assessment work outstanding

There is no outstanding assessment work.

Potential of the data

Although most of the pottery comes from small contexts that are not easy to date closely, the context of the finds in a known historic garden at Hampton Court Palace, and the quantity of horticultural wares recovered in association with datable fabrics and forms provide good potential for further analysis. This should focus on closer examination of the fabrics and sources of redwares used for flowerpots of various kinds, as well as typological distinctions within this class of pottery. There is also scope for comparison of these ceramics from HCP104 with pottery from other excavations at Hampton Court, and from contemporaneous garden sites in other parts of the country. In this respect the latest finds offer

good possibilities for expanding our understanding of garden ceramics, their evolution and specific function.

The other pottery found alongside the garden ceramics has good potential for further refinement of the archaeological sequence and of the associated flowerpots. This should be considered together with the other finds evidence from the site (for example, the glass and clay tobacco pipes), and documentary evidence, in order to arrive at a better understanding of the development and use of the Magic Garden within Hampton Court.

Significance of the data

The pottery from HCP104 is certainly significant in relation to the site, providing evidence for dating as well as use, and also has a wider importance with regard to the Hampton Court gardens generally. The evidence from previous excavations within the grounds of the royal palace should be taken into account in considering the importance of the present site, as these successive interventions have a cumulative value. Given the significance of Hampton Court nationally, and the standing of its gardens over time, any work carried out within the palace grounds has a wider importance in elucidating garden history in the post-medieval period. Although the HCP104 pottery comes chiefly from small contexts that are not necessarily closely datable in themselves, the high proportion of flowerpots recovered does allow for comparisons to be made with material from other sites, and this is one of the recommendations of the present assessment.

5.5 The accessioned finds - non-ceramic and bulk glass

Beth Richardson

Introduction/methodology

The registered finds have been accessioned in accordance with MOLA procedures. The digitised records are held on the Oracle database. Metal artefacts have been X-rayed. All objects were examined individually, with the aid of x-rays where appropriate and archive catalogue entries have been entered on to the database. The bulk glass (bottles, phials and window glass) has also been recorded on Oracle.

Material	Roman	Medieval	Post-med	Not known	Total	Comment
Stone			3		3	
Glass			3		3	
Iron			14		14	
Copper alloy			5		5	
Lead			1		1	
Bone			2		2	
Total			27		27	

Table 5 Summary of accessioned finds by material and period

Categories by dating and materials

All the finds are post-medieval, the majority 18th– early 20th-century with some possibly earlier fragments of weathered and abraded green window glass.

Stone

All three stone finds are made from slate. A short length of slate pencil is sharpened at one end and would have been used with a writing slate (<18>, [3326]). Slate pencils were in common use in the 18th- and 19th-centuries, particularly the 19th-century, but were also in use in the earlier post-medieval period. A solid ribbed slate rod (Diam 25mm) with a hole at one end may be a late 19th- or 20th-century electrical insulator (<17>, [3461]). Part of a rectangular slate or mudstone slab (<16>, [3461]) has one (short) sawn edge, two (long) dressed edges and a central 'V'-shaped groove running along its length. Its function is unknown but possibly garden edging/paving.

Glass

Registered glass

Three glass items have been registered. One (<*>, [3356]) is a fragment from a colourless lead glass vessel, decorated with cut diamond-shaped fluting; the cylindrical slightly flared shape suggests a wine glass or custard (cf forms from the Apsley Pellatt 's glass ware catalogue of c 1840 reproduced in Wakefield 1968). It is probably Victorian, although it could be later. One (<*>, [3300]) is a large light blue/green glass stopper, its function unknown but possibly part of a container for dry storage of garden fertilisers or fungicides (eg copper compounds) . The top of a large domed bell-jar or cloche made from thick green glass (<*>, [3157]) would have come from a kitchen garden. It was found with 18th-century pottery and tobacco pipes.

Bulk glass (Bottle glass, phials, window glass)

There are two boxes of bulk glass: 116 pieces from 45 contexts with a total weight of approx. 1.9 kg. The glass is mainly very fragmentary and 18th –early 20th-century in date. A few small pieces of abraded and decayed early post-medieval green window glass (mostly residual in later contexts) could be 17/18th- century or earlier.

Bottle glass is the largest category. Much of this consists of small body fragments from English and European green wine bottles; where identifiable these are early cylindrical (late 18th-century) and 19th-century cylindrical in form. There are two rims/necks, one a type with a bevelled almost collared string rim dated c 1740–60 (Dumbrill, 92) (context [3156]) and one a late 18th- or early 19th-century collared form ([3045]). The other bottle fragments are (where identifiable) from mineral water, medicine and cobalt blue iodine or other poison bottles (one (from [3034]) embossed with '(NOT) TO BE TAKEN on its side. There are a few fragments from torpedo shaped Hamilton mineral bottles ([3290], [3360], [3402]) and a complete clear glass cylindrical bottle (with moulded graphite stopper) both moulded/embossed with the manufacturer's name 'T.H. HAWKES THAMES DITTON' ([3065]). Hawkes had a late 19th-century mineral water and ginger beer bottling factory in Thames Ditton (source:google search).

There are only three fragments from 17th- or 18th-century cylindrical pharmaceutical phials, ubiquitous on most late post-medieval sites. A flat rim/shoulder from a green glass phial was found with late 17th-early 18th-century pipes in [3432] and a flat rim from a blue glass phial (and a green glass phial body fragment) in [3148], a context dated to the late 17th or early 18th century by pottery.

The window glass is particularly fragmentary with no edge-pieces. Fragments of abraded green window glass with decayed surfaces are probably 17th- or 18th-century, possibly earlier. Thirteen larger pieces of green window glass in much fresher condition are from two mid to late 18th-contexts [3155] and [3156]. The rest is natural light blue or colourless and mainly modern (probably 19th c) sheet or plate glass.

Iron

There are 14 iron registered finds. Apart from two lengths of strapping (<9>and <13> [3063]; both with nail-holes), they extremely corroded and unidentifiable or only (marginally) identifiable from x-rays. Two are nails (<2> [3298] and <7> [3091]), one is a possible large blade (<12> [3039]), one a possible square buckle-frame (<5> [3108]). There is also part of a large 19th-century horseshoe <11> [3000] with four rectangular nail-holes.

Copper alloy

A small pin (<33>, [3181]) has a globular wound-wire head. Pins of this type have a wide date range but it is probably 17th or 18th-century (a clay tobacco pipe from this context has a 17th or 18th-century bowl type).

Other finds are more recent (19th-century): a short length of chain (<20>, [3300]), a pen-case (<35>, [3034]), a name-tag (<34>, [3034]), part of a toy (<19>, [3459]). The rectangular name tag has the hand-inscribed name 'FINCH'. A torn piece of thin copper sheeting has ornamental star-shaped cut-outs encircling a protruding central hole. It is almost certainly part of the top of a metal spinning top (with missing plunger).

Lead

The only lead find is a short (50mm) square-sectioned strip, tapering slightly at one end (<15>, [3300]. It is from a 19th-century context.

Bone and tortoiseshell

Part of a single-sided hair comb (<21>, [3044] is made from tortoiseshell. Part of a long bone brush (<36> [+]) with two closely-spaced rows of bristle-holes is un-stratified but likely to be 18th- or 19th-century.

Functional analysis

The assemblage is limited in range, consisting of a small quantity of personal/household items (eg a comb, a pin, a toy, a pen, a slate pencil, a piece from a glass vessel, bottle glass) and garden- or house-related objects (part of a glass bell-jar, a copper-alloy name-tag, a large glass stopper, an electrical insulator). All are presumably lost or discarded because broken.

Analysis of significance and potential

The registered finds and bulk glass are of local significance, heightened because of their associations with Hampton Court and the people who lived and worked there. There are garden related items – part of a green glass cloche or bell-jar – and possible garden-related items (a large glass stopper, a small edging or paving slab, name-tag (FINCH) which could be for a variety of fruit tree or even a gardener's name). There are writing implements (a slate pencil, a pen-case) and personal items (a comb, part of a child's metal spinning top, which must have been quite an expensive toy). There is also a range of bottle and vessel glass. When dating and stratigraphy are integrated at analysis stage there will be potential to relate these objects to the use of the garden at various points in its history.

5.6 Clay tobacco pipe

Jacqui Pearce

Introduction/methodology

The clay tobacco pipes from HCP104 were recorded in accordance with current MOLA practice and entered onto the Oracle database. The pipe bowls have been classified and dated according to the Chronology of London Bowl Types (Atkinson and Oswald 1969), with further refinement of 18th-century types according to Oswald's Simplified General Typology of 1975: these are indicated by the prefixes AO and OS.

Quantification

Total no. of fragments	199
No. of bowl fragments	38
No. of stem fragments	153
No. of mouthpieces	8
Accessioned pipes	10
Marked pipes	7
Decorated pipes	4
Imported pipes	1?
Complete pipes	
Wasters	
Kiln material fragments	
Boxes (bulk\accessioned)	1 box each accessioned and bulk

Table 6 Clay tobacco pipe quantification

Character of the pipe assemblage

Fragments of clay tobacco pipe were found in 58 stratified contexts. In 29 of these, stem and/or mouthpiece fragments alone were recovered, and this considerably reduces their potential for dating. Although there are statistical formulae for dating pipe stem fragments based on stem bore, these require a much larger sample than was recovered at HCP104. In line with standard MOLA practice, all otherwise undatable stems and mouthpieces have been assigned a broad date range of c 1580–1910, encompassing more-or-less the entire period of production. Although it might be possible to guess at the approximate date of manufacture, this is not a reliable means of dating contexts in which no other identifiable pipe fragments have been found. Therefore the wider date range is given in lieu of anything more concrete at this stage. In most contexts there are no more than 10 stem fragments, and this seriously reduces any possibility of stem bore analysis. The largest context recorded on the site has only 16 stem fragments ([3157]), although this did also yield datable pipe bowls. It is possible that the preponderance of stems on the site represents some form of ‘crocking’ to improve drainage of the gardens. However, the fragments appear too scattered and do not occur in sufficient concentrations to justify such an interpretation, although the balance of bowls to stems is somewhat unusual.

All identifiable clay pipe bowls are typical of London manufacture and most appear to have been smoked before being discarded. The earliest bowl is a type AO9 found in context [3061] and dating to c 1640–60. Context [3075] is dated to c 1640–1700 but yielded stem fragments only, including one that is decorated with an incised groove running around the stem and a band of rouletting behind the bowl. This is most likely a product of the Chester clay pipe industry, which was well known for its decorated pipes (Acc No. <22>). A greater number of pipes date to c 1660–80 – two type AO13 bowls, five type AO15 and one AO18. In each case no more than two were found in any one context. Five pipe bowls are dated to c 1680–1710 (types AO19, 21 and 22), all occurring as singletons in individual contexts.

Clay tobacco pipe distribution and quantification

Ctxt	TPQ	TAQ	B	S	M
+	1850	1910	1		
3049	1580	1910		1	
3059	1580	1910		4	2
3061	1640	1660	1	11	
3063	1580	1910		2	
3064	1580	1910		2	
3071	1780	1820	1	2	
3075	1640	1700		5	
3081	1580	1910		5	
3083	1580	1910		1	
3085	1580	1910		3	
3089	1580	1910		1	
3091	1580	1910		5	1
3093	1730	1760	1	1	
3099	1780	1820	1	4	
3104	1850	1910	1		
3106	1580	1910		1	
3108	1580	1910		2	
3110	1580	1910		1	
3118	1580	1910		1	
3132	1580	1910		2	
3134	1700	1770	1	1	
3136	1580	1910		1	
3146	1780	1820	1		
3148	1580	1910		4	
3150	1700	1770	2	8	

3155	1740	1800	2	5	
3156	1580	1910		3	
3157	1730	1770	4	16	2
3158	1700	1770	1	1	
3159	1730	1760	2	2	
3161	1580	1910		2	
3181	1660	1770	1	1	
3197	1730	1760	1	9	1
3209	1730	1760	2	3	
3217	1730	1760	1	5	
3221	1780	1820	1	4	
3312	1580	1910		2	
3314	1580	1910		4	
3318	1700	1740	1		
3343	1580	1910		1	
3350	1580	1910		1	
3356	1580	1910		1	
3367	1580	1910		3	
3369	1580	1910		1	1
3377	1580	1910		7	
3379	1580	1910		5	
3381	1730	1760	1	4	
3402	1680	1710	1		
3415	1690	1710	1	1	
3419	1660	1680	1		
3421	1700	1770	1		
3423	1700	1770	2	1	
3425	1580	1910		1	1
3427	1580	1910		2	
3432	1680	1710	1		
3441	1660	1680	1		
3443	1660	1680	1		
3447	1660	1680	2		
Total			38	153	8

Table 7 Clay tobacco pipe distribution and quantification

The largest numbers of datable clay pipe bowls from the site are types made during the 18th century (16 examples). These are in types AO25 (c 1700–70), and OS10–12, with most made in type OS11 (six examples). Five of these OS11 pipes have been marked by their makers, with initials moulded in relief on the sides of the heel. Two marks are unclear, and there are two pipes marked RT, with one having a fleur-de-lis on each side of the heel. A single type AO26, with its distinctive forward-sloping, long spur was found in context [3155], dating it to c 1740–1800. A small number of residual 17th-century pipe bowl fragments were also found in later contexts. The largest number of pipe fragments comes from context [3157] (c 1730–70), which included 16 stems, two mouthpieces and four bowls, two of which are residual.

Four pipe bowls are dated to c 1780–1820 (type AO27). Two of these have moulded ribbing, one of them with additional moulded leaf seams (contexts [3071] and [3221]). Both of these are also marked by their makers, one of them illegibly and the other with the initials IC. The latest are unstratified and from context [3104]. Both date to c 1850–1910 (type AO30). One has basket moulding around the bowl

(<31>) and the other has moulded figures riding penny-farthing cycles (<27>). All decorated and marked pipes are catalogued below.

Ctxt	Acc	B	S	Form	ED	LD	Dec A	Dec B	Mark	I/R	M/S	Pos	Comments
3221	23	1		AO27	1780	1820	RIBV2	LB	??	R	M	SH	
3093	25	1		OS11	1730	1760			?RC	R	M	SH	
3217	26	1		OS11	1730	1760			D?	R	M	SH	
3381	30	1		OS11	1730	1760			FLEUR-DE-LIS	R	M	SH	
3071	28	1		AO27	1780	1820	RIBV		IC	R	M	SH	
3159	24	1		OS11	1730	1760			RT	R	M	SH	
3209	29	1		OS11	1730	1760			RT	R	M	SH	
3075	22		1	UNK	1580	1910	ROUL						Spiral groove round stem/rouletting / Chester?
00	27	1		AO30	1850	1910							Figure on penny farthing cycle
3104	31	1		AO30	1850	1910	BASK						

Table 8 Catalogue of marked and decorated clay pipes

Analysis of potential

The clay pipes from HCP104 have limited potential for further chronological refinement of the site sequence, because of the high proportion of undatable stem fragments recovered, and the relatively low number of marked pipes recorded. However, they should be seen as part of the wider finds assemblage, and as such may aid interpretation in conjunction with other artefacts. The large number of stems, as opposed to bowls, is in need of explanation and may offer some insight into use of the site (eg as crocking material). There are too few marked pipes to make identification of makers certain.

Significance

The clay pipes are chiefly significant in relation to the site. There are too few datable bowls or marked pipes to allow more detailed examination of supply and use on the site. Their greatest value lies in their relation to other finds recovered during excavation.

Ctxt	Acc	B	S	Form	ED	LD	Dec	Dr	Comments
3075	22		1	UNK	1580	1910	ROUL	Y	Spiral groove round stem/rouletting/Chester?
00	27	1		AO30	1850	1910		Y	Figure on penny farthing cycle
3104	31	1		AO30	1850	1910	BASK	Y	

Table 9 Suggested CTP for illustration in any future publication

5.7 The soil samples

Karen Stewart

Introduction/methodology

Eleven environmental samples were taken for the retrieval of archaeobotanical and other organic remains in order to assess their potential to contribute to the interpretation of the site.

These samples were processed by flotation, using a Siraf flotation tank, with meshes of 0.25mm and 1.00mm to catch the flot and residue respectively. Flots and residues were dried and sorted by eye for artefacts and environmental material. The flot was scanned briefly, using a low-powered binocular microscope, and the abundance, diversity and general nature (method of preservation, unusual

features) of plant macrofossils and any faunal or artefactual remains were recorded. Plant names follow Stace (1995).

Charred remains

Wood charcoal was noted in all the samples that produced a flot. In all cases this was in very low concentrations and the fragments were very small. Some charred seeds were also noted, with black nightshade (*Solanum nigrum*) and vetch/pea (*Vicia/Lathyrus/Pisum* spp.) present (see Table 3 below). The low concentrations and abraded character of the charred plant material suggest that the assemblage is likely to represent reworked material rather than any primary deposition.

Uncharred remains

Uncharred seeds were slightly more common than charred seeds at the site. Of these, elder (*Sambucus nigra*) and blackberry/raspberry (*Rubus fruticosus/idaeus*) were the most common. These seeds have very hardy testas and tend to be preserved where other plant remains have decomposed, thus indicating biased preservation.

Sample no.	Context no.	Flot vol.	Charred plant remains	Uncharred plant remains
1	3148	15	+ charcoal	+ elder, sedge seeds
2	3118	15	+ Pea/vetch; + charcoal	+elder seeds, roots
3	3061	25	wheat grain x1 ; + charcoal	+ Fat hen, elder seeds
4	3104	10	+ charcoal	
5	3142	10	+ charcoal, pea/vetch	
6	3158	15	+ charcoal, + burnt stems, +black nightshade fruits/seeds, +pea/vetch	+ elder, +blackberry/raspberry seeds
7	3181	10	+ charcoal	+ elder, +blackberry/raspberry seeds
8	3193	10	+ charcoal	
9	3162	20	+ pea/vetch, charcoal	
10	3423	15	+ charcoal	
11	3415	5	+ charcoal	

Table 10 Plant remains from samples

Assessment work outstanding

There is no further assessment work outstanding on the samples from this site.

Analysis of potential

The botanical assemblage is likely to represent background reworking of archaeological material at the site and thus is of little to no interpretative value to the archaeology at the site.

Significance of the data

The environmental material from the samples is unlikely to be of any archaeological significance.

5.8 The animal bone

Alan Pipe

Introduction/methodology

This report identifies, quantifies and interprets the animal bone from contexts [3000] to [3427], derived from hand-collected context groups and wet-sieved sample groups. Hand-collected animal bone from [3000]–[3427]; and wet-sieved animal bone from [3061] {3}, [3142] {5}, [3181] {7}, [3193] {8}, [3423] {10} and [3415] {11} was recorded directly onto the MOLA Oracle animal bone assessment database in terms of weight (kg), estimated fragment count, faunal composition, preservation, modification, and the recovery of epiphyses, mandibular tooth rows, measurable bones, complete long bones, and foetal or neonate animals. The assemblage was not recorded as individual fragments or identified to skeletal element. All identifications referred to the MOLA reference collection; and Schmid 1972. Fragments not identifiable to species or genus level were generally allocated to an approximate category, particularly unidentified fish, unidentified bird, 'large mammal', 'medium mammal', 'small mammal' or 'very small mammal' as appropriate. Each context and sample assemblage was then grouped with available dating and feature description.

Table 11 gives a summary of the hand-collected context groups and wet-sieved sample groups in terms of weight (kg), estimated fragment count, preservation, faunal composition, modification and the recovery of evidence for ageing and stature.

Summary, post-medieval

This assemblage provided 1.580 kg, estimated 112 fragments, of well-preserved hand-collected and wet-sieved animal bone with a minimum fragment size generally between 25 and 75 mm. The hand-collected bone produced 1.568 kg, estimated 105 fragments; the wet-sieved assemblage produced 0.012 kg, estimated seven fragments.

The bulk of the hand-collected and wet-sieved bone derived from fragments of vertebra, rib, long bone and metapodial of adult and juvenile cattle *Bos taurus*, sheep/goat *Ovis aries/Capra hircus* and pig *Sus scrofa*, with occasional recovery of cat *Felis catus* from [3059], [3146] and [3201]. Poultry comprised only single fragments, possibly of domestic fowl (chicken) from [3118] and goose, probably domestic goose *Anser anser domesticus* from [3142] {5}. Fish produced a single fragment of unidentifiable bone from [3112]. Game species were represented by single fragments of fallow deer *Dama dama* from [3150]; and wild or domesticated rabbit *Oryctolagus cuniculus* from [3061], [3130] and [3142]. There was no recovery of horse, dog, scavenger species or very small mammals such as rats or mice.

A single fragment of foetal or neonate piglet from [3118] comprised the only recovery of a very young animal.

There was clear toolmark indication of butchery, with evidence of sawing from [3000], [3018] and [3064]; but no evidence of working, burning, gnawing, pathological change or any other modification. The group produced some limited evidence for age at death of the major domesticates, with one mandibular tooth row and 42 epiphyses; metrical evidence was even more limited with three measurable bones including one complete long bone.

Assessment work outstanding

There is no outstanding assessment work.

Analysis of potential

The hand-collected and wet-sieved animal bone assemblage has only very limited potential for further study of the local meat diet and patterns of waste disposal, particularly with reference to carcass-part selection and age at death of the major domesticates; cattle, sheep/goats and pigs, fish, poultry and game, and butchery of cattle, sheep/goat and pig. The wet-sieved sample groups generally provide negligible evidence although they do indicate consumption of goose and rabbit from [3142] {5}.

In view of the absence of amphibians and small mammals from all context and sample groups, there is no potential for interpretation of local habitats.

Significance of the data

The hand-collected and wet-sieved animal bone is of very limited significance only, particularly in terms of meat diet and disposal of post-consumption waste, with emphasis on the skeletal representation and age-selection of cattle, sheep/goat and pig and, to a lesser extent, poultry and game.

There is no wider significance or significance in terms of local habitats.

CONTEXT	SAMPLE	WT (kg)	cattle	pig	game	sheep/goat	poultry	foetal/neonate	l mam	m mam	s mam	bird	fish	epiphyses	mandible	measurable	complete	butchery	burnt	COMMENTS
30	0	0.025	Y						1	0	0	0	0	0	0	0	0	0	0	
3000	0	0.01		Y					0	1	0	0	0	0	0	0	0	1	0	sawn
3018	0	0.025	Y						1	0	0	0	0	0	0	0	0	1	0	sawn
3055	0	0.005				Y			0	2	0	0	0	0	0	0	0	0	0	
3059	0	0.05	Y	Y		Y			2	3	1	0	0	4	0	0	0	1	0	cat
3061	0	0.075			Y	Y			1	4	1	0	0	0	0	1	1	0	1	rabbit
3061	3	0.002							1	0	0	0	0	0	0	0	0	0	1	
3063	0	0.005	Y						1	0	0	0	0	0	0	0	0	0	0	
3064	0	0.075	Y						1	0	0	0	0	0	0	0	0	0	0	sawn
3075	0	0.005							1	0	0	0	0	0	0	0	0	0	0	
3077	0	0.025				Y			0	1	0	0	0	0	0	0	0	0	0	
3091	0	0.01				Y			0	1	0	0	0	0	0	0	0	0	0	
3093	0	0.1	Y			Y			2	4	0	0	0	2	0	0	0	1	0	
3106	0	0.002			Y				0	0	1	0	0	0	0	0	0	0	0	rabbit
3108	0	0.005				Y			0	1	0	0	0	1	0	0	0	0	0	
3112	0	0.005							0	3	0	0	1	0	0	0	0	0	0	
3118	0	0.001		Y				Y	0	1	0	1	0	0	0	0	0	0	0	piglet
3130	0	0.002			Y				0	0	1	0	0	1	0	0	0	0	0	rabbit
3142	5	0.001			Y		Y		0	0	1	1	0	0	0	0	0	0	0	goose/rabbit
3146	0	0.001			Y				0	0	1	0	0	2	0	0	0	0	0	cat
3148	0	0.005				Y			0	1	0	0	0	1	0	0	0	0	0	
3150	0	0.05			Y	Y			0	4	0	0	0	1	0	0	0	0	0	fallow deer
3153	0	0.25	Y						1	0	0	0	0	0	0	0	0	1	0	
3155	0	0.1	Y	Y		Y	Y		3	12	0	0	0	8	0	1	0	1	0	goose/calf
3156	0	0.1	Y			Y			0	0	0	0	0	3	1	1	0	4	0	
3157	0	0.225	Y	Y		Y			5	5	0	0	0	2	0	0	0	4	0	
3158	0	0.01							0	6	0	0	0	0	0	0	0	0	0	
3159	0	0.005				Y			0	1	0	0	0	2	0	0	0	1	0	
3162	0	0.075	Y			Y			2	2	0	0	0	1	0	0	0	2	0	
3181	7	0.002				Y			0	1	0	0	0	2	0	0	0	1	0	
3193	8	0.001				Y			0	1	0	0	0	0	0	0	0	0	0	
3197	0	0.05	Y			Y			2	4	0	0	0	1	0	0	0	0	0	
3201	0	0.04				Y			0	3	1	0	0	6	0	0	0	0	0	cat
3221	0	0.005				Y			0	1	0	0	0	0	0	0	0	0	0	
3296	0	0.05	Y						1	0	0	0	0	0	0	0	0	1	0	
3312	0	0.05				Y			0	1	0	0	0	1	0	0	0	0	0	
3360	0	0.005		Y					0	1	0	0	0	2	0	0	0	0	0	
3377	0	0.04	Y			Y			1	4	0	0	0	1	0	0	0	0	0	
3379	0	0.05				Y			0	4	0	0	0	1	0	0	0	0	0	
3402	0	0.005				Y			0	1	0	0	0	0	0	0	0	0	0	
3415	11	0.005		Y					0	1	0	0	0	0	0	0	0	0	0	
3423	10	0.001		Y					0	1	0	0	0	0	0	0	0	0	0	
3427	0	0.025	Y						1	0	0	0	0	0	0	0	0	0	0	
TOTAL		1.58	16	9	7	24	3	2	27	75	7	2	1	42	1	3	1	19	2	

Table 11 Hand-collected and wet-sieved animal bone from HCP104/summary (bonetab01.xls)

5.9 Conservation

Luisa Duarte

Introduction

The following is an assessment of conservation needs for the registered and bulk finds from the excavations at the Magic Garden, Hampton Court Palace. It includes the requirements for finds analysis, illustration, analytical conservation and long term curation. The work outlined in this document is needed to produce a stable archive in accordance with MAP2 (English Heritage 1992) and the Museum of London's Standards for archive preparation (Museum of London 2009).

Conservation support at the time of the excavation was provided by conservators working for MOLA. Records of conservation carried out at the fieldwork stage are held in the conservation department of the Museum of London.

	Material	No. registered	No. conserved	No. to be treated
Inorganics	Ceramic	11	0	0
	Stone	3	0	0
Metals	Copper alloy	5	0	0
	Iron	14	0	0
	Lead	1	0	0
Organics	Bone	1	0	0
	Total	1	0	0

Table 12 Summary of conservation work

Methodology

Treatment of objects at the fieldwork stage includes the stabilisation of vulnerable materials and composites, cleaning of coins for dating purposes and investigative cleaning and conservation according to archaeological priorities. Treatments are carried out under the guiding principles of minimum intervention and reversibility. Whenever possible, preventive rather than interventive conservation strategies are implemented. Procedures aim to obtain and retain the maximum archaeological potential of each object: conservators will therefore work closely with finds specialist and archaeologists.

All conserved objects are packed in archive quality materials and stored in suitable environmental conditions. Records of all conservation work are prepared on paper and on the Museum of London collections management system (Mimsy XG) and stored at the Museum of London.

Finds analysis/investigation

The registered finds were assessed by visual examination of both the objects and the X-radiographs, closer examination where necessary was carried out using a binocular microscope at high magnification. The registered and general finds were reviewed with reference to the finds assessments by Beth Richardson (registered finds), Jacqui Pearce (Pot and CTP) and Ian Betts (CBM)

- No analytical work was identified by the small finds specialists.
- No objects have been identified at this stage as requiring conservation input prior to illustration/photography.
- The finds from this site are appropriately packed for the archive.
- There is no outstanding remedial conservation work.

6 Significance of the archaeological sequence and finds

There was no evidence of prehistoric, Roman or medieval activity on the site. Though there is some undated activity such as the linear feature [3058] in Trench 23 that appears to be pre- kitchen garden. The three features found in Trench 21, although undated, are probably late 17th/early 18th century garden features.

There was no firm evidence of Tudor land use, such as Henry VIII's Great Orchard or the tilt ground, known to have existed in this area. It should be noted some bricks found in feature [3160] in Trench 21 were dated late 15th–mid 16th century. These may be evidence of Tudor activity such as demolition of the brick towers associated with the nearby tilt ground or the building of the enclosing garden wall in the early 16th century.

The dateable archaeological sequence found post-dates the formation of the Kitchen Gardens in the late 17th century (c 1690's) for William and Mary and is broadly similar in each excavation trench. Three phases are recognisable;

Phase 1 relating to the late 17th/early 18th century laying out of the gardens with many well preserved regular linear bedding trenches and possibly some grass paths. Their layout is similar to that seen on the Rocque map of 1736 (see Fig 16) and others plans such as Knyff's of 1703 (not illustrated); though clearly only a general correlation is possible.

Phase 2 relating to the later 18th or early 19th century gardens. Again it produced regular bedding trenches but some variations in sizes such as in Trench 21. This may be due to poorer preservation/more truncation or differing planting regimes. There is a clear change between the Royal and commercial landuse in the garden when the final phase is found. It is possible that the line of a path shown on Rocque's map of 1736 was identified in trench 22. There was no sign of the circular path junction or the north to south aligned paths shown on the map. The possible path alignment was subsequently dug up with a row of infilling bedding trenches between two rows of earlier trenches. Taken as a whole, this would seem to suggest that the layout of the garden was fluid with the arrangement of beds and internal paths changing over time.

Phase 3 is very irregular with more discrete features though still including some bedding trenches. These activities relate to the 19th century market gardening taking place after the Royal family moved to Windsor. This phase was the most difficult to identify, being more ephemeral and truncated, indeed it was not recorded in Trench 23.

Between these phases there are several soil horizons interpreted as dumps. These may represent soil being brought into the garden or long periods of activity that have been so reworked/redug that no features are easily discernible.

No gravelled paths were found; the trenches all being located too far from the enclosing walls to find the paths found by the Oxford Archaeology evaluation work and seen on the Rocque map (see Fig 16). However, there were clear areas where no bedding trenches were found, some of these areas could have been left undug and presumably grassed, to allow access to parts of the garden. Another explanation could be these were where plants that were too shallow to leave any trace in the archaeological record were being grown.

Only very small assemblages of post-medieval pottery were recovered from the features. There is a noted lack of kitchen forms such as pipkins and cauldrons; this is probably a reflection of the distance from the palace kitchens. Most pottery is dated to the 1680s and the turn of the 17th/18th century when William and Mary had the kitchen garden laid out. About a quarter of the assemblage is dated after c 1800, mostly with TPQ in first quarter of 19th century and there is little if any pottery dated to after c 1850.

Not surprisingly, the largest number of datable clay pipe bowls recovered are types made during the 18th century. The latest were two pipes dated to c 1850-1910, both are decorated; one with figures riding penny farthing cycles and the other has basket moulding.

The low concentrations and abraded character of the charred plant material such as pea/vetch, suggest that the assemblage is likely to represent reworked material rather than any primary deposition. Uncharred seeds were slightly more common than charred seeds, of these, elder (*Sambucus nigra*) and blackberry/raspberry (*Rubus fruticosus/idaeus*) were the most common. These seeds have very hardy testas and tend to be preserved where other plant remains have decomposed, thus indicating biased preservation, but clearly showing these were growing locally.

The animal bone assemblage for a post-medieval garden was small, often of single bones, and again is probably a reflection of its distance from the palace kitchens. Consequentially the assemblage has very limited potential for any further study.

Taken as a whole, the various phases of activity seen in the excavation can be combined with the earlier evaluation work, any historic records concerning planting in the gardens and cartographic evidence to produce a history of the development of the Kitchen Gardens at Hampton Court Palace.

7 Acknowledgements

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Martin Wiles construction manager at Frosts Landscape Construction Ltd, provided support during the project.

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The project was managed at MOLA by Michael Smith.

8 Appendices

8.1 Appendix 1: Context data

Context number	Type	Trench number	Dimensions (m) (lxwxh)	Levels highest/lowest (m OD)	Interpretation
3000	Fill	21			Fill of 3001
3001	Cut	21	4.30x0.29x0.22	9.99/9.78	19th century bedding trench
3002	Fill	21			Fill of 3003
3003	Cut	21	0.21x0.19x0.10	9.97/9.84	Hole dug for planting/post hole
3004	Fill	21			Fill of 3005
3005	Cut	21	0.32x0.17x0.09	9.98/9.89	Hole dug for planting
3006	Fill	21			Fill of 3007
3007	Cut	21	0.13x0.10x0.08	10.00/9.95	Hole dug for planting
3008	Fill	21			Fill of 3009
3009	Cut	21	0.15x0.20x0.05	10.00/9.95	Hole dug for planting
3010	Fill	21			Fill of 3011
3011	Cut	21	0.29x0.49x0.10	10.04/9.96	Hole dug for planting
3012	Fill	21			Fill of 3013
3013	Cut	21	0.18x0.14x0.15	10.03/9.88	Hole dug for planting
3014	Fill	21			Fill of 3015
3015	Cut	21	0.70x0.47x0.15	10.04/9.91	Hole dug for planting
3016	Fill	21			Fill of 3017
3017	Cut	21	0.82x0.30x0.07	10.02/9.96	Hole dug for planting
3018	Fill	21			Fill of 3019
3019	Cut	21	0.15x0.08x0.05	10.03	Hole dug for planting
3020	Fill	21			Fill of 3021
3021	Cut	21	0.45x0.34x0.10	10.00/9.95	Hole dug for planting
3022	Fill	21			Fill of 3023
3023	Cut	21	0.62x0.40x0.10	10.01/9.92	Hole dug for planting
3024	Fill	21			Fill of 3025
3025	Cut	21	0.26x0.27x0.08	9.99/9.91	Hole dug for planting
3026	Fill	21			Fill of 3027
3027	Cut	21	0.30x0.20x0.04	9.99/9.93	Hole dug for planting
3028	Fill	21			Fill of 3029
3029	Cut	21	0.37x0.22x0.06	9.99/9.92	Hole dug for planting
3030	Fill	21			Fill of 3031
3031	Cut	21	1.10x0.40x0.10	9.97/9.91	Uncertain if real feature
3032	Fill	21			Fill of 3033
3033	Cut	21	1.18x1.10x0.18	9.97/9.79	May actually be a layer rather than a
3034	Deposit	21	0.40m thick	10.03/9.88	dump
3035	Fill	21			Fill of 3036
3036	Cut	21	1.17x0.54x0.10	9.81/9.70	Hole dug for planting
3037	Fill	21			Fill of 3038
3038	Cut	21	2.66x0.58x0.04	9.79/9.73	19th century bedding trench

3039	Fill	21			Fill of 3040
3040	Cut	21	3.00x0.80x0.05	9.87/9.73	Bedding trench
3041	Fill	21			Fill of 3042
3042	Cut	21	0.90x0.40x0.09	9.87/9.77	Bedding trench
3043	Fill	21			Fill of 3044
3044	Cut	21	1.40x0.60x0.05	9.82/9.71	Bedding trench
3045	Fill	21			Fill of 3046
3046	Cut	21	2.00x1.63x0.23	9.86/9.62	Tree bole
3047	Fill	21			Fill of 3048
3048	Cut	21	0.50x0.36x0.16	9.80/9.64	Tree bole
3049	Fill	21			Fill of 3050
3050	Cut	21	1.42x0.96x0.12	9.74/9.62	Possible tree bole/bedding trench
3051	Fill	21			Fill of 3052
3052	Cut	21	0.24x0.22x0.10	9.76/9.66	Garden feature
3053	Fill	21			Fill of 3054
3054	Cut	21	0.28x0.14x0.05	9.76/9.71	Garden feature
3055	Fill	21			Fill of 3056
3056	Cut	21	0.56x0.46x0.10	9.78/9.68	Garden feature
3057	Fill	21			Fill of 3058
3058	Cut	21	0.49x0.22x0.10	9.80/9.70	Possible drain/bedding trench
3059	Fill	21			Fill of 3060
3060	Cut	21	8.00x0.96x0.43	9.66/9.20	Bedding trench
3061	Fill	21			Fill of 3062
3062	Cut	21	10.50x1.05x0.31	9.40/9.09	Bedding trench
3063	Fill	23			Fill of 3064
3064	Cut	23	1.63x1.34x0.20	9.94/9.71	Possible bedding for plants
3065	Fill	23			Fill of 3066
3066	Cut	23	3.80x0.50x0.09	9.87/9.72	Continuation of drain in T21
3067	Fill	23			Fill of 3068
3068	Cut	23	5.60x1.00x0.30	9.87/9.67	Bedding trench
3069	Fill	23			Fill of 3070
3070	Cut	23	6.00x1.00x0.18	9.78/9.60	Bedding trench
3071	Fill	23			Fill of 3072
3072	Cut	23	6.00x1.00x0.16	9.76/9.67	Bedding trench
3073	Fill	23			Fill of 3074
3074	Cut	23	6.00x0.90x0.12	9.69/9.66	Bedding trench
3075	Fill	23			Fill of 3076
3076	Cut	23	5.20x0.90x0.20	9.81/9.61	Bedding trench
3077	Fill	23			Fill of 3078
3078	Cut	23	3.00x0.50x0.10	9.87/9.77	Bedding trench
3079	Fill	23			Fill of 3080
3080	Cut	23	4.30x0.50x0.10	9.88/9.77	Bedding trench
3081	Fill	23			Fill of 3082
3082	Cut	23	3.20x0.50x0.09	9.88/9.77	Bedding trench
3083	Fill	23			Fill of 3084
3084	Cut	23	3.20x0.50x0.09	9.92/9.79	Bedding trench
3085	Fill	23			Fill of 3086

3086	Cut	23	1.80x0.5x0.13	9.92/9.79	Bedding trench
3087	Fill	23			Fill of 3088
3088	Cut	23	1.40x0.50x0.09	9.92/9.83	Bedding trench
3089	Fill	23			Fill of 3090
3090	Cut	23	1.20x0.50x0.11	9.85/9.74	Bedding trench
3091	Fill	23			Fill of 3092
3092	Cut	23	2.64x1.96x0.36	9.92/9.56	Pit
3093	Fill	23			Fill of 3094
3094	Cut	23	2.80x2.40x0.43	9.90/9.47	Pit
3095	Fill	23			Fill of 3096
3096	Cut	23	1.46x0.26x0.11	9.78/9.66	Land drain/bedding trench
3097	Fill	23			Fill of 3098
3098	Cut	23	1.57x0.26x0.10	9.77/9.67	Land drain/bedding trench
3099	Fill	23			Fill of 3100
3100	Cut	23	5.21x0.85x0.17	9.79/9.59	Bedding trench
3101	Deposit	23	9.75x5.80	9.94/9.85	Layer
3102	Fill	21			Fill of 3103
3103	Cut	21	0.70x0.32x0.42	9.33/9.14	Bedding trench
3104	Fill	21			Fill of 3105
3105	Cut	21	2.30x0.80x0.17	9.33/9.16	Bedding trench
3106	Fill	21			Fill of 3107
3107	Cut	21	2.24x1.05x0.12	9.33/9.21	Bedding trench
3108	Fill	21			Fill of 3109
3109	Cut	21	1.84x0.86x0.13	9.33/9.20	Bedding trench
3110	Fill	21			Fill of 3111
3111	Cut	21	0.80x0.12x0.17	9.33/9.17	Bedding trench
3112	Fill	21			Fill of 3113
3113	Cut	21	0.78x0.29x0.40	9.36/9.17	Bedding trench
3114	Fill	21			Fill of 3115
3115	Cut	21	0.66x0.27x0.26	9.31/9.22	Bedding trench
3116	Fill	21			Fill of 3117
3117	Cut	21	0.84x0.38x0.48	9.32/9.17	Bedding trench
3118	Fill	21			Fill of 3119
3119	Cut	21	0.78x0.30x0.32	9.32/9.12	Bedding trench
3120	Fill	21			Fill of 3121
3121	Cut	21	0.82x0.26x0.40	9.27/9.23	Bedding trench
3122	Fill	21			Fill of 3123
3123	Cut	21	0.76x0.74x0.40	9.25/9.18	Bedding trench
3124	Fill	21			Fill of 3125
3125	Cut	21	1.04x0.22x0.46	9.25/9.20	Bedding trench
3126	Fill	21			Fill of 3127
3127	Cut	21	0.86x0.16x0.37	9.25/9.22	Bedding trench
3128	Fill	21			Fill of 3129
3129	Cut	21	0.89x0.30x0.25	9.55/9.29	Bedding trench
3130	Fill	21			Fill of 3131
3131	Cut	21	0.82x0.26x0.26	9.55/9.35	Bedding trench
3132	Fill	21			Fill of 3133

3133	Cut	21	0.95x0.90x0.24	9.32	Bedding trench
3134	Fill	21			Fill of 3135
3135	Cut	21	0.94x0.80x0.31	9.38/9.22	Bedding trench
3136	Fill	21			Fill of 3137
3137	Cut	21	0.92x0.74x0.30	9.42/9.24	Bedding trench
3138	Fill	21			Fill of 3139
3139	Cut	21	0.82x0.75x0.29	9.47/9.25	Bedding trench
3140	Fill	21			Fill of 3141
3141	Cut	21	1.12x0.73x0.18	9.51/9.32	Bedding trench
3142	Fill	21			Fill of 3143
3143	Cut	21	1.13x0.66x0.20	9.55/9.28	Bedding trench
3144	Fill	21			Fill of 3145
3145	Cut	21	1.03x0.82x0.30	9.55/9.26	Bedding trench
3146	Fill	21			Fill of 3147
3147	Cut	21	1.16x1.11x0.26	9.55/9.19	Bedding trench
3148	Fill	21			Fill of 3149
3149	Cut	21	9.00x0.65x0.43	9.66/9.20	Bedding trench
3150	Fill	21			Fill of 3151
3151	Cut	21	10.50x0.95x0.13	9.31/9.14	Bedding trench
3152	Deposit	21	22.10x4.12x0.50	9.75/9.42	Garden deposit/subsoil
3153	Fill	21			Fill of 3154
3154	Cut	21	0.22x0.15x0.06	9.99/9.94	Hole dug for planting
3155	Deposit	23	2.40x1.60x0.22	9.57/9.28	Possible levelling layer
3156	Fill	23			Fill of 3166
3157	Fill	23			Fill of 3211
3158	Fill	23			Fill of 3214
3159	Fill	21			Fill of 3160
3160	Cut	21	0.38x0.26x0.30	9.31/9.00	Bedding trench
3161	Fill	23			Fill of 3219
3162	Fill	23			Fill of 3163
3163	Cut	23	1.80x0.80x0.80	9.68/9.20	Bedding trench
3164	Fill	23			Fill of 3165
3165	Cut	23	?x1.17x0.4	9.63/9.23	Bedding trench
3166	Cut	23	4.90x2.90x0.36	9.59/9.17	Pit
3167	Deposit	21		9.31/9.02	Natural
3168	Deposit	23	0.18m thick	9.60/9.40	Dump
3169	Fill	23			Fill of 3170
3170	Cut	23	1.14x0.33xin excess of 1.70	9.53/9.20	Bedding trench
3171	Fill	23			Fill of 3172
3172	Cut	23	1.52x0.21x0.12	9.40/9.30	Bedding trench
3173	Fill	23			Fill of 3174
3174	Cut	23	1.79x0.97x0.20	9.60/9.20	Bedding trench
3175	Fill	23			Fill of 3176
3176	Cut	23	2.50x0.91x0.24	9.40/9.20	Bedding trench
3177	Fill	23			Fill of 3178
3178	Cut	23	3.00x1.60x0.11	9.40/9.30	Bedding trench

3179	Fill	23			Fill of 3180
3180	Cut	23	3.20x1.03x0.32	9.40/9.25	Bedding trench
3181	Fill	23			Fill of 3182
3182	Cut	23	1.10x0.96x0.33	9.67/9.34	Bedding trench
3183	Fill	23			Fill of 3184
3184	Cut	23	1.00x1.00x0.33	9.67/9.34	Bedding trench
3185	Fill	23			Fill of 3186
3186	Cut	23	1.24x0.98x0.31	9.59/9.28	Bedding trench
3187	Fill	23			Fill of 3188
3188	Cut	23	1.10x0.99x0.34	9.59/9.25	Bedding trench
3189	Fill	23			Fill of 3190
3190	Cut	23	1.10x0.94x0.36	9.59/9.23	Bedding trench
3191	Fill	23			Fill of 3192
3192	Cut	23	1.06x0.92x0.45	9.59/9.14	Bedding trench
3193	Fill	23			Fill of 3194
3194	Cut	23	0.55x0.32x0.40	9.59/9.27	Bedding trench
3195	Fill	23			Fill of 3196
3196	Cut	23	0.58x0.53x0.32	9.52/9.28	Bedding trench
3197	Fill	23			Fill of 3198
3198	Cut	23	1.28x1.03x0.18	9.52/9.38	Bedding trench
3199	Fill	23			Fill of 3200
3200	Cut	23	1.32x1.06x0.27	9.60/9.33	Bedding trench
3201	Fill	23			Fill of 3202
3202	Cut	23	1.36x1.01x0.35	9.60/9.29	Bedding trench
3203	Fill	23			Fill of 3204
3204	Cut	23	1.06x0.86x0.32	9.58/9.29	Bedding trench
3205	Fill	23			Fill of 3206
3206	Cut	23	1.18x0.98x0.33	9.58/9.27	Bedding trench
3207	Fill	23			Fill of 3208
3208	Cut	23	2.48x1.00x0.30	9.53/9.26	Bedding trench
3209	Fill	23			Fill of 3210
3210	Cut	23	1.70x1.13x0.25	9.53/9.28	Bedding trench
3211	Cut	23	3.40x1.40x0.30	9.47/9.17	Bedding trench
3212	Fill	23			Fill of 3213
3213	Cut	23	1.80x0.92x0.20	9.53/9.31	Bedding trench
3214	Cut	23	2.00x1.80x0.15	9.30/9.00	Tree bole
3215	Fill	23			Fill of 3216
3216	Cut	23	1.00x0.84x0.24	9.53/9.29	Bedding trench
3217	Fill	23			Fill of 3218
3218	Cut	23	1.00x0.80x0.30	9.53/9.23	Bedding trench
3219	Cut	23	3.90x1.70x0.30	9.63/9.28	Tree bole
3220	Cut	22	1.20x0.75x0.13	9.87/9.79	Tree bole
3221	Fill	22			Fill of 3220
3222	Cut	22	0.37x0.36x0.13	9.83/9.69	Tree bole
3223	Fill	22			Fill of 3222
3224	Cut	22	0.62x0.54x0.10	9.79/9.74	Tree bole
3225	Fill	22			Fill of 3224

3226	Cut	22	0.74x0.54x0.10	9.79/.72	Tree bole
3227	Fill	22			Fill of 3226
3228	Cut	22	0.46x0.44x0.09	9.79/9.72	Tree bole
3229	Fill	22			Fill of 3228
3230	Cut	22	0.30x0.30x0.08	9.77/9.70	Tree bole
3231	Fill	22			Fill of 3230
3232	Cut	22	1.11x0.75x0.15	9.79/9.64	Tree bole
3233	Fill	22			Fill of 3232
3234	Fill	22			Fill of 3235
3235	Cut	22	2.00x1.04x0.16	9.76/9.59	Bedding trench
3236	Fill	22			Fill of 3237
3237	Cut	22	0.70x0.36x0.08	9.73/9.64	Bedding trench
3238	Fill	22			Fill of 3239
3239	Cut	22	0.86x0.44x0.09	9.76/9.65	Bedding trench
3290	Fill	22			Fill of 3291
3291	Cut	22	1.20x1.10x0.14	9.83/9.69	Bedding trench
3292	Fill	22			Fill of 3293
3293	Cut	22	1.00x0.55x0.11	9.83/9.76	Bedding trench
3294	Fill	22			Fill of 3295
3295	Cut	22	1.00x0.80x0.11	9.87/9.73	Bedding trench
3296	Fill	22			Fill of 3297
3297	Cut	22	1.10x0.80x0.12	9.88/9.73	Bedding trench
3298	Fill	22			Fill of 3299
3299	Cut	22	1.00x0.56x0.14	9.90/9.70	Bedding trench
3300	Fill	22			Fill of 3301
3301	Cut	22	2.09x1.42x0.16	9.80/9.62	Tree bole
3302	Fill	22			Fill of 3303
3303	Cut	22	0.21x0.20x0.10	9.83/9.65	Garden feature
3304	Fill	22			Fill of 3305
3305	Cut	22	0.46x0.46x0.13	9.73/9.60	Tree bole
3306	Fill	22			Fill of 3307
3307	Cut	22	0.72x0.64x0.10	9.72/9.63	Hole dug for planting
3308	Fill	22			Fill of 3309
3309	Cut	22	0.4x0.20x0.15	9.71/9.61	Garden feature
3310	Fill	22			Fill of 3311
3311	Cut	22	?x0.40x0.15	9.72/9.57	Bedding trench
3312	Fill	22			Fill of 3313
3313	Cut	22	1.25x0.30x0.13	9.78/9.69	Bedding trench
3314	Fill	22			Fill of 3315
3315	Cut	22	2.00x0.64x0.26	9.82/9.56	Bedding trench
3316	Fill	22			Fill of 3317
3317	Cut	22	1.26x0.40x0.11	9.75/9.63	Tree bole
3318	Fill	22			Fill of 3319
3319	Cut	22	1.51x0.94x0.06	9.75/9.69	Tree bole
3320	Fill	22			Fill of 3321
3321	Cut	22	1.94x1.90x0.10	9.80/9.66	Tree bole/bedding trench
3322	Fill	22			Fill of 3323

3323	Cut	22	1.26x0.44x0.15	9.77/9.62	Bedding trench
3324	Fill	22			Fill of 3325
3325	Cut	22	0.50x0.42x0.15	9.75/9.64	Bedding trench
3326	Fill	22			Fill of 3327
3327	Cut	22	1.26x0.49x0.10	9.79/9.68	Tree bole/bedding trench
3328	Fill	22			Fill of 3329
3329	Cut	22	1.00x1.00x0.07	9.86/9.75	Bedding trench
3330	Fill	22			Fill of 3331
3331	Cut	22	0.40x0.39x0.13	9.77/9.67	Garden feature
3332	Fill	22			Fill of 3333
3333	Cut	22	0.70x0.14x0.10	9.76/9.64	Garden feature
3334	Fill	22			Fill of 3335
3335	Cut	22	0.25x0.20x0.10	9.71/9.65	Garden feature
3336	Fill	22			Fill of 3337
3337	Cut	22	0.20x0.18x0.10	9.72/9.70	Garden feature
3338	Fill	22			Fill of 3339
3339	Cut	22	0.50x0.35x0.08	9.70/9.63	Garden feature
3340	Fill	22			Fill of 3341
3341	Cut	22	0.20x0.18x0.10	9.69/9.59	Garden feature
3342	Fill	22			Fill of 3343
3343	Cut	22	0.88x0.56x0.20	9.76/9.56	Garden feature
3344	Fill	22			Fill of 3345
3345	Cut	22	0.20x0.20x0.14	9.76/9.62	Garden feature
3346	Fill	22			Fill of 3347
3347	Cut	22	0.18x0.18x0.10	9.77/9.67	Garden feature
3348	Fill	22			Fill of 3349
3349	Cut	22	1.28x1.22x0.14	9.86/9.69	Garden feature
3350	Fill	22			Fill of 3351
3351	Cut	22	1.66x0.76x0.17	9.85/9.61	Garden feature
3352	Fill	22			Fill of 3353
3353	Cut	22	0.60x0.40x0.11	9.75/9.64	Tree bole
3354	Fill	22			Fill of 3355
3355	Cut	22	3.40x2.90x0.10	9.86/9.73	Garden feature
3356	Fill	22			Fill of 3357
3357	Cut	22	1.70x0.32x0.17	9.79/9.62	Garden feature
3358	Fill	22			Fill of 3359
3359	Cut	22	1.26x0.34x0.15	9.79/9.64	Bedding trench
3360	Fill	22			Fill of 3361
3361	Cut	22	1.56x1.11x0.14	9.84/9.76	Tree bole
3362	Deposit	22	0.30m thick	10.05/9.75	Subsoil layer
3363	Deposit	22	0.30m thick	9.86/9.56	Subsoil layer
3364	Deposit	22	0.20m thick	9.77/9.75	undifferentiated garden soil layer
3365	Fill	22			Fill of 3366
3366	Cut	22	5.00x0.50x0.16	9.55/9.39	Bedding trench
3367	Fill	22			Fill of 3368
3368	Cut	22	5.00x0.60x0.05	9.57/9.53	Bedding trench
3369	Fill	22			Fill of 3370

3370	Cut	22	5.00x0.50x0.07	9.49/9.32	Bedding trench
3371	Fill	22			Fill of 3372
3372	Cut	22	1.60x0.70x0.10	9.53/9.47	Tree bole
3373	Deposit	22			Levelling deposit
3374	Fill	22			Fill of 3375
3375	Cut	22	?x1.00x0.25	9.47/9.25	Bedding trench
3376	Fill	22			Fill of 3375
3377	Fill	22			Fill of 3378
3378	Cut	22	9.00x1.00x0.30	9.47/9.17	Bedding trench
3379	Fill	22			Fill of 3380
3380	Cut	22	?x1.20x0.30	9.47/9.17	Bedding trench
3381	Fill	22			Fill of 3382
3382	Cut	22	9.00x0.70x0.32	9.47/9.15	Bedding trench
3383	Fill	22			Fill of 3385
3384	Fill	22			Fill of 3385
3385	Cut	22	9.00x0.70x0.32	9.47/9.15	Bedding trench
3386	Fill	23			Fill of 3387
3387	Cut	23	5.70x0.60x0.20	9.12/8.82	Unknown function
3388	Deposit	23	0.40-0.60m thick	10.29/10.00	Dump deposit
3389	Deposit	23	0.20m thick	9.40/9.20	Subsoil
3390	Deposit	23		9.19/8.98	Natural
3391	Cut	22	1.06x0.46x0.04	9.65/9.57	Bedding trench
3392	Fill	22			Fill of 3391
3393	Cut	22	1.20x0.60x0.13	9.63/9.50	Bedding trench
3394	Fill	22			Fill of 3393
3395	Cut	22	1.24x0.54x0.08	9.63/9.55	Bedding trench
3396	Fill	22			Fill of 3395
3397	Cut	22	1.44x1.26x0.15	9.59/9.50	Tree bole
3398	Fill	22			Fill of 3397
3399	Cut	22	0.28x0.20x0.15	9.60/9.43	Post hole
3400	Fill	22			Fill of 3399
3401	Cut	22	1.60x0.60x0.30	9.60/9.30	Bedding trench
3402	Fill	22			Fill of 3401
3403	Cut	22	1.25x1.10x0.22	9.60/9.18	Bedding trench
3404	Fill	22			Fill of 3403
3405	Fill	22			Fill of 3406
3406	Cut	22	1.80x0.80x?	10.05/	Bedding trench
3407	Fill	22			Fill of 3408
3408	Cut	22	2.90x0.90x?	10.05/	Bedding trench
3409	Fill	22			Fill of 3410
3410	Cut	22	2.70x0.90x0.14	9.38	Bedding trench
3411	Fill	22			Fill of 3412
3412	Cut	22	2.70x0.92x0.11	9.37/9.26	Bedding trench
3413	Fill	22			Fill of 3414
3414	Cut	22	2.92x0.88x0.15	9.37/9.22	Bedding trench
3415	Fill	22			Fill of 3416
3416	Cut	22	2.80x0.85x?	9.37	Unexcavated bedding trench

3417	Fill	22			Fill of 3418
3418	Cut	22	1.35x1.30x0.32	9.53/9.16	Bedding trench
3419	Fill	22			Fill of 3420
3420	Cut	22	2.60x0.80x0.20	9.43/9.20	Bedding trench
3421	Fill	22			Fill of 3422
3422	Cut	22	2.80x1.00x0.25	9.44/9.19	Bedding trench
3423	Fill	22			Fill of 3424
3424	Cut	22	2.60x0.80x0.20	9.44/9.24	Bedding trench
3425	Fill	22			Fill of 3426
3426	Cut	22	2.70x1.00x0.20	9.44/9.24	Bedding trench
3427	Fill	22			Fill of 3428
3428	Cut	22	2.60x0.80x0.25	9.27/9.16	Bedding trench
3429	Fill	22			Fill of 3430
3430	Cut	22	4.80x0.90x?	9.55/	Unexcavated bedding trench
3431	Fill	22			Fill of 3432
3432	Cut	22	2.80x0.90x?	9.55/	Unexcavated bedding trench
3433	Fill	22			Fill of 3434
3434	Cut	22	1.40x0.80x?	9.55/	Unexcavated bedding trench
3435	Fill	22			Fill of 3436
3436	Cut	22	5.00x0.80x?	9.55/	Unexcavated bedding trench
3437	Fill	22			Fill of 3438
3438	Cut	22	5.40x1.00x?	9.44/	Unexcavated bedding trench
3439	Fill	22			Fill of 3440
3440	Cut	22	5.40x0.80x?	9.44/	Unexcavated bedding trench
3441	Fill	22			Fill of 3442
3442	Cut	22	5.80x1.00x0.25	9.50/9.25	Bedding trench
3443	Fill	22			Fill of 3444
3444	Cut	22	7.50x0.80x0.25	9.52/9.27	Bedding trench
3445	Fill	22			Fill of 3446
3446	Cut	22	8.00x0.80x0.20	9.52/9.32	Bedding trench
3447	Fill	22			Fill of 3448
3448	Cut	22	6.80x1.00x0.20	9.57/9.37	Bedding trench
3449	Fill	22			Fill of 3450
3450	Cut	22	6.80x0.90x0.25	9.47/9.12	Bedding trench
3451	Fill	22			Fill of 3452
3452	Cut	22	6.00x0.80x0.20	9.47/9.27	Bedding trench
3453	Fill	22			Fill of 3454
3454	Cut	22	1.50x0.70x0.10	9.57/9.48	Bedding trench
3455	Fill	22			Fill of 3456
3456	Cut	22	0.90x0.50x0.10	9.49/9.39	Tree bole
3457	Fill	22			Fill of 3458
3458	Cut	22	1.70x0.75x0.06	9.51/9.44	Bedding trench
3459	Fill	22			Fill of 3460
3460	Cut	22	0.52x0.30x0.15	9.43/9.25	Garden feature
3461	Deposit	22			Same as 3363
3462	Fill	22			Fill of 3463
3463	Cut	22	2.00x0.20x0.25		Bedding trench

3464	Fill	22			Fill of 3465
3465	Cut	22	1.10x0.20x0.06	9.16/9.12	Bedding trench
3466	Fill	22			Fill of 3467
3467	Cut	22	0.60x0.20x0.06	9.16/9.08	Bedding trench
3468	Fill	22			Fill of 3469
3469	Cut	22	1.00x0.20x0.06	9.16/9.08	Bedding trench
3470	Fill	22			Fill of 3471
3471	Cut	22	1.00x0.20x0.10	9.16/9.10	Bedding trench
3472	Fill	22			Fill of 3473
3473	Cut	22	0.60x0.20x0.10	9.16/9.12	Bedding trench
3474	Deposit	22	0.30m thick	9.34/9.20	Subsoil
3475	Deposit	22		9.20/9.10	Natural
3476	Fill	22			Fill of 3477
3477	Cut	22	0.82x0.20x?	9.38	Bedding trench
3478	Fill	22			Fill of 3479
3479	Cut	22	2.30x1.30x0.30	9.59/9.13	Bedding trench
3480	Fill	22			Fill of 3481
3481	Cut	22	1.60x0.40x0.10		Bedding trench
3482	Fill	23			Fill of 3483
3483	Cut	23	3.00x0.60x0.20	9.54/9.34	Bedding trench
3500	Cut	21	0.50x0.42x0.12	9.23/9.10	Post hole
3501	Fill	21			Fill of 3500
3502	Cut	21	0.46x0.44x0.21	9.27/8.99	Post hole
3503	Fill	21			Fill of 3502
3504	Cut	21	0.46x0.45x0.17	9.15/8.97	Post hole
3505	Fill	21			Fill of 3504
3506	Cut	22	1.70x0.24x0.04	9.15/9.06	Bedding trench
3507	Fill	22			Fill of 3506
3508	Cut	23	5.90x1.20x0.54	9.34/8.80	Bedding trench
3509	Fill	23			Fill of 3508
3510	Cut	23	unknownx1.25x0.60	9.53/8.93	Bedding trench
3511	Fill	23			Fill of 3510
3512	Cut	23	unknownx0.88x0.30	9.37/9.08	Bedding trench
3513	Fill	23			Fill of 3512

8.2 Appendix 2: Dating

Context	Early Date	Late Date
3000	1800	1900
3014	1580	1900
3022	1807	1900
3030	1800	1900
3032	1810	1900
3034	1805	1900
3037	1800	1900
3043	1805	1900
3045	1580	1900
3047	1580	1900

3051	1700	1900
3053	1580	1900
3055	1580	1900
3059	1730	1780
3061	1680	1800
3063	1807	1900
3064	1800	1900
3071	1550	1650
3075	1700	1900
3077	1740	1770
3079	1580	1900
3081	1770	1830
3083	1580	1900
3085	1805	1900
3089	1680	1800
3091	1807	1840
3093	1800	1840
3097	1700	1800
3099	1550	1900
3101	1800	1900
3108	1600	1900
3120	1580	1900
3138	1580	1900
3148	1665	1750
3153	1630	1700
3155	1680	1740
3156	1720	1780
3157	1720	1780
3158	1680	1730
3159	1670	1720
3161	1807	1900
3162	1670	1720
3164	1550	1700
3183	1630	1700
3185	1680	1720
3197	1670	1730
3199	1670	1700
3201	1710	1760
3203	1580	1900
3205	1700	1800
3207	1580	1700
3209	1660	1730
3217	1730	1780
3221	1805	1900
3225	1760	1830
3230	1580	1700
3231	1580	1900
3233	1580	1900
3234	1800	1900
3238	1580	1900
3296	1805	1830
3298	1760	1830
3300	1807	1830
3302	1770	1820
3304	1580	1800

3310	1800	1830
3312	1760	1830
3314	1700	1800
3318	1590	1750
3322	1580	1800
3324	1580	1900
3326	1580	1900
3332	1800	1900
3336	1760	1830
3343	1760	1830
3350	1701	1711
3356	1580	1900
3358	1760	1830
3364	1807	1900
3377	1701	1711
3381	1660	1730
3402	1760	1830
3409	1580	1800
3419	1650	1800
3421	1630	1846
3423	1630	1700
3432	1590	1900
3451	1650	1800
3459	1830	1900

8.3 Appendix 3: Ceramic building material

Context	Fabric	Form	Weight	Amount	Early date	Late date
3061	2271	PEG	10	1	1180	1800
3093	3289	BRIC	50	1	1830	1950
3099	2276	PEG	25	2	1480	1800
3101	3259	PAN	50	1	1630	1900
3104	3094	PEG	25	1	1200	1800
3118	2276	PEG	25	1	1480	1800
3130	2276	PEG	10	1	1480	1800
3136	2276	RIDG	50	1	1480	1800
3136	3046	BRIC	100	2	1450	1700
3155	2271	PEG	1000	4	1180	1800
3155	2275	PAN	150	1	1630	1900
3155	2276	PEG	725	6	1480	1800
3155	2586	PEG	600	2	1150	1800
3155	2816	PEG	825	4	1200	1800
3155	2850	FLOR	1500	1	1450	1800
3155	3036	BRIC	550	1	1600	1800
3156	2271	PEG	750	2	1180	1800
3156	2586	PEG	100	1	1150	1800
3156	2816	PEG	200	1	1200	1800
3156	3036	BRIC	600	1	1600	1800
3156	3203	PAN	200	1	1630	1850
3156	3216	PEG	550	1	1200	1800
3159	3065	BRIC	2050	3	1450	1700

3296	2276	PEG	10	1	1480	1800
3296	2586	PEG	150	1	1150	1800
3300	2271	PEG	10	1	1180	1800
3300	2276	PEG	10	1	1480	1800
3314	2271	PEG	25	1	1180	1800
3322	2276	PEG	25	1	1480	1800
3358	3202	PAN	100	1	1630	1850
3364	2276	RIDG	50	1	1480	1800
3364	3086	WALT	25	1	1520	1800
3367	2276	PEG	25	1	1480	1800
3369	2276	PEG	50	1	1480	1800
3377	3202	PAN	50	2	1630	1850
3402	2271	PEG	25	1	1180	1800
3402	2276	PEG	25	2	1480	1800

8.4 Appendix 4: Post-medieval pottery

Context	Fabric	Sherd count	Weight	Comments
3000	BONE	1	11	RIM
3000	PMR	4	64	X1 RMI X1 BASE
3000	PMR	1	18	
3014	PMR	1	22	HOOKED RMI
3022	CHPO BW	1	1	BASE
3022	TPW2	1	13	SHEET PRINT
3030	PMR	3	23	X1 BASE
3030	PMR	1	16	RIM
3032	PMR	5	60	X2 SIMPLE RIMS
3032	PMR	2	26	X2 RIMS
3032	PMR	1	12	RIM WITH GROOVE BELOW
3032	RFME	1	7	BASKET MOULDING
3032	TPW2	1	4	
3032	TPW3	1	13	RIM
3034	ENGS	1	13	
3034	PMR	1	10	BASE
3034	PMR	28	480	X6 SIMPLE RIMS X1 BEADED RIM X6 BASES WITH CENTRAL HOLE
3034	PMR	3	27	X3 RIMS
3034	PMR	4	121	X4 RIMS WITH SINGLE GROOVE BELOW
3034	REFW	1	17	
3037	ENGS	1	9	BASE
3043	PMR	1	30	BASE WITH CENTRAL HOLE
3043	PMR	1	127	SIMPLE RIM, BASE WITH CENTRAL HOLE
3043	REFW	1	5	RIM
3045	PMR	1	124	SINGLE GROOVE BELOW RIM
3047	PMR	1	4	
3047	PMR	1	9	
3051	ENGS	1	6	RIM
3051	PMR	4	15	X3 SMPLE RIMS
3053	PMR	1	3	
3055	PMR	2	23	
3059	CHPO IMARI	1	2	
3059	ENGS	1	31	BASE

3059	PMR	1	24	RIM
3059	PMR	1	42	BASE
3059	TGW C	1	12	
3061	CHPO IMARI	1	1	
3061	PMR	0	7	
3061	TGW C	1	1	
3061	TGW H	0	1	RIM
3061	TGW H	1	9	RIM
3063	PMR	2	22	X1 RIM
3063	PMR	1	4	
3063	RBOR	1	23	
3063	REFW	1	2	PAINTED 87 INSIDE FOOTRIM IN RED
3063	TPW2	1	13	RIM
3064	BORDB	1	26	
3064	ENGS	1	6	
3064	ENGS	2	30	SHOULDER
3064	ENGS	1	2	
3064	PMR	2	16	
3064	PMR	1	32	THICK-WALLED
3064	PMR	1	14	
3071	BORDY	1	2	GRGL ONE SIDE
3071	PMSRY	1	8	
3075	ENGS	1	5	
3075	PMR	2	92	BASE
3077	CREA TORT	1	10	RIM
3077	PMR	2	26	
3079	PMR	1	33	
3081	BBAS	2	16	RIM
3081	CREA	1	3	
3081	DRAB	1	5	BASE
3081	PMR	2	10	
3083	PMR	3	59	BASE
3083	PMR	4	28	X1 SIMPLE RIM
3085	BLACK	2	23	PROFILE WITH KNOB
3085	PMR	1	24	RIM WITH POSSIBLE EXTERNAL LID-SEATNIG
3085	PMR SLIP	1	14	
3085	REFW PNTD	1	14	RIM - FLORAL UNDERGLAZE BLUE AND OVERGLAZE PAINTED
3089	RBOR	4	47	SPALLED BODY FRAGMENT
3089	TGW H	1	4	BASE - GLAZE FLAKED
3091	DRAB	1	35	RIM
3091	PEAR	1	5	RIM
3091	PMR	18	339	X2 SIMPLE RIMS X1 BEADED RIM X5 BASES
3091	PMR	1	29	RIM
3091	SUND	1	21	
3091	TGW	1	7	GLAZE FLAKED
3091	TPW2	1	5	SPALLED FRAGMENT
3093	ENGS	1	10	
3093	MISC WW	1	14	UNIDENTIFIED BUFF FABRIC
3093	PEAR	1	19	ROLLED RIM
3093	PMR	1	95	RIM - THICKENED AND BEVELLED
3093	PMR	17	348	X3 BASES (CENTRAL HOLE) X1 SIMPLE RIM WITH SINGLE GROOVE BELOW

3093	PMR	3	81	X3 RIMS
3093	SWSG	1	4	RIM
3097	TGW	2	8	GLAZE FLAKED
3099	PMR	1	22	
3099	PMR	1	5	
3099	RBOR	1	12	HOOKED RIM
3101	CHPO	1	7	
3101	ENGS	3	93	
3101	ENGS	1	12	
3101	ENGS	1	30	RIM/LIP
3101	PMR	1	50	BASE
3101	PMR	2	55	X1 SIMPLE RIM
3101	PMR	2	86	RIM - FINE SMOOTH FABRIC
3101	RBOR	1	51	RIM
3101	STSL	1	24	RIM
3101	TGW H	1	26	RIM - DIAPER BAND EXT
3108	BLACK	1	5	
3108	PMR	1	11	
3120	PMR	1	5	
3138	PMR	1	18	
3148	PMR	1	6	
3148	RBORSL	1	43	IRM
3148	WEST PURP	1	4	
3153	BORDY	1	16	RIM
3153	TGW C	1	2	RIM
3155	BORDG	1	16	RIM
3155	PMR	1	67	BASE
3155	PMR	2	179	X2 CORDONED RIMS
3155	PMR	22	1639	NEAR-COMPLETE
3155	PMR	11	1188	NEAR-COMPLETE/ CENTRAL HOLE IN BASE
3155	PMR	3	123	X2 CLUNNED RIMS X1 THICKENED RIM
3155	RBOR	1	12	
3155	STMO	1	19	RIM
3155	STSL	6	113	X1 PROFILE
3155	TGW H	2	15	X2 RIMS
3155	TGW H	1	10	RIM - SGRAFFITO EFFECT ON LEAVES
3155	TGW H	1	18	BASKET OR VASE OF FRUIT/FLOWERS
3156	PMR	1	63	BASE
3156	PMR	1	56	RIM
3156	PMR	1	179	BASE WITH HOLE IN SIDE WALL ABOVE BASE-ANGLE
3156	PMR	3	86	X2 BEADED RIMS
3156	SWSG	2	10	BASE
3156	TGW	1	16	RIM - GLAZE FLAKED
3156	TGW C	1	5	GLAZE FLAKED
3156	WEST	1	38	RIM
3157	BORDG	1	2	BASE
3157	BORDY	1	17	
3157	ENGS	1	17	HANDLE END
3157	PMR	1	19	RIM
3157	PMR	5	601	X2 BASES WITH CENTRAL HOLE X2 RIMS
3157	PMR	7	1154	PROFILE
3157	RBORB	1	16	BASE

3157	RBORB	1	6	BASE
3157	SWSG	1	9	
3157	SWSG	3	30	BASE
3157	SWSG	1	6	RIM
3157	TGW C	2	9	
3158	MISC	1	32	SPOTS GLAZE ON OXIDISED EARTHENWARE BODY - FABRIC TO BE IDENTIFIED**
3158	STSL	1	6	RIM
3158	TGW H	1	7	
3159	BORDG	1	2	
3159	PMR	1	66	BASE
3159	PMSRY	1	21	
3159	PMSRY	1	29	COLLAR RIM
3159	RBOR	2	11	RIM
3159	TGW C	2	10	X1 BASE
3161	CHPO BW	2	4	
3161	ENGS	2	66	X1 BASE
3161	PMR	1	26	
3161	PMSRY	1	10	
3161	TPW2	1	2	RIM
3161	TPW2	1	2	SPALLED RIM FRAGMENT
3162	TGW C	1	19	EARLY FORM / GLAZE FLAKED
3164	BORDY	1	4	
3183	BORDY	1	20	RIM
3183	TGW C	1	3	
3185	BORDG	1	22	RIM
3185	TGW H	1	16	BASE - STRAIGHT-SIDED
3197	PMR	1	20	NICKED CORDON/ GLIE
3197	TGW C	1	3	GLAZE FLAKED
3199	PMR	1	9	
3199	TGW D	1	2	
3201	SWSL	1	6	
3201	TGW C	1	18	PROFILE - EARLY FORM
3203	PMR	1	12	
3205	BORDG	1	11	RIM
3205	ENGS	2	16	
3205	PMR	1	8	
3207	PMBL	1	6	BASE
3209	CHPO BW	1	1	
3209	STSL	1	4	BASE
3217	CHPO BW	1	19	PROFILE
3221	CHPO BW	1	2	
3221	PMR	2	135	BEADED RIM/BODY
3221	REFW PNTD	1	3	RIM/ PAINTED MULBERRY BAND
3225	CREA	1	13	
3225	PMR	1	20	
3230	BORDG	1	36	RIM
3230	PMR	1	14	
3231	PMR	1	12	
3233	PMR	6	39	X2 BASES
3234	PMR	2	10	RIM
3234	RBOR	1	7	

3238	PMR	2	15	
3296	CREA	1	13	HANDLE
3296	PMR	1	31	RIM
3296	REFW PNTD	1	2	RIM
3296	SWSG	1	1	
3298	CHPO BW	1	5	
3298	CREA	1	2	RIM
3300	CREA	1	8	
3300	MISC WW	1	13	BUFF FABRIC - UNIDENTIFIED
3300	PMR	1	25	BASE
3300	PMR	1	14	RIM
3300	TPW2	1	3	
3302	PEAR BW	1	2	RIM
3302	SWSG	1	4	RIM
3304	RBORSL	1	105	RIM
3310	CREA	1	7	BASE
3310	CREA	2	21	PROFILE
3310	PEAR PNTD	1	11	
3310	PMR	4	122	X1 BASE
3310	PMR	1	19	RIM
3312	CREA	2	9	
3314	PMR	1	12	
3314	RBOR	1	6	
3318	WEST	1	18	RIM
3322	PMR	1	23	LID-SEATED RIM – POSSIBLE FLOWERPOT GLAZED INSIDE?
3324	PMR	1	33	BAEDED RIM
3326	PMR	1	33	
3332	PMR	1	9	RIM
3336	CREA	1	3	
3343	CREA	1	2	
3343	SWSG	1	3	BASE
3350	PMR	1	35	
3350	TGW G	1	8	
3356	PMR	1	17	POSSIBLY COLLAR RIM
3356	PMR	1	6	
3358	CREA	1	2	
3358	PMR	2	8	
3364	BORDG	1	29	BASE
3364	ENGS	1	7	RIM
3364	TGW H	1	16	
3364	TPW2	1	15	BASE
3377	TGW G	1	9	RIM
3381	RBOR	2	38	BASE
3381	STSL	1	8	
3402	CREA	1	24	
3409	PMR	1	18	
3419	TGW	1	14	DEEP FOOTRING BASE, PROBABLY PUNCH BOWL/ GLAZE FLAKED OFF
3421	TGW C	2	10	
3423	PMR	0	3	
3423	RBORSL	1	33	RIM

3423	TGW C	1	5	
3423	TGW D	0	1	
3432	CHPO BW	1	29	BASE
3432	RBOR	1	10	
3451	STMO	1	43	BASE
3459	ENGS BRST	1	201	COMPLETE RIMNECK WITH PART OF MARK
3459	ISLE SLIP	1	69	
3459	PMR	1	42	RIM
3459	TPW2	1	25	

8.5 Appendix 5: Clay tobacco pipes

Context	Early Date	Late Date	No. Bowls	No. Stems	No. mouthpieces	Comments
0	1850	1910	1			
3049	1580	1910		1		
3059	1580	1910		4	2	
3061	1640	1660	1	11		Includes WS <3> / date based on one small bowl fragment and could be c 1660+
3063	1580	1910		2		
3064	1580	1910		2		
3071	1780	1820	1	2		
3075	1640	1700		5		Dates estimated based on decorated stem design
3081	1580	1910		5		
3083	1580	1910		1		
3085	1580	1910		3		
3089	1580	1910		1		
3091	1580	1910		5	1	
3093	1730	1760	1	1		
3099	1780	1820	1	4		
3104	1850	1910	1			
3106	1580	1910		1		
3108	1580	1910		2		
3110	1580	1910		1		
3118	1580	1910		1		WS <2>
3132	1580	1910		2		
3134	1700	1770	1	1		
3136	1580	1910		1		
3146	1780	1820	1			
3148	1580	1910		4		Includes WS <1>
3150	1700	1770	2	8		
3155	1740	1800	2	5		Date based on bowl fragment
3156	1580	1910		3		
3157	1730	1770	4	16	2	
3158	1700	1770	1	1		
3159	1730	1760	2	2		
3161	1580	1910		2		
3181	1660	1770	1	1		Based on one small bowl fragment
3197	1730	1760	1	9	1	

3209	1730	1760	2	3		
3217	1730	1760	1	5		
3221	1780	1820	1	4		
3312	1580	1910		2		
3314	1580	1910		4		
3318	1700	1740	1			
3343	1580	1910		1		
3350	1580	1910		1		
3356	1580	1910		1		
3367	1580	1910		3		
3369	1580	1910		1	1	
3377	1580	1910		7		
3379	1580	1910		5		
3381	1730	1760	1	4		
3402	1680	1710	1			
3415	1690	1710	1	1		Includes WS <11>
3419	1660	1680	1			
3421	1700	1770	1			
3423	1700	1770	2	1		Includes WS<10>
3425	1580	1910		1	1	
3427	1580	1910		2		
3432	1680	1710	1			
3441	1660	1680	1			
3443	1660	1680	1			
3447	1660	1680	2			

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10 OASIS archaeological report form

OASIS ID: molas1-190830	
Project details	
Project name	The Magic Garden, Hampton Court Palace, London
Short description of the project	Three trenches were excavated by MOLA in June to July 2014 as part of redevelopment of the site of former tennis courts located to the north west of Hampton Court Palace. There were numerous phases of 18th century bedding trenches, with other features such as pits and post holes, that all relate to the kitchen gardens laid out in the early 18th century for William and Mary. There were further garden features, including some bedding trenches, that relate to the gardens use by local market gardeners in the 19th and 20th centuries.
Project dates	Start: 10-06-2014 End: 21-07-2014
Previous/future work	Yes / Yes
Any associated project reference codes	HCP104 – Site code
Type of project	Recording project
Site status	Scheduled Monument (SM)
Current Land use	Other 13 - Waste ground
Monument type	BEDDING TRENCHES Post Medieval
Investigation type	"Part Excavation"
Prompt	Planning condition
Project location	
Country	England
Site location	GREATER LONDON RICHMOND UPON THAMES TEDDINGTON AND HAMPTON The Magic Garden, Hampton Court Palace, London
Postcode	KT8 9AU
Study area	546.00 Square metres
Site coordinates	TQ 15583 68790 51.4058398316 -0.338054929248 51 24 21 N 000 20 17 W Point
Height OD / Depth	Min: 9.10m Max: 9.20m
Project creators	
Name of Organisation	MOLA
Project brief originator	English Heritage
Project design originator	Historic Royal Palaces
Project director/manager	Michael Smith
Project supervisor	Tony Mackinder
Type of sponsor/funding body	Client
Name of sponsor/funding body	Historic Royal Palaces
Project archives	
Physical Archive recipient	Historic Royal Palaces
Physical Contents	"Animal Bones","Ceramics","Glass","Metal"

Digital Archive recipient	Historic Royal Palaces
Digital Media available	"Database","Images raster / digital photography","Text"
Paper Archive recipient	Historic Royal Palaces
Paper Media available	"Context sheet","Matrices","Notebook - Excavation',' Research',' General Notes","Plan","Section"
Project bibliography 1	
Publication type	Grey literature (unpublished document/manuscript)
Title	The Magic Garden, Hampton Court Palace, London KT8 9AU
Author(s)/Editor(s)	Mackinder, T
Date	2014
Issuer or publisher	MOLA
Place of issue or publication	London
Description	Client report with figures and photos
Entered by	Tony Mackinder (tmackinder@mola.org.uk)
Entered on	08 October 2014

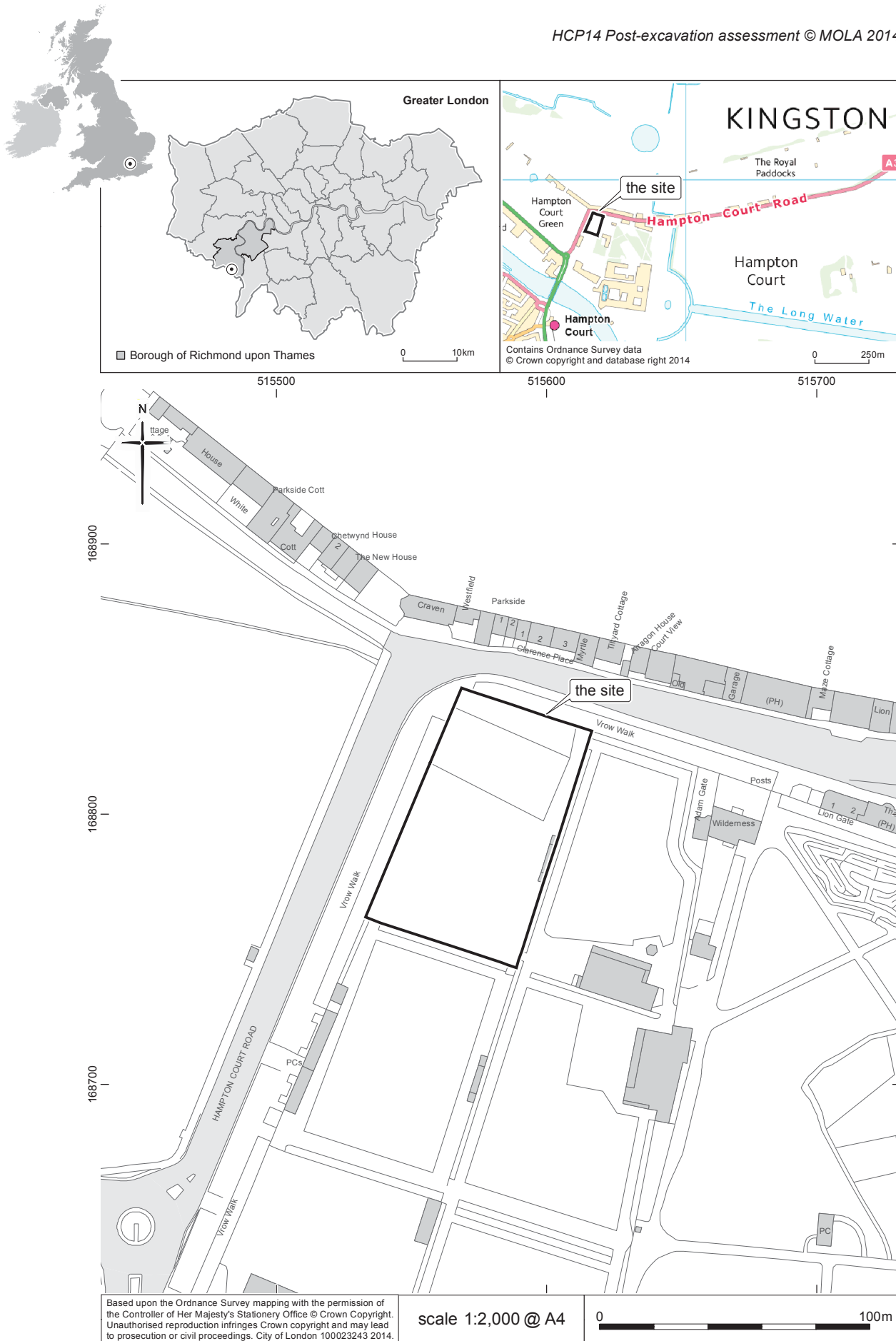


Fig 1 Site location

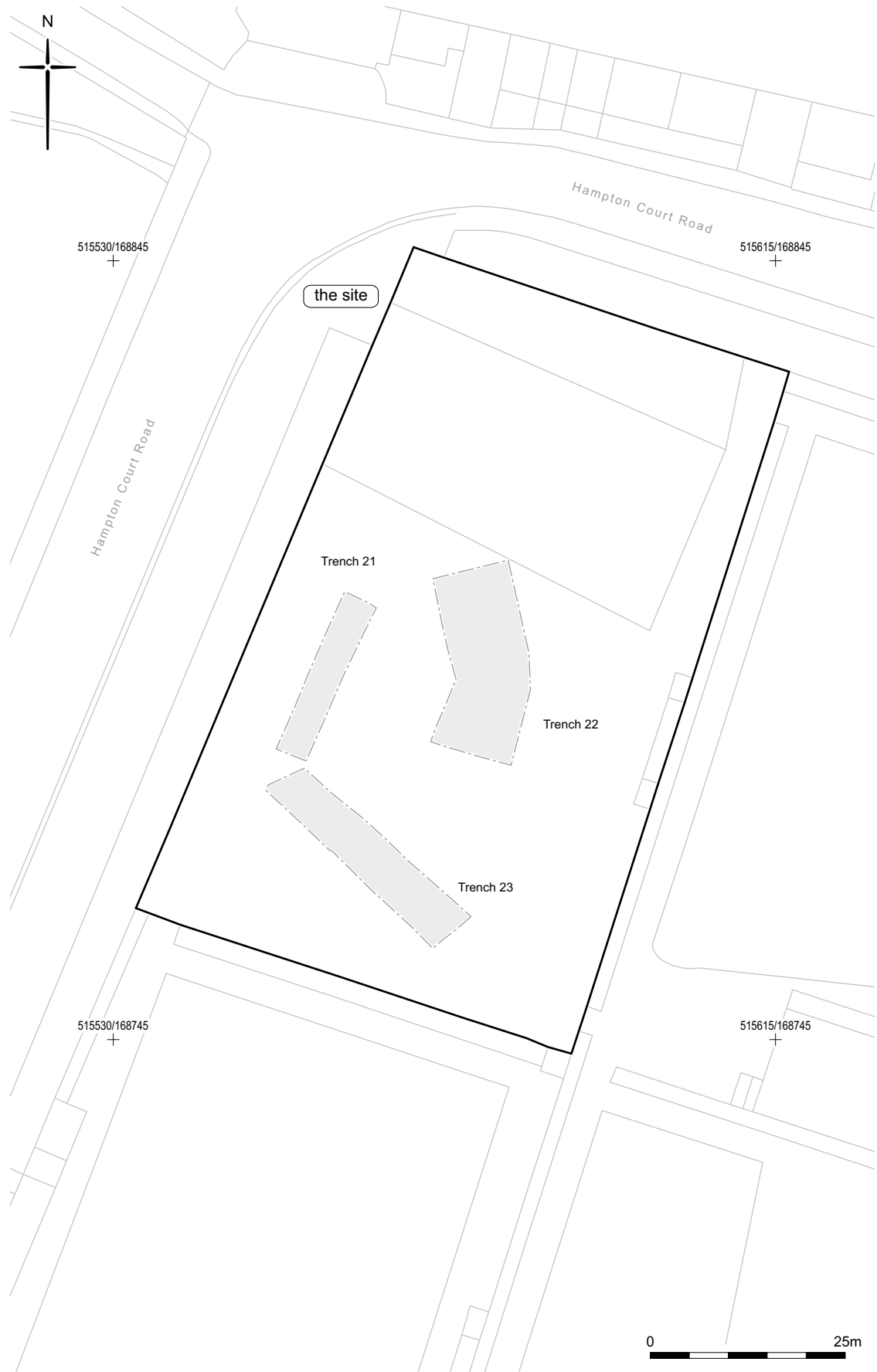


Fig 2 Areas of investigation

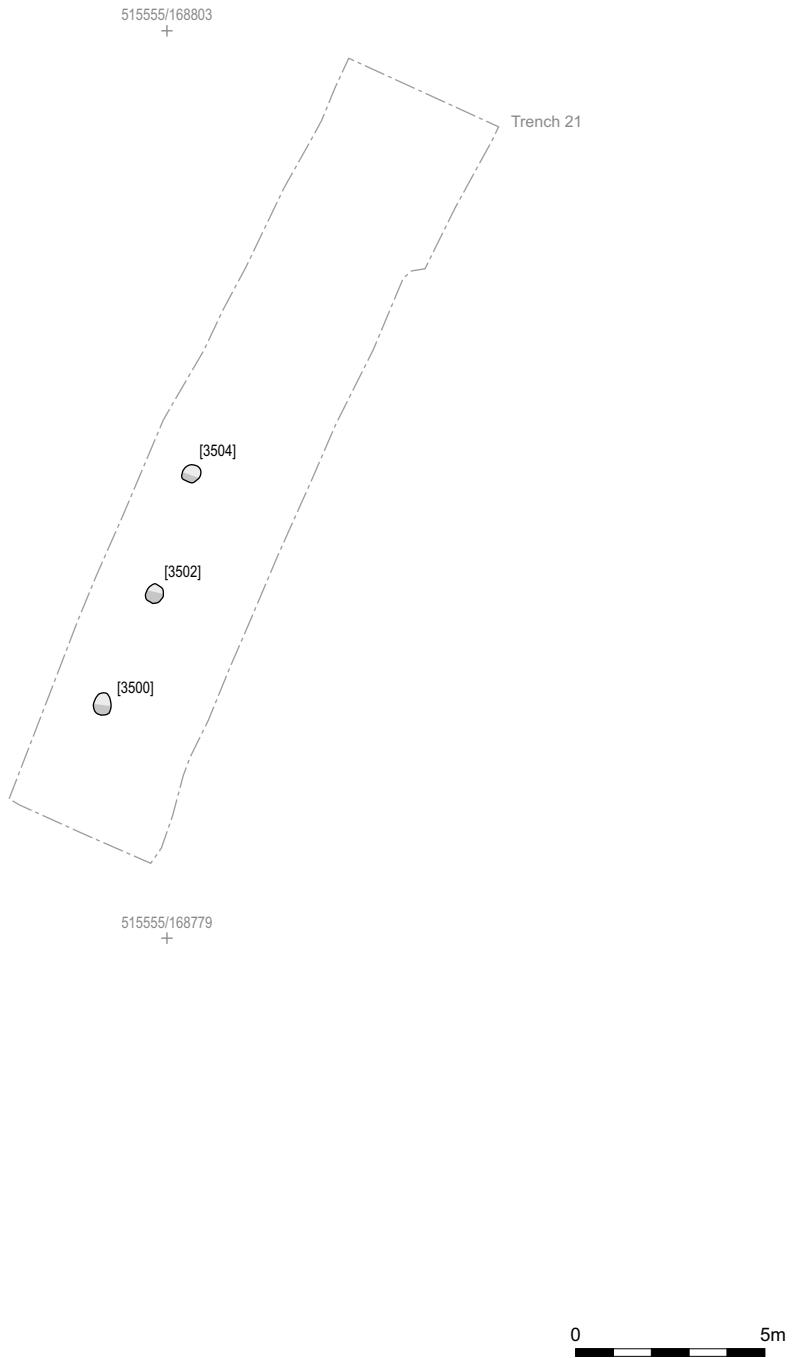


Fig 3 Trench 21 undated phase

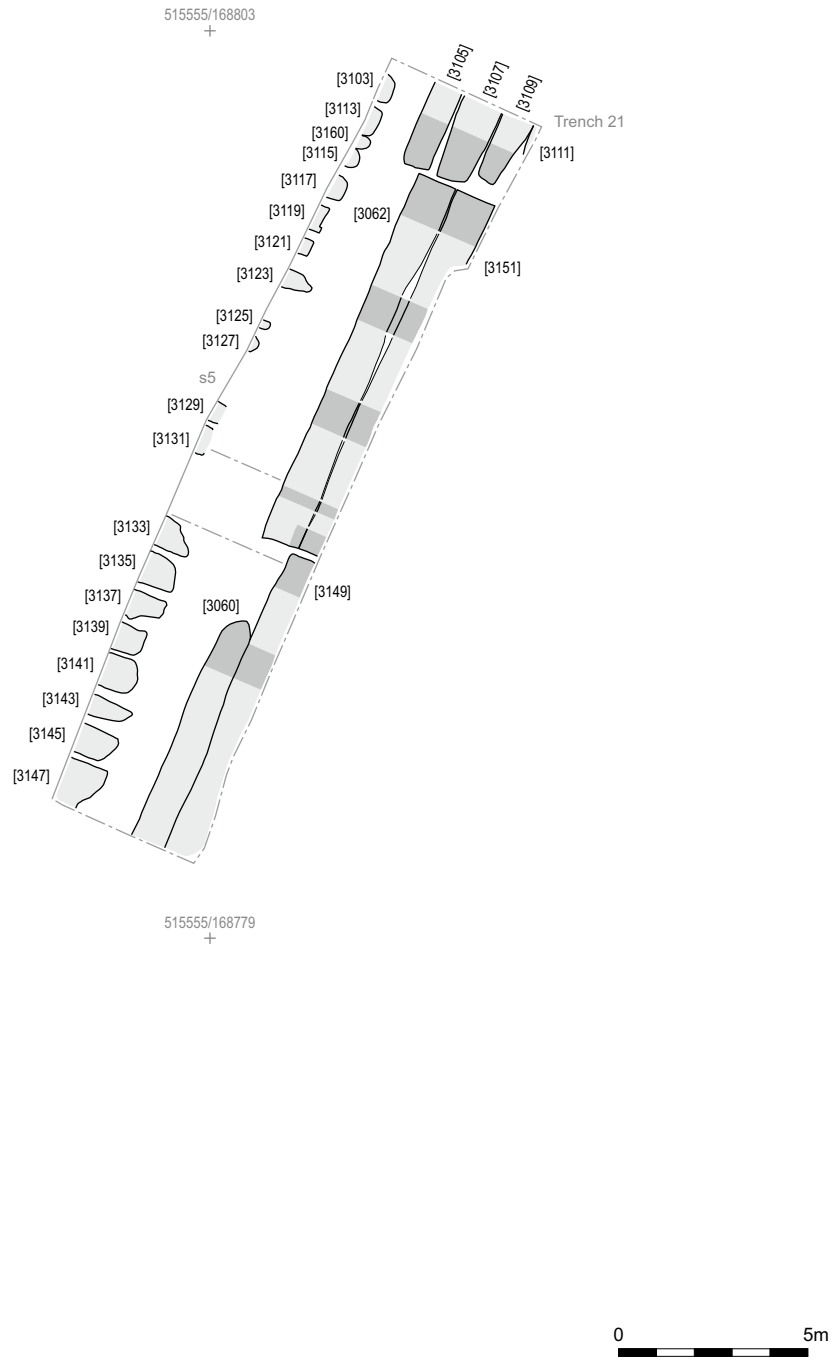


Fig 4 Trench 21 phase 1

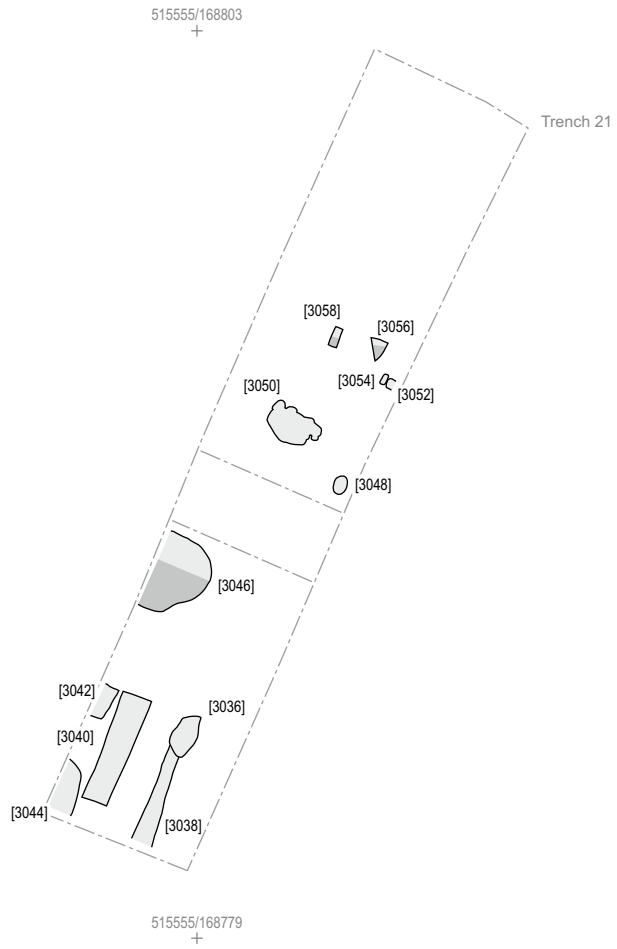


Fig 5 Trench 21 phase 2

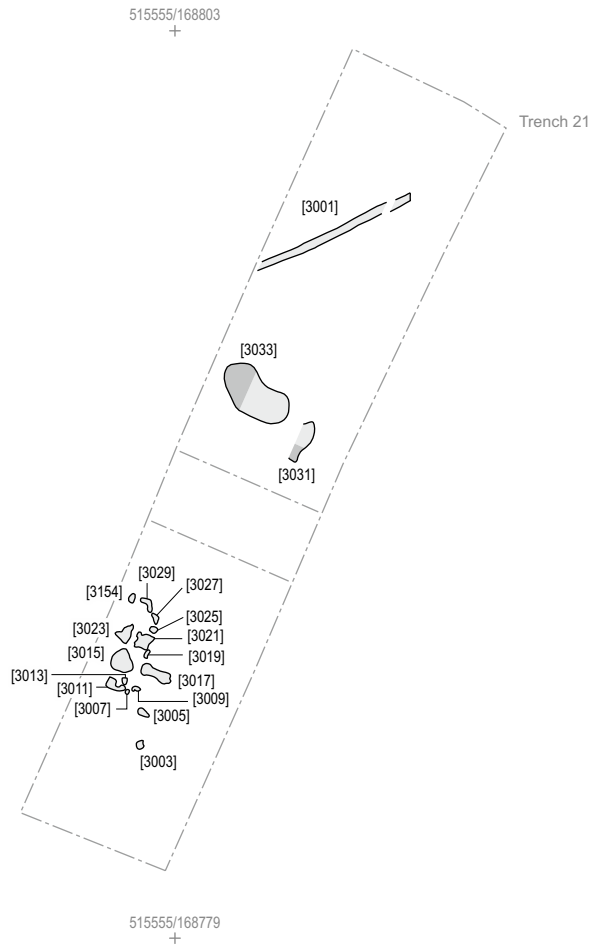


Fig 6 Trench 21 phase 3

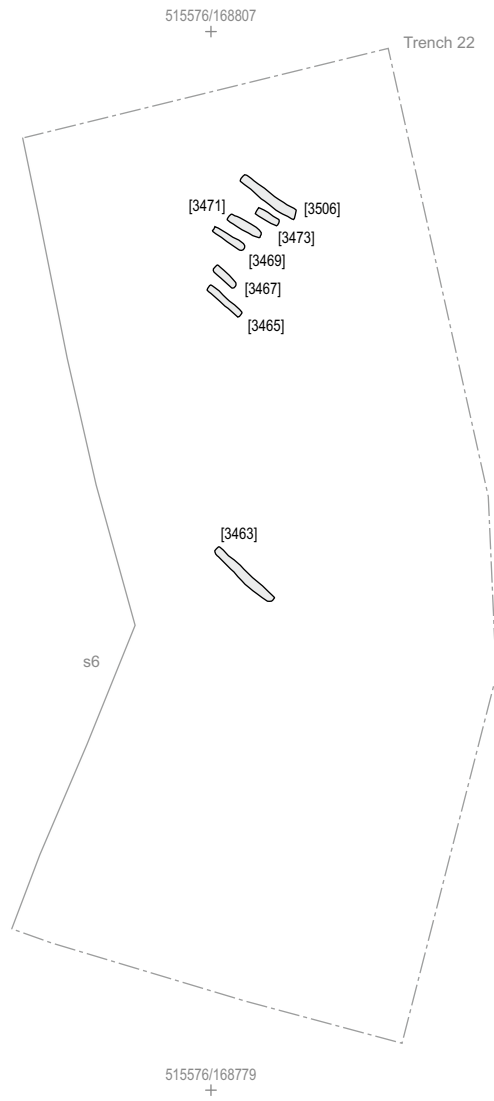


Fig 7 Trench 22 phase 1

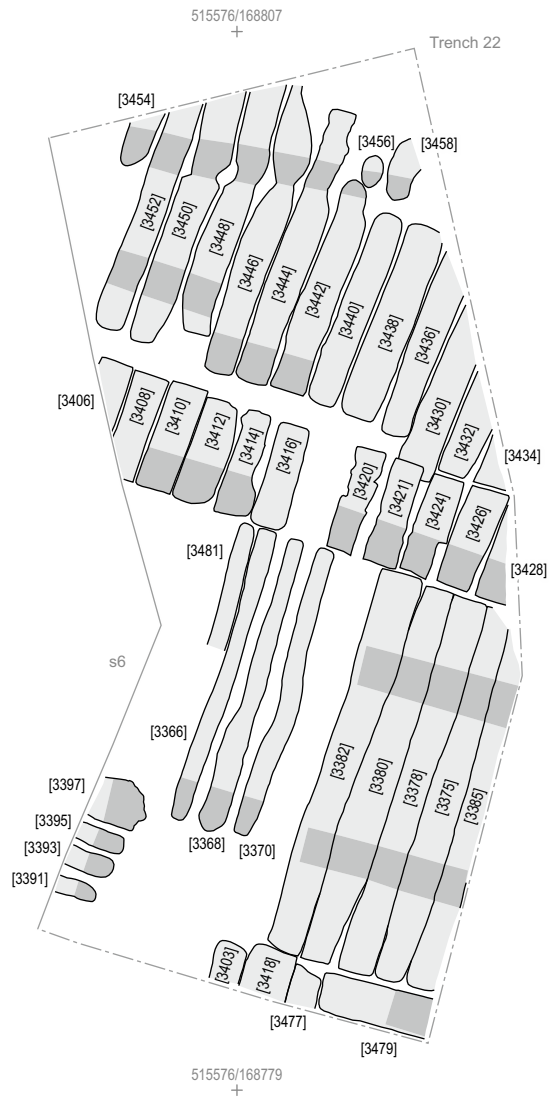


Fig 8 Trench 22 phase 2

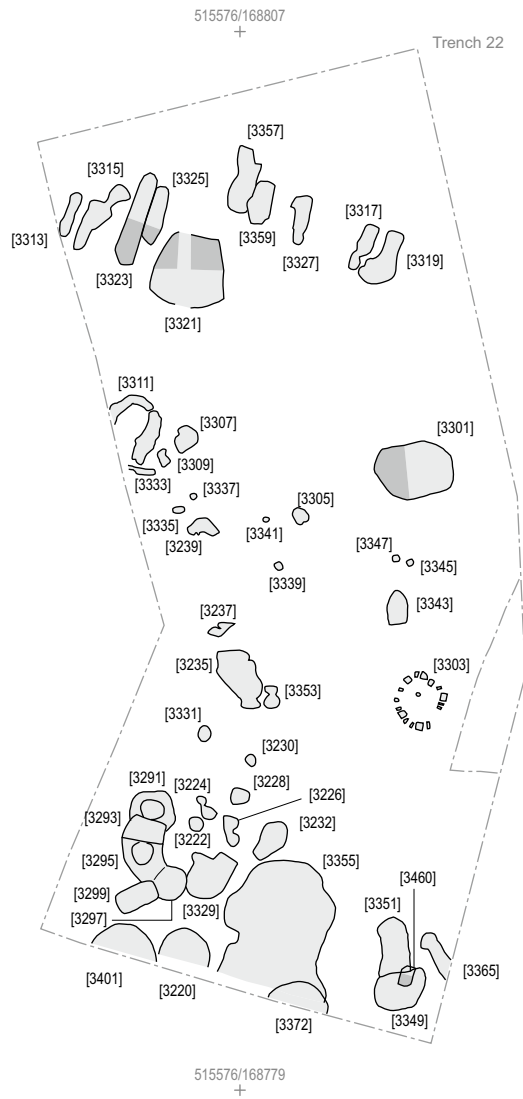


Fig 9 Trench 22 phase 3

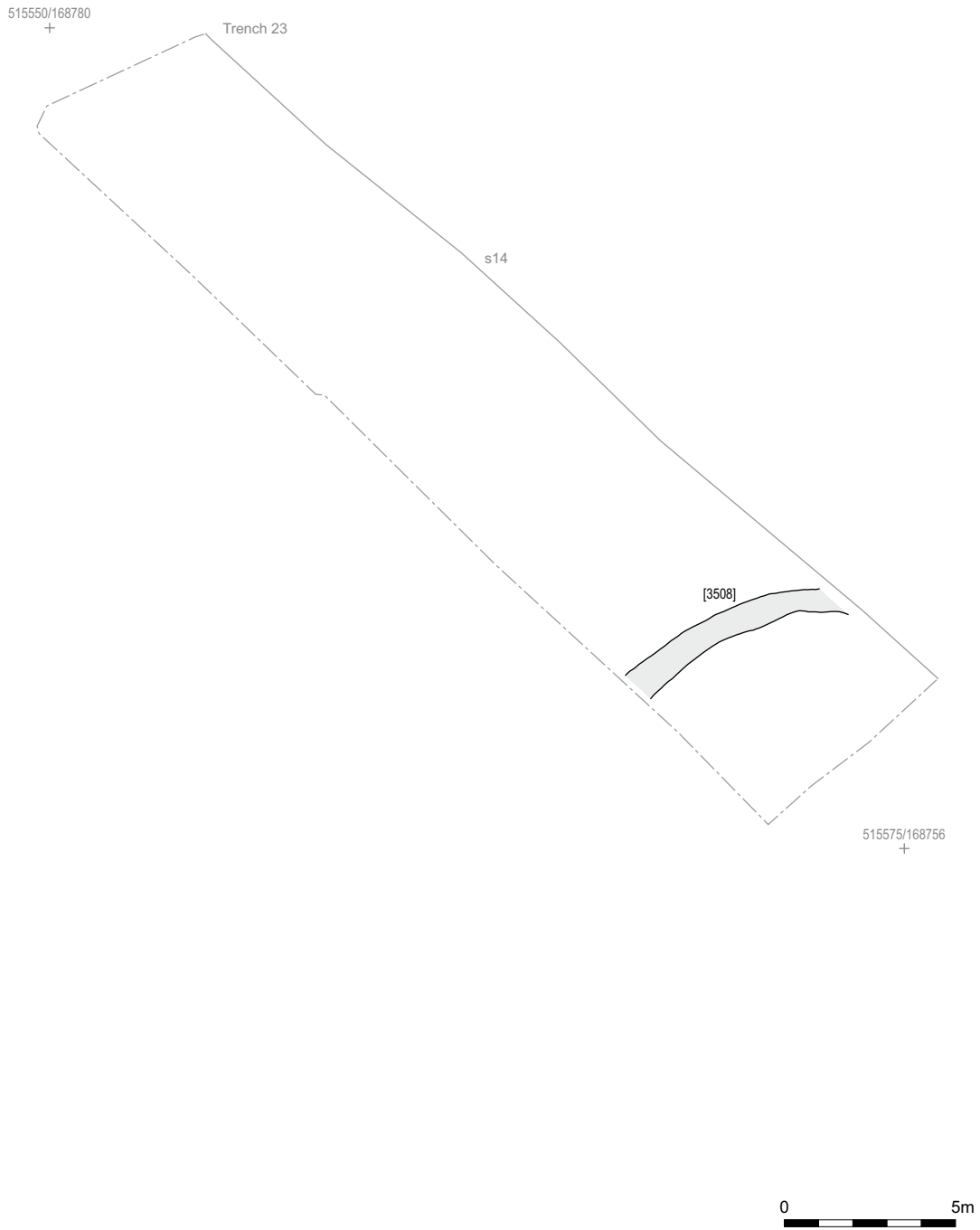


Fig 10 Trench 23 undated phase

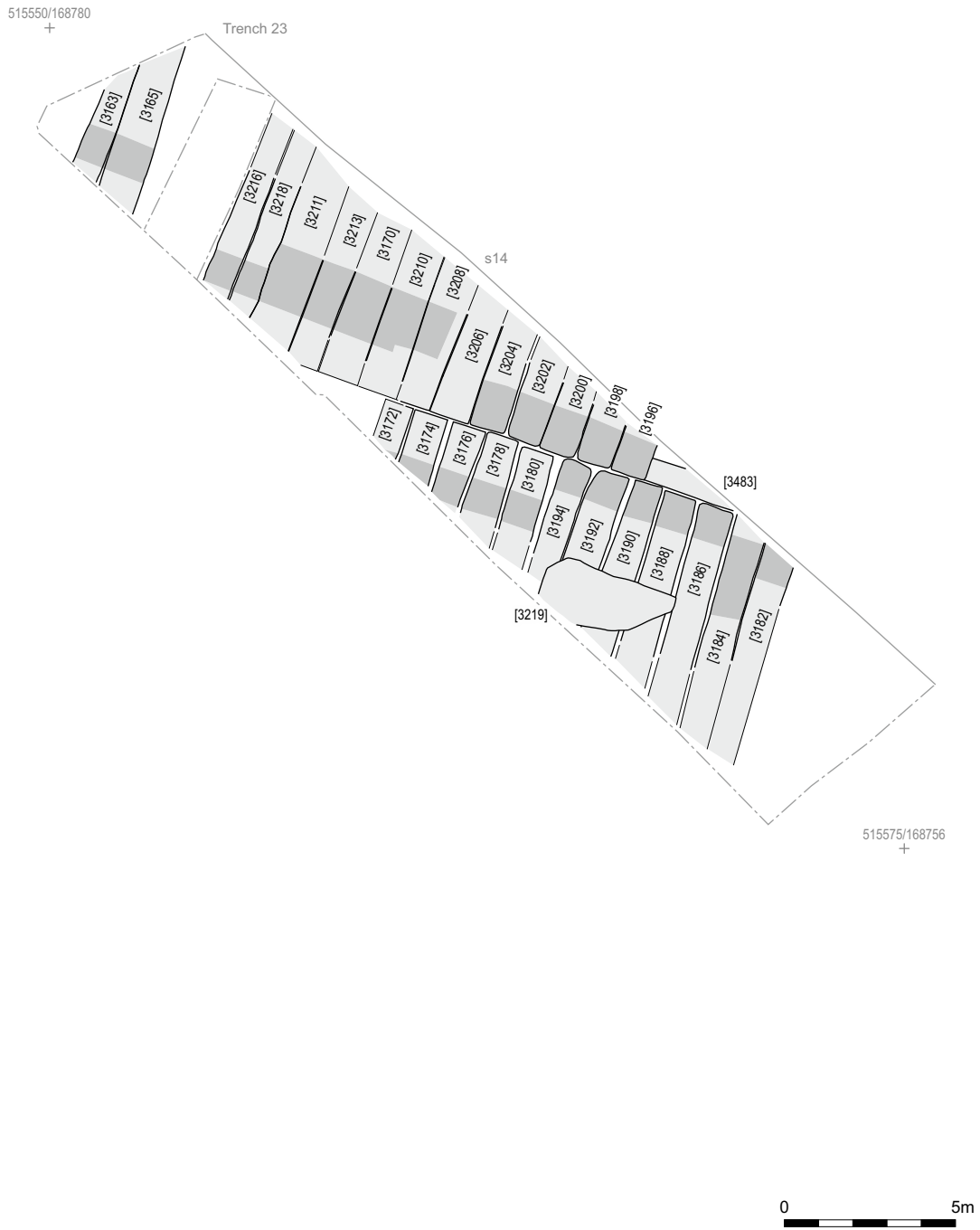


Fig 11 Trench 23 phase 1

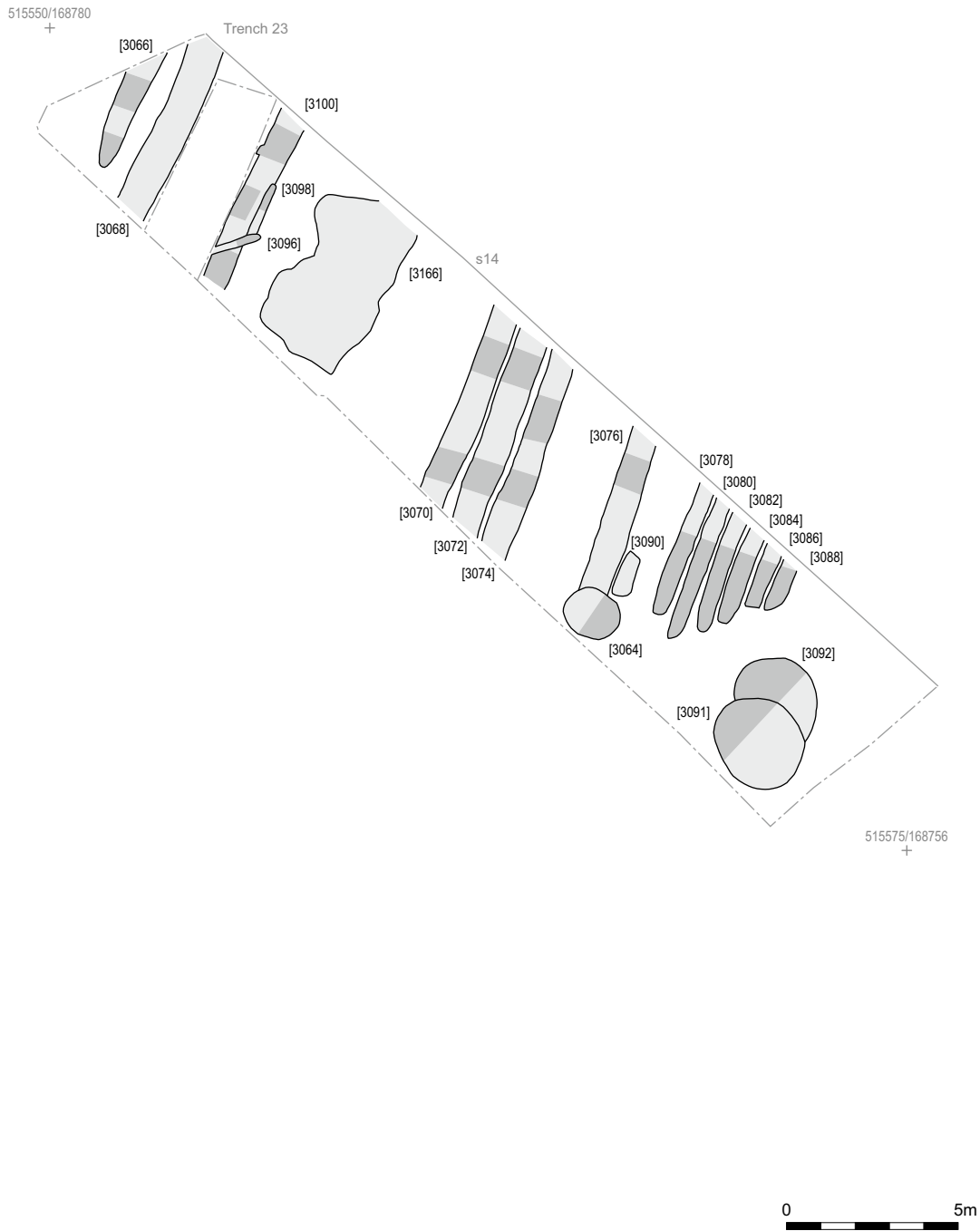


Fig 12 Trench 23 phase 2

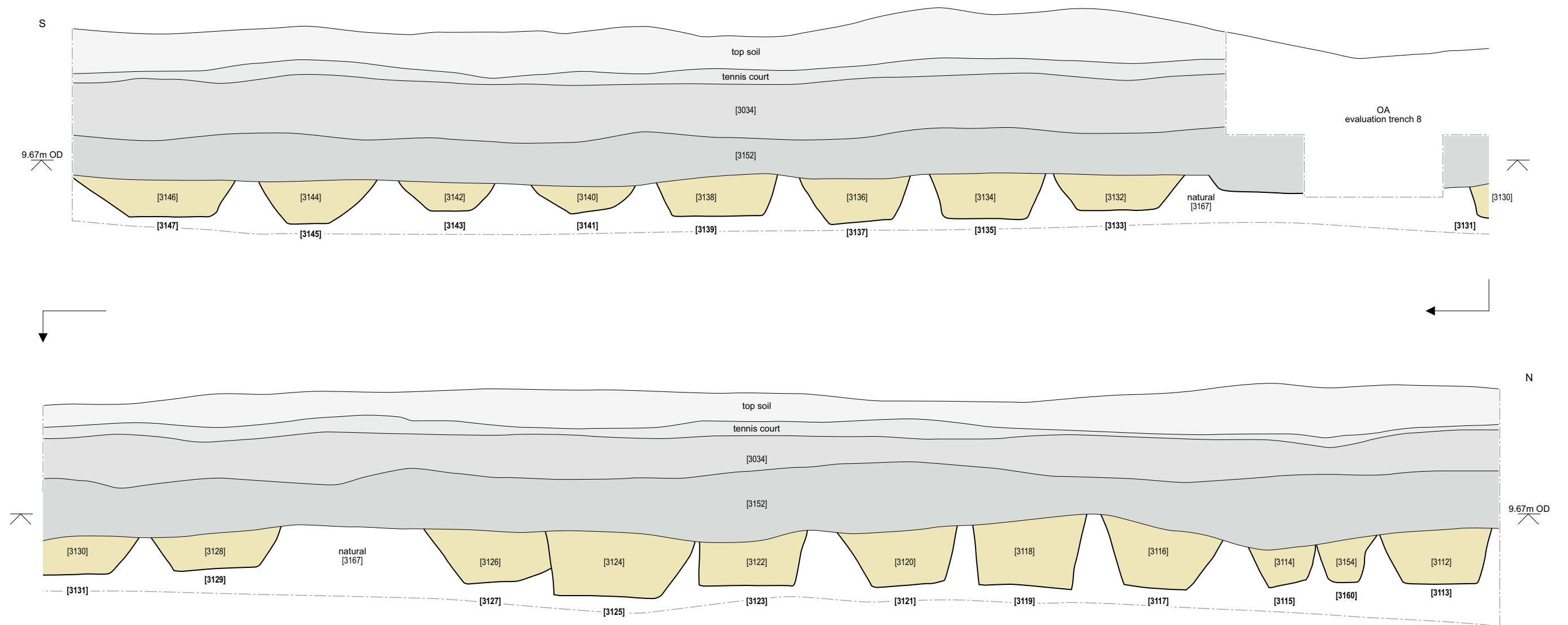


Fig 13 Section 5 in trench 21

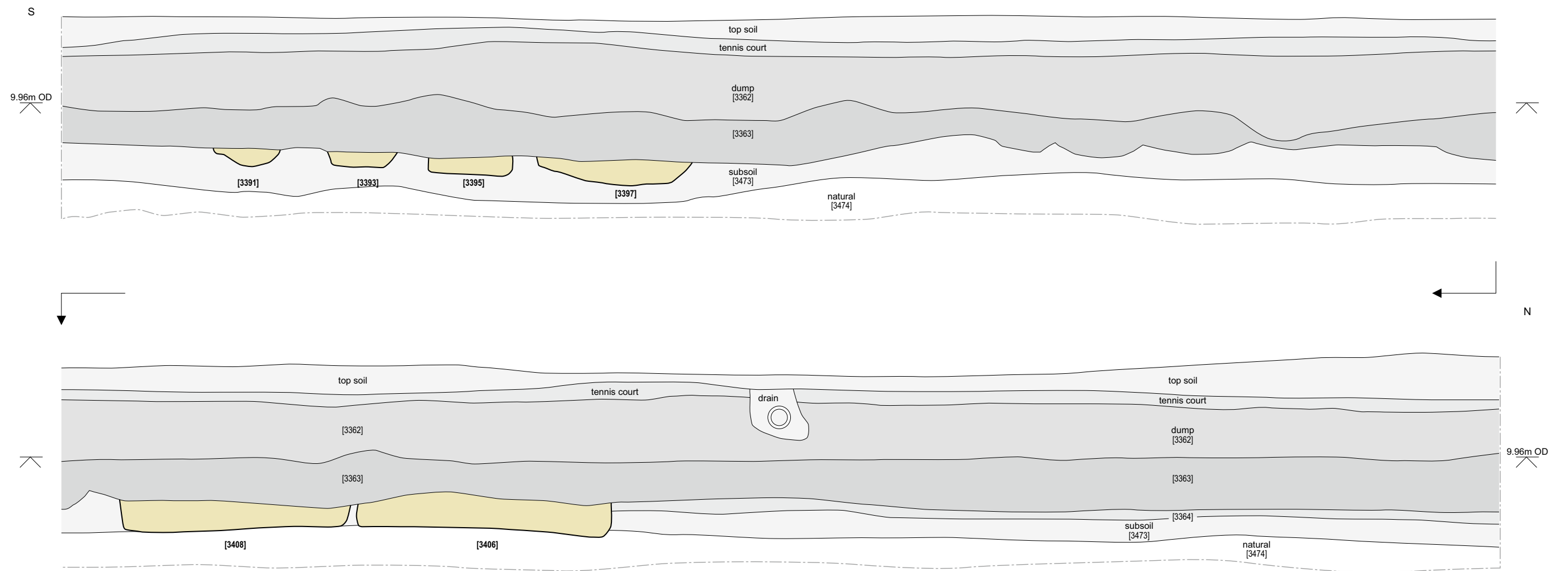


Fig 14 Section 6 in trench 22

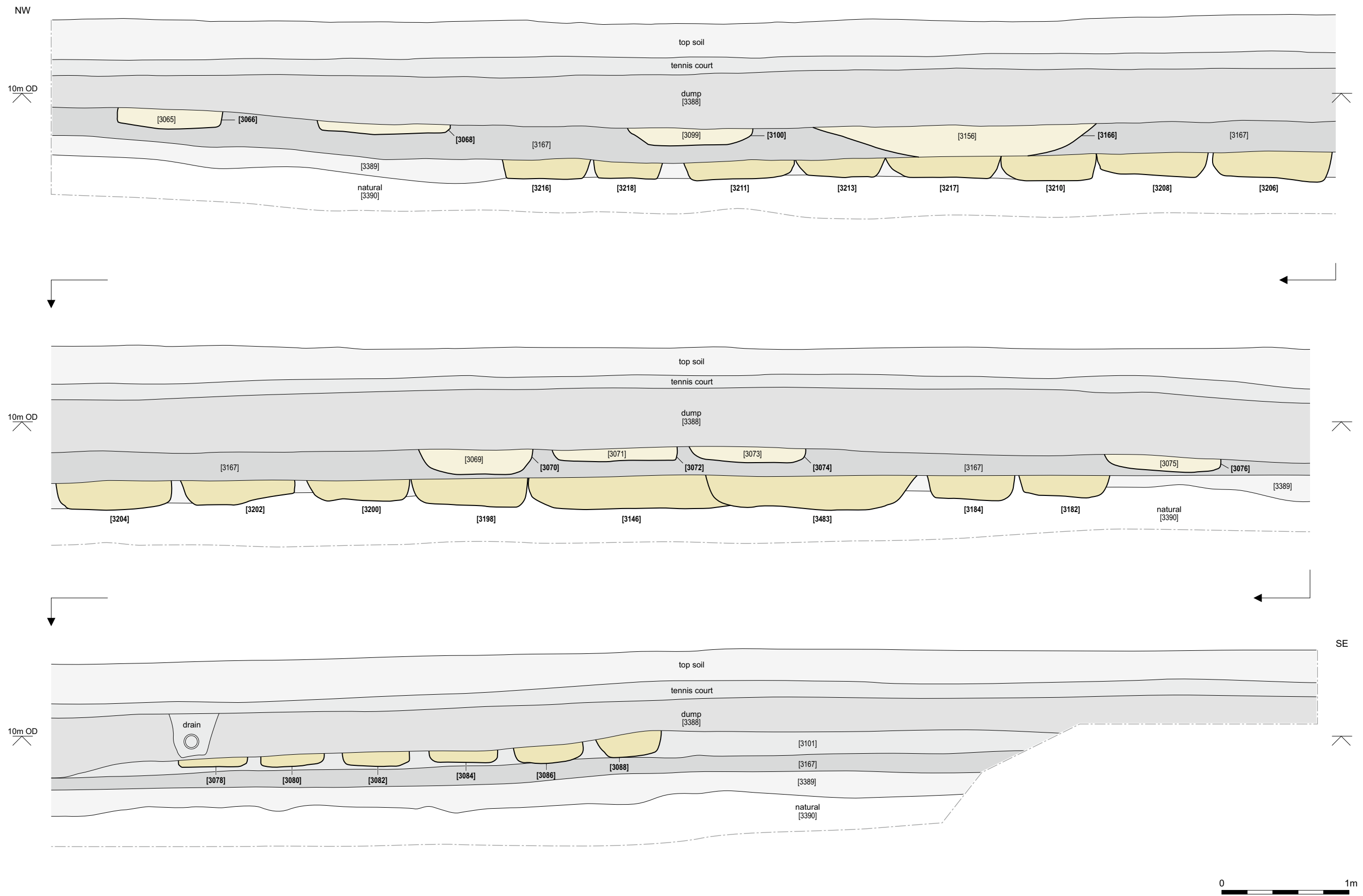


Fig 15 Section 14 in trench 23

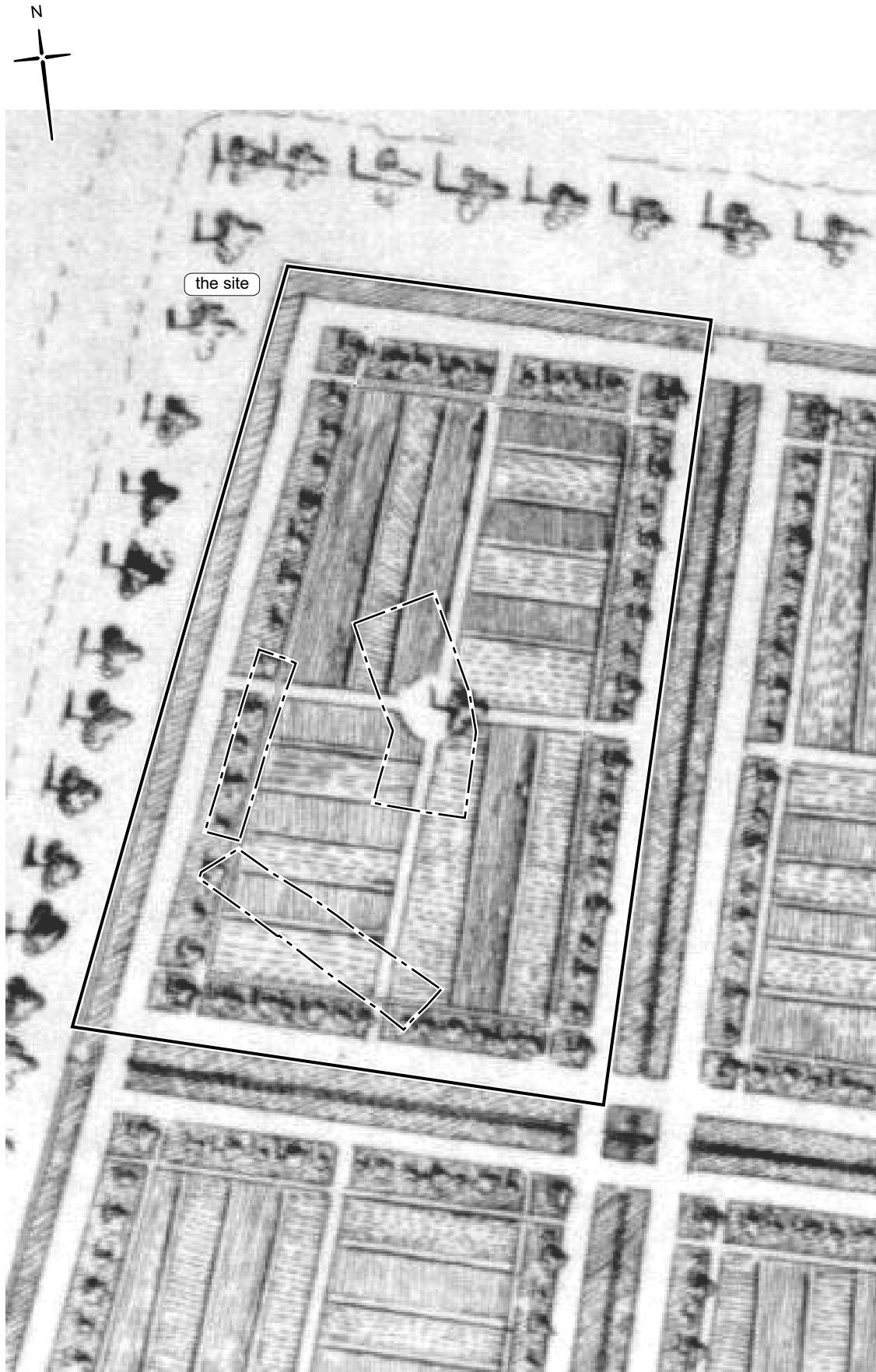


Fig 16 Rocque's map of Hampton Court Palace in 1736 with archaeological trenches



Fig 17 Trench 21 looking north, various features under excavation (444.124.11)



Fig 18 Trench 21 looking north, bedding trenches [3060] and [3149] to right of photo



Fig 19 Trench 21 looking south, bedding trenches [3105], [3107] and [3109] in foreground



Fig 20 Trench 22 the spade cuts of feature [3303]



Fig 21 Trench 22 looking east, bedding trenches [3410], [3412], [3414] and [3416]



Fig 22 Trench 22 looking south, bedding trenches [3375], [3378], [3380] and [3382]



Fig 23 Trench 23 looking west, various features, [3091] and [3092] in foreground



Fig 24 Trench 23 looking south, bedding trench [3100]



Fig 25 Trench 23 looking northwest, bedding trenches