

# The 20<sup>th</sup> Century Garden Gate Restoration and Temporary Garden Bridge installation, Hampton Court Palace: An Archaeological Evaluation.

**Site Code: HCP141**



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## 1 **Location and Scope of Work**

- 1.1 This report groups together the archaeological data produced as part of two different projects: the restoration of a gateway in the historic Tijou fencing, and the installation of a temporary footbridge across the north section of the Great Fountain Garden canal. Although these are two separate ventures, by nature of their proximity and association with the 20<sup>th</sup> Century Garden it seemed logical to bring them together as one for the purpose of the archaeological investigations.
- 1.2 In association with a programme designed to attract more visitors to the 20<sup>th</sup> Century Garden a new footbridge across the north section of the Great Fountain Garden canal was proposed for the summer months providing direct access into the gardens via a gateway in the historic Tijou fence. The second project relates specifically to this gateway and encompasses the conservation/restoration of the garden gate wrought iron piers, stone plinths, stone threshold steps and the installation of new gates and repairs to the adjacent iron railings.
- 1.3 As part of these two projects a series of archaeological test trenches were excavated. In order to restore the 20<sup>th</sup> Century Garden gate to its former glory and to finalise its design it was important to understand how the gate functioned in the past, how it evolved and whether there remained an associated threshold. Two trenches (TR I and TR V) were thus excavated either side of the threshold revealing a set of stone steps and several brick foundation levels. Three archaeological test trenches (TR II, TR III and TR IV) were excavated as part of the footbridge project. A preliminary exploratory trench was opened up against the western edge of the canal revealing the current steel sheet piling as well as the earlier timber shoring. A further two trenches (TRIII and TRIV) were excavated where the proposed bridge footings are to be installed either side of the canal. Both trenches unveiled the presence of a tie-backs system related to the sheet piling, TRIII also exposed an apparent linear feature running parallel with the canal.
- 1.4 Scheduled Monument Clearance has been sought from Historic England for the proposed scheme of works. It is a commitment of HRP's Conservation Principles, and a condition of this consent, that a programme of archaeological investigation be undertaken before and during the works.
- 1.5 The site code assigned to this project was **HCP 141**.

## 2 **Aims and Method**

- 1.1 The aim of these exploratory excavations was to better understand the structural and architectural elements as well as to investigate and record the presence of any archaeologically significant features or deposits in advance of the installation of a footbridge across Fountain Garden canal and the conservation of the 20<sup>th</sup> Century Garden Gate. From an architectural perspective, understanding how the 20<sup>th</sup> Century Garden Gate functioned will lead to a better understanding of the construction and will have practical implications on the extent and type of masonry works required to restore the gate as well as helping to determine the design of the final structure. Similarly, having a better understanding of the Fountain Garden canal construction and whether there are any archaeological remains will also have implications on the design of the temporary bridge. From an archaeological and historical point of view, the information gained from these excavations will contribute to our overall understanding of the gardens and their development.



## 2.1 Method

The excavation of five trenches agreed by Historic England was carried out by a qualified archaeologist prior to commencement of the works. A photographic, written and where necessary a drawn record was undertaken of all the structures and archaeological features and deposits observed.

## 3 Historical Background of the Site

3.1 During Tudor times and up until the 1660's during the reign of Charles II, the east front of the palace looked out onto a flat expanse of hunting grounds. The palace buildings, surrounding gardens and parks were looking old-fashioned and neglected and despite the fact that Charles II did not spend a great deal of time at the palace other than for his honeymoon and for entertaining his foreign guests, between 1660 and 1668 he instigated major changes that would set the layout for the future gardens. The most significant of these alterations included a canal extending three-quarters of a mile into the park lined with an avenue of Dutch lime trees, which is thought to have been designed by André Mollet. The sides of this canal were revetted with timber and the Longford River was used to supply the water, although further work on the 'planking and piling' was undertaken in 1670 (Thurley, P.225). However, by 1675/6 the Longford River had badly silted up causing the water level in the canal to diminish and despite efforts to rectify this problem it probably left this part of the garden once again in a less than desirable state.

3.2 By William and Mary's reign substantial works were carried out on the palace gardens. Charles II's canal became a dominant aspect in the layout of the new palace and in fact all the principal design drawings included at least its western end to show it in relation to the proposed buildings (Thurley p.229). A great *parterre de broderie* was created and designed by Daniel Marot and included 13 fountains that would eventually give the garden its name: the Great Fountain Garden. An even greater sense of grandeur was created by planting radiating avenues of lime trees extending beyond the gardens and into Home Park as far as the eye could see. The whole garden was then fenced off from Home Park with an elaborate wrought-iron palisade set on a low plinth designed by Jean Tijou, which included elaborate gates at the diagonal avenues.

3.3 During Queen Anne's reign the Great Parterre and the East Front Gardens were given yet another overhaul. Anne disliked the gardens as they were both too expensive and complicated to maintain with the continued problem of maintaining the fountains that had never functioned properly in any case. The changes that were initially made simplified the gardens and bore a resemblance to the original proposals put forward by Hawksmoor in 1689<sup>1</sup> (Thurley, P.240).

3.4 In 1710-11 Queen Anne carried out a final phase of redesign increasing the area of ornamental water by constructing a semi-circular canal following the already existing avenues with extending transverse arms northwards and southwards. It has been suggested that this required the railings bordering the parterre to be moved further west to their present location in 1710/11<sup>2</sup> adding six more acres to the Great Fountain Garden. As of yet the foundations of the original location of William and Mary's palisade have yet to be found.

### 3.5 *Previous Archaeological Investigations.*

3.6 No archaeological investigations have been carried out previously in the vicinity of the 20<sup>th</sup> Century Garden gate; at least there is no record of any having been undertaken. The most recent archaeological investigation in the area of the East Front was a watching Brief for the East

<sup>1</sup> See Thurley p.140: "Nicholas Hawksmoor, site plan and survey of the Tudor palace showing proposals for replacing the eastern quadrangle."

<sup>2</sup> Travers Morgan Planning, 1982. *Royal Parks Historical Survey Report: Hampton Court and Bushy Park*. Department of the Environment, (p.46).



Front Irrigation in 2013, however no records, other than the photographic archives have been found relating to this project. A Watching brief in relation to the Barge Walk Railings conservation, the Tijou Screen Pilaster Repairs and the Triangle Garden landscaping alterations (HCP111) took place in 2013. During this project two trenches were excavated revealing a 1.3 m-deep well-built brick foundation under the line of the stone plinth for the current Tijou Screen.

- 3.7 In 2002 an archaeological evaluation was carried out at the far eastern end of Long Water prior to the installation of a new fountain. Two test pits were excavated and no archaeological features were uncovered.

## 4 Description of Findings

### 4.1 *Trenches I and V – 20<sup>th</sup> Century Garden Gate*

The excavation at the base of the 20<sup>th</sup> Century Garden Gate revealed a number of rather surprising features that subsequently had an impact on the design of the garden gate. The threshold was generally in a fairly good state of repair and is comparable to Fountain Garden Gate situated further south along the palisade opening out onto Home Park.

- 4.2 Trench I encompassed two areas. A small exploratory hole of 1.80 m x 0.86 m with a depth of 0.36 m was firstly excavated against the eastern side of the threshold and a second larger area measuring 1.28 m x 0.4 m was located against the northern plinthstone and alongside the palisade wall and plinth. Fifteen separate contexts (**1000 – 1014**) (see Appendix II) were observed in this area. Trench V was excavated at a later date and was located against the western side of the gate threshold measuring 2 m x 0.6 m with a depth of 0.5 m. There were ten contexts recorded in this trench (**1041 – 1050**), some contexts in this trench overlap with those in Trench I.

- 4.3 Stratigraphically, the earliest feature observed was the 17<sup>th</sup> century palisade that separates the Great Fountain Garden from Home Park and the 20<sup>th</sup> Century Garden, **context 1003** (Fig. 4). It comprises of the brick foundation **1013** and elevation **1012**. No construction cut was observed and the base of the foundation was not reached but a total of nine courses were exposed with consistent sized-bricks measuring 60 mm x 100 mm x 220 mm. The foundation was exposed to a depth of 8.83 m OD and five courses of brick were observed, arranged in an English Bond pattern. This section of the wall is offset by 0.06 m in relation to the elevation **1012**. The bonding material is composed of a soft creamy yellow, sandy lime mortar and the joints are neat measuring 150 mm in depth. The top course of the foundation is in a fairly poor state of conservation, with several bricks having crumbled away and cracked, perhaps because at some stage these courses would have been exposed to the elements. Sitting on top of context **1013** is the so-called elevation, **1012** measuring a total of 0.3 m in height and comprising of 4 courses of bricks arranged in an English bond pattern. The bonding material is different to that observed in the foundation level, composed of a friable to crumbly dark bluish grey sandy lime mortar with inclusions of fine gravels and charcoal flecks. This section of the wall is referred to as an elevation because up to 4 courses are exposed in many other places along the palisade. However, the ground level surrounding the 20<sup>th</sup> Century Garden Gate is particularly elevated, and appears to have been raised, thus obscuring the brick structure below the stone plinth.

- 4.4 Once the wall was constructed, it seems that a layer of compacted sand, **context 1051**, was deposited around the structure probably acting as packing material providing extra reinforcement for the foundations, although without further excavation over a larger area it is difficult to disprove or confirm this theory. This same layer was observed in Trench V, **context 1043** (Figs 8 and 9).

- 4.5 Crudely built against wall **1003** and overlying **context 1051** is a construction comprising of 3 brick courses one brick deep measuring a total of 0.34 m in height and observed over a length of 0.68 m (**context 1004** – Fig. 4). The bricks measure 220 mm x 100 mm x 60 mm and are



bonded together with a mixture of sandy lime mortar and soft earth. It has a string course brickwork pattern. The construction is in a poor state of preservation, collapsing away from the main body of wall **1003**. Its purpose seems to be a support for the Portland plinthstone, **1006**, although it certainly does not seem to be particularly sturdy one. This rudimentary structure may be a later addition, although the bricks seem to be similar in type to those used to construct the boundary wall **1003**. It may simply have been hastily built against the main body of the foundation once it had been completed. The small sondage to the south of the plinth shows that it does not extend beyond the footings of the gate.

4.6 **Context 1011** is a beige to brownish yellow soft silty sand deposit that seems to correspond to an immediate backfill after the construction of the plinthstone brick footing **1004**, which in turn is overlain by **1014**, a thin level layer of broken and crushed CBM mixed with gravelly mortar. This context would seem to be some sort of surface layer, either a temporary working surface used during the installation of the plinthstones or simply a layer of trample with tiny fragments of waste material and chips of brick/mortar produced from the construction of the foundation level of the plinthstone. This thin layer is followed by context **1010**, a silty sandy friable dark grey layer containing flecks of charcoal, CBM and a concentration of garden pottery in the north western corner of Trench I. This layer abuts **1006** and although there is no physical relationship with the plinthstone capping **1005**, it is probably stratigraphically later.

4.7 **Context 1006** (Fig. 4) is the Portland plinthstone that fits neatly around the brick elevation **1012**, and is supported by the footing of the foundation level **1013** as well as by **1004** described in the previous paragraph. The south face measures 0.72 m in length, the east face 0.18 m, whilst the west face measures 0.68 m with a height of 0.31 m. The north face on the eastern side of the wall measures 0.14 m. A groove present in the stone fits in line with the lead caulked hinge socket on the threshold **1001**, but is not aligned with the groove observed in the plinthstone cap above (**1005**). In fact the entire plinthstone cap is off-centre in relation to **1006**, a phenomenon which is mirrored by the southern **plinthstone cap 1007**. This could be due to two things: either natural movement has caused the plinth caps to gradually shift inwards, or they were placed during a later phase, indicating that the gate installation was changed at some stage. This hypothesis seems more likely and is further highlighted by the presence of the fissures in the stone on the outer side of each stone plinth (Fig. 6 and 7), possibly indicating a replacement of the two plinths at an unknown date – although this does remain conjectural.

4.8 The plinthstone cap on the southern side (**context 1005**) measures 0.67 m x 0.67 m x 0.2 m and is comprised of a finely dressed Portland stone block with scotia-like mouldings (Figs. 2 and 7). A clear break in the stone was observed 0.2 m to the north of the main body of the plinth or footing similar to the one observed on the southern side associated with plinth **1007**. As mentioned in section 3.6, this plinth is around 0.05 m off-centre to the south in relation to the footing below. The groove visible on the south face of the plinth measures 0.04 m in width with a depth of 0.08 m. This feature is of course associated with the gate fittings but is no longer aligned with the hinge socket inserted into the threshold step **1001** or the grooves observed in the stone plinthstone **1006**.

4.9 The plinth located to the south of the gate threshold, **context 1008** (Figs. 2 and 6), was not observed in its entirety but must be of the same quality and build as context **1006**. Unlike the north plinth, the groove present on the north face of the stone aligns with both the hinge socket fitted into the threshold stone **1001** and with the groove and installation on the plinthstone cap **1007**. Nevertheless, **context 1007** above does not align perfectly with the plinthstone below, sitting 0.03 m further to the west, overhanging the threshold. This southern plinthstone is in a fairly poor state of preservation compared to **1005**. Its western face is badly damaged and appears to have broken away, resulting in a reduced-sized block measuring 0.68 m x 0.58 m x 0.2 m.

4.10 **Context 1041** was observed in Trench V and refers to a brick foundation supporting the Ketton stone step **1000** (Fig. 8). It measures a total of 1.85 m in length with a height of 0.24 m and roughly a width of 0.45 m. It is comprised of two courses of bricks which are roughly organised



and mostly placed on edge with the odd brick placed on bed. The bricks are not regularly sized with the length varying between 180 mm to 220 mm. This foundation level is directly overlain by a bedding layer, **context 1042**, composed of a layer of soft whitish lime mortar and small fragments of Ketton stone measuring 0.06 m in thickness. This layer was used as a preparation layer for the Ketton stone step above.

- 4.11 **Context 1000** corresponds to the top step of the threshold and is composed of two oolithic stone blocks, which were confirmed as Ketton stone in the petrological analysis report by Hayward<sup>3</sup>. The step measures 1.84 m x 0.32 m (Figs. 2 and 3), whilst the individual blocks measure 0.32 m x 0.12 m x 0.84 m and 0.32 m x 0.12 m x 1 m respectively. This masonry is dressed and each block possesses offset mouldings on the eastern face. The surface of the southern block has a series of 6 pronounced, curved grooves graduating in length from south to north (0.4 m – 0.06 m). These would appear to be marks formed by the repetitive motion of opening and closing a gate. The width of each groove measures between 0.09 m – 0.06 m. The significant depth of these grooves can be explained by the soft nature of this oolithic stone. There is also visible wear to the eastern edges of these stones which have become uneven, rough and in places quite damaged; presumably this occurred over time due to the gate repeatedly closing sharply against the step. Indeed, the use of Ketton stone is rather unusual here as it is by nature more prone to weathering and wear<sup>4</sup>. Between the two stone blocks are the remains of lead caulking. Context **1000** fits perfectly between the two plinths **1006** and **1008** whilst the associated plinth caps, **1005** and **1007** partially overlap this top step.
- 4.12 The lower portion of the threshold is represented by **context (1001)** (Figs. 2 and 3) which is comprised of three squared-Portland stone blocks measuring a total of 1.9 m x 0.3 m x 0.23 m. Each block is of a different size, the largest of which was subject to further investigation through the excavation of a small sondage on the far northern side of the threshold in order to determine its depth, which extended to 0.23 m. This portion of the threshold overlies the brick wall construction (**context 1003**) delimiting the 20<sup>th</sup> century gardens to the east. The lead fixtures used for the gate are visible at both ends of the masonry as well as in the central section. The hinge socket fittings at either end both measure 0.09 m x 0.09 m, the actual socket measuring 0.04 m in depth. As already mentioned, the fittings on the northern threshold step are not in line with the hinge fittings present on the plinth (**1005**) and are in fact off-centre by 0.04 m.
- 4.13 **Context 1002** (Figs. 2 and 3) directly overlies **1001**, and is composed of 4 aligned bricks bonded together with a friable sandy mortar (only three remaining bricks are visible in the photographic record). This alignment of bricks, measuring 0.4 m x 0.1 m (bricks: 220 mm x 60 mm x 100 mm), fit perfectly together and seemingly create a level surface. It would seem to correspond to some kind of crude repair to the second step of the threshold, which has clearly heavily weathered on the edge.
- 4.14 **Context 1047** is a later feature observed in Trench V that truncates context **1049**, a friable silty sandy layer with flecks of charcoal and occasional fragments of CBM, which is probably the equivalent of **1010** observed in Trench I. **Cut 1047** (Fig. 9) is a linear feature with a dissymmetrical profile and a rounded base, the extent in terms of the width and length is unknown but its depth was recorded at 0.34 m. It is filled at the base by **1050**, which was observed only in the north-facing section of Trench V, and is composed of coarse compact pinkish gravels in a clayey sandy soil, flecks of which could be seen further towards the surface of this linear feature, possibly reworked due to bio-turbation. The secondary fill is composed of

<sup>3</sup>“Hand specimen petrological analysis using a hand lens (Gowland x10) identified the step sample as a golden yellow-brown 25YR 8/8 (Munsell 1980) open textured oolithic grainstone (Dunham 1962).” (Hayward, K. 2016. Petrological analysis of stone used in the 20<sup>th</sup> Century Garden Gate stone step, Hampton Court.)

<sup>4</sup>“Although existing publications of Hampton Court (e.g. Thurley 2003) make no mention of the use of Ketton stone from building records, the use of this stone in the grounds of such a prestigious building should be seen as not at all surprising. Its use, though, as appears to have been the case here, as a stone paving step rather than as architectural embellishment was not the best choice. It would be susceptible to much more rapid damage and wear than would be the case for a more robust stone type such as Purbeck limestone, York stone or Portland stone. This is because the same pores which allow for such intricate and decorative carving in the architectural elements also make them highly susceptible to prolonged abrasive wear and tear by pedestrians.” Hayward, 2016.



coarse loose gravels in a mid-brown sandy silt deposit with the aforementioned pockets of pink gravels. This deposit partially overlaps the Ketton stone step 1001. It is sealed by **context 1044** a coarse sandy deposit directly beneath the lawn.

#### 4.15 *Trench II – Temporary Bridge Installation*

A total of 14 contexts were recorded in Trench II (**contexts 1015 – 1028**, Fig 11), which was excavated by one of the Hampton Court gardeners and located against the western side of the canal on the same line as the beech hedge in the 20<sup>th</sup> Century Gardens. The earliest feature recorded was the timber shoring, **context 1022**, which consists of a 0.11 m wide plank of wood with a thickness of 0.02 m and angled at around 70°. This sits on top of larger wooden planks measuring 0.22 m in width. This wooden structure is further supported by a timber post, **context 1023**, which measures 0.85 m x 0.85 m. The date of this construction is unknown but it would seem to be an earlier structure supporting the walls of the Fountain Garden canal, but whether this is the original shoring inserted during the Queen Anne's reign remains undetermined.

4.16 On the west, **1022** is abutted by several deposits. The earliest one recorded was **context 1027**, a silty sandy light brown waterlogged layer containing coarse sands and occasional organic matter. The base of this context was not reached. This was overlain by **1021**, and was only observed in section. It is composed of compacted CBM in a light brown to yellow silty sand and measures a total of 0.17 m in depth. A correlation can be made between 1021 and 1034 in Trench III, which corresponds to a fill of a gully containing a high concentration of broken CBM, pottery, and glass. These two features as they seem to be on the same alignment and have a similar morphology. Perhaps **context 1021** is the southern continuation of **1034**. Alongside a small sample taken of the CBM, one fragment of pottery was uncovered from this context, as well as an iron object. This in turn is overlain by context **1020** which is a soft dark grey sandy peaty deposit with occasional inclusions of pebbles and small angular stones (helpful for the drainage of water) with a maximum depth of 0.12 m. It is superseded by context **1019**, a thin band of homogenous light grey clay with occasional flecks of CBM, measuring 0.06 m in depth. These deposits are truncated by what appears to be a narrow installation cut for the contemporary sheet piling (**cut 1016**), measuring a maximum of 0.15 m in width and backfilled with a whitish gravelly deposit containing large gravels and small angular stones ideal for draining water (**1017**).

4.17 **Context 1015** refers to the contemporary steel sheet piling. These piles consist of a steel cap measuring 0.08 m x 0.08 m, which sits on top of the steel retaining walls. This in turn is abutted by a wooden beam, **context 1026**, which measures 0.02 m deep and 0.08 m wide and serves as a base upon which to nail the supporting posts that run alongside the inner face of the canal.

4.18 Other features and deposits in Trench II include a modern timber post located 0.03 m to the west of **1023** measuring 0.05 m x 0.05 m, which has been driven into contexts **1017**, **1021**, **1020**, **1019**, **1028** and **1018**. There is also a small drainage pipe running through context **1020** (Fig 11).

#### 4.19 *Trench III – Temporary Bridge Installation*

Trench III (Figs. 12 and 13) was located 0.85 m west of the western edge of the Fountain Garden canal directly in line with the 20<sup>th</sup> Century Garden Gate where the location of the temporary bridge footings has been proposed. The trench measured 2m x 0.8 m with a depth of up to 0.4 m. A total of nine contexts were recorded (**contexts 1029 – 1037**).

At the base of the trench a layer of coarse grained sand was uncovered showing high levels of bio-turbation. This is overlain by context **1037**, a thin patchy lens of silty sandy gravels containing a fair amount of CBM and sherds of pottery. Both these contexts are truncated by **cut 1033**, a north south linear feature with a depth of 0.19 m presenting a concave profile and a rounded base. The width and length of this feature is unknown. It is filled by **1034**, a silty sandy



deposit with a high concentration of CBM, glass and predominantly Willow Pattern pottery sherds. As mentioned in section 3.14, this may be the equivalent to context **1021** in Trench II further south. This feature would seem to correspond to a shallow drainage gully running parallel with the canal with the presence of broken fragments of pottery and CBM aiding drainage. The dominant feature of this trench encompassed contexts **1029, 1030, 1031** and **1032**, which were the components of a steel piling tie back system also present on the other side of the canal observed in Trench IV.

#### 4.20 Trench IV – Temporary Bridge Installation

Trench IV (Fig. 14) was located directly opposite Trench III on the eastern side of the canal 0.85 m away from the edge and in line with the 20<sup>th</sup> Century Garden Gate. The trench measured 2 m x 0.65 m with a depth of 0.5 m. A total of nine contexts were recorded (**contexts 1041 – 1050**). This area is heavily affected by the presence of tree roots and the trench was not excavated beyond the topsoil (**1039**), which reached a depth of at least 0.4 m. However, sufficient depth was reached in order to observe the presence of the piling tie-back system (**context 1040**) also observed in Trench III on the western side of the canal. In this trench it appears to have been heavily affected by corrosion and disturbed by tree roots.

### 5 Archive, Artefacts and Ecofacts

5.1 **Deposit 1010** contained a significant number of garden pottery concentrated in the north-western-most corner of the sondage excavated against the northern plinth **1005/1006** and brick wall structure **1003**. A large iron nail was also uncovered from this context. A small bag of brick and tile fragment samples were taken for reference as well as a sample of the oolithic stone **1000** that had broken away. A number of finds were also retained from contexts **1020, 1021, 1034, and 1039**, details of which can be found in the Finds register below.

5.2 No environmental samples were taken during this archaeological evaluation.

5.3 The paper archive comprises of the context register, context record sheets, photographic register, and a 1:20 plan as well as administrative documents, general plans, sketches and correspondence.

**Finds register**

Context	Trench	Type	No.Bags
1000	TRI	Stone sample	I
1010	TRI	Pottery	I
1010	TRI	CBM	I
1010	TRI	Fe	I
1020	TRII	Fe	I
1021	TRII	CBM	I
1021	TRII	Pottery	I
1034	TR III	Pottery	II
1034	TRIII	Glass	I
1034	TRIII	Fe	I
1034	TRII	CBM	I
1037	TRIII	Pottery	I
1039	TRIV	Glass	I
1039	TRIV	Pottery	I



## 6 Synthesis

- 1.2 The archaeological investigation carried out on the threshold of the garden gate situated at the northern end of the 20<sup>th</sup> century gardens has enabled us to take a closer look at the gate fixtures and fittings in order to see how the gate has evolved over time as well aiding to finalise the design and to determine the extent of the masonry works necessary to renovate the gate.
- 1.3 The brick foundation structure supporting the stone plinth and wrought-iron railings into which this garden gate has been inserted was built in the late 17<sup>th</sup> century during the reign of William III and Mary II and originally served as the eastern limit of the Great Fountain Garden or Parterre Garden. However, it should be noted that the structure may have been moved to its present location during the reign of Queen Anne when she built the canals. It is a substantial construction with a depth extending beyond a depth of 0.7 m, the extent of which was not reached during this archaeological evaluation. However it may reach up to 1.3 m, the extent of a section of the foundations of the Tijou railings observed in the Triangle Garden during project HCP111<sup>5</sup>, although this section of the wall also supports the heavy Tijou Screen, which explains the substantial depth of the foundations in this particular location at least.

The threshold of this gateway is composed of two levels, contexts 1000 and 1001 which means that you would have stepped up into the Eastern Gardens from Home Park via two stone steps, but the level of today's 20<sup>th</sup> Century Garden is several centimetres higher than the original ground surface. The threshold's state of conservation is fair and the remains of several of the gate fittings are still present, including the lead caulked hinge sockets, the keep and the remains of lead caulking between the stones on the upper step of the threshold. However, the actual hinges on the plinths have been broken out probably when the present-day wooden gate was installed. Interestingly the stone steps are not composed of the same stone, the lower level 1001 is made up of Portland stone blocks whilst the upper level, context 1000, is composed of a much softer oolithic Ketton stone and sits on top of a brick footing context 1041. The reason behind this is uncertain but it may indicate that these two pieces of masonry were not installed at the same time. Certainly the brick footing related to the Ketton stone step partially sits on top of the main brick foundation 1003, but this particular relationship does not allow us to determine whether these two episodes took place quickly in succession or further apart in time. The softer nature of the oolithic stone (context 1001) has led to the formation of deep grooves progressively created by the continuous motion of opening and closing a gate. The pattern and width of these features present on the stone may give some indication of the type of gate that was previously installed.

Another remarkable feature about this gate installation is the fact that the plinth caps do not align perfectly with the plinths below and appear to have shifted slightly inwards. Furthermore, the fittings installed in the northern plinth cap do not align with the fixtures present on the plinth or the lower threshold step 1001. This could be one of two things: either the stones have been displaced naturally over time or these plinths are later additions indicating that the gate and the fixtures have undergone some changes at an unknown point in time, further highlighted by the fact that the fixtures on the northern plinth and stone cap do not match.

The excavation of several trenches in line with the 20<sup>th</sup> Century Gateway also gave the opportunity to look for any signs or potential for the existence of an earlier pathway between the threshold and the canal edge indicating the presence of a bridge. However, this area has clearly been repeatedly reworked, disturbed by tree rooting and the level of the ground raised making it highly unlikely to find any remaining evidence, and indeed no such feature was uncovered. Yet, I think we can be fairly certain that a simple gravel walkway has been in existence for some time.

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<sup>5</sup> Pickard, C, 2013. Triangle Garden, Hampton Court Palace: Archaeological Watching Brief Report. Oxford Archaeology. (P.7, 25)



The investigations carried out prior to the installation of the temporary bridge across the Fountain Garden canal (trenches II, II and IV) have brought to light the presence of a piling tie-back system related to the contemporary canal shoring structure, which is an element to consider before the bridge footings are installed. The most significant archaeological features encountered include an earlier timber shoring structure located 0.12 m further west than the contemporary canal shoring, which may relate to the original construction from the 1700's, and a possible north-south running gully, identified in Trench III (contexts 1033 and 1034) and possibly in trench IV as well (context 1021), which seems to be some sort of drainage system probably from the Modern era, although no datable material was uncovered.



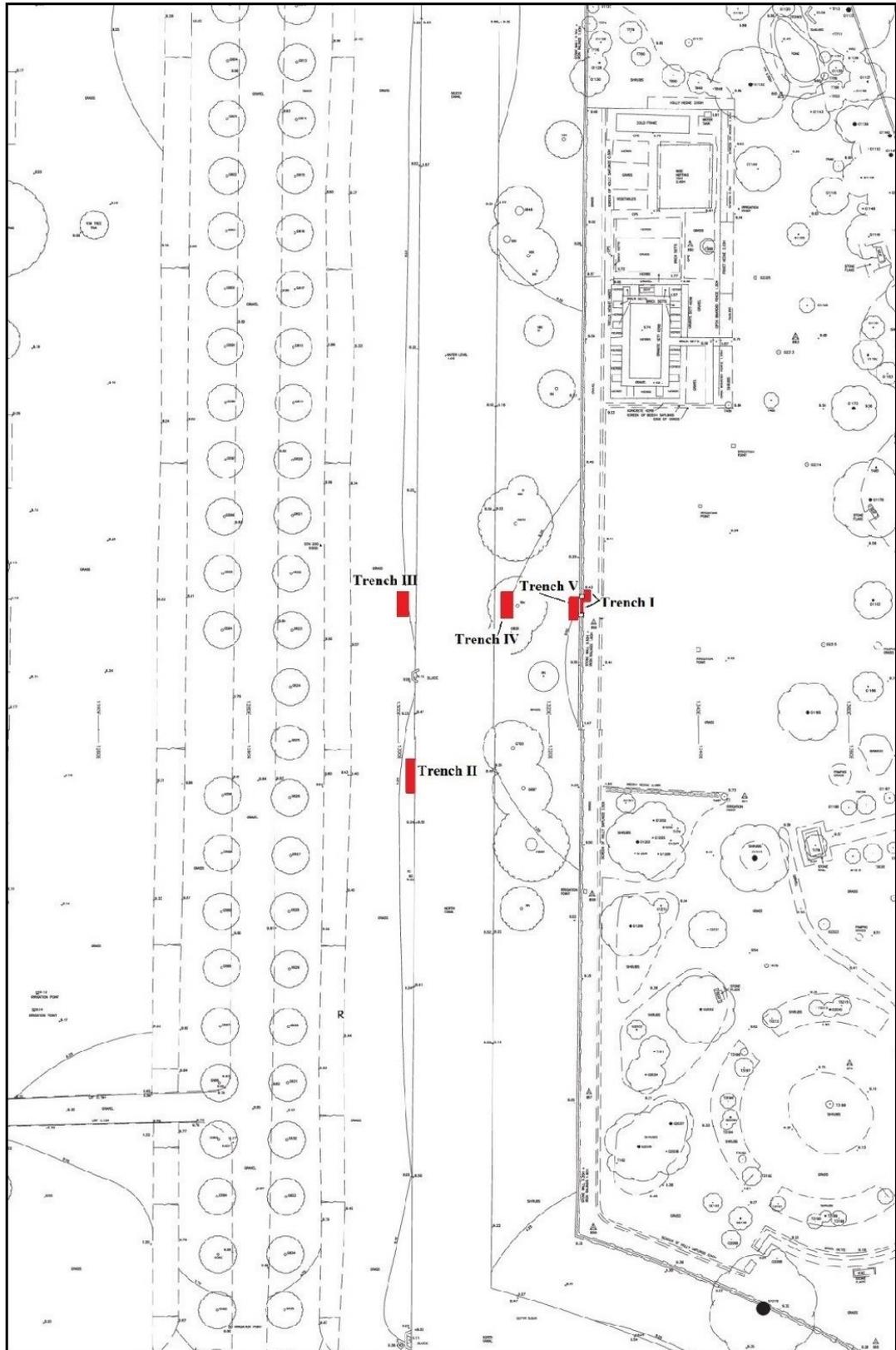


Figure 1: Extract from the 2007 topographical survey showing the location of trenches 1 – 5





**Figure 2: West-facing view of the 20th Century Garden Gate threshold**



**Figure 3: Detail of the grooves present on the Ketton stone 1000, and the gate fixtures on 1001**



Figure 4: View of Trench I with the plinthstone and associated brick footings



Figure 5: North-facing section in Trench I





**Figure 6: Break on the southern plinthstone**



**Figure 7: Break on the northern plinthstone**



Figure 8: Trench V on the western side of the 20th Century Garden gate threshold



Figure 9: North-facing section in Trench V showing gully 1047





**Figure 10: Fountain Garden Gates**



**Figure 11: Trench II, east-facing section**





Figure 12: Trench III



Figure 13: Gully 1033 in Trench III





**Figure 14: Trench IV**



8 **Appendix I: Archaeological registers****Context Register**

Context	Trench	Type	Description	Levels High (m OD)	Levels Low (m OD)	Relationships
1000	I	Masonry	Top step of threshold – oolithic stone blocks	9.47	9.33	Above, below 1049 and 1002
1001	I	Masonry	Lower step of Threshold – Yorkstone blocks	9.47	9.33	Above 1013, below 1002
1002	I	Masonry	An alignment of brick lying flat and sitting on top of 1001	9.44	9.38	Above 1001
1003	I	Group	North-south aligned wall comprising of 1012, 1013	9.42	8.83	Comprises of 1012, 1013
1004	I	Masonry	Brick structure abutting 1003	9.09	8.85	Above 1051, below 1006, 1011
1005	I	Masonry	Northern Portland stone plinth cap	9.73	9.53	Above 1006, below 1009
1006	I	Masonry	Northern Portland stone plinth	9.49	9.18	Above 1004, below 1005
1007	I	Masonry	Southern Portland stone plinth cap	9.69	9.5	Above 1008, below 1009
1008	I	Masonry	Southern Portland stone plinth	9.48		Above 1012, below 1007
1009	I	Deposit	Contemporary garden gravels over 1010	9.38	9.26	Above 1010, 1007, 1005
1010	I	Deposit	Silty sand garden soil over 1014	9.3	9.08	Above 1014, below 1009
1011	I	Deposit	Soft beige/yellow sand under 1014	9.05	8.85	Above 1004, below 1014
1012	I	Masonry	Brick wall elevation, part of 1003	9.42	9.14	Above 1013, below 1051, 1043
1013	I	Masonry	Brick wall foundation, part of 1003	9.14	8.85	Below 1012
1014	I	Deposit	Thin layer of broken CBM/mortar under 1010	9.08	9.05	Above 1011, below topsoil.
1015	II	Structure	Contemporary steel sheet piling along west side of the canal	9.22	9.15	Above 1016, below 1026



1016	II	Cut	Construction trench for sheet piling	9.15		Above 1019, below 1015, filled by 1015, 1017
1017	II	Fill	Deposit of loose gravels.	9.15		Above 1026, below 1028, fill of 1017
1018	II	Layer	Topsoil	9.25	9.15	Above 1028
1019	II	Layer	Lens of compact grey clay	9.08	9.04	Above 1020, below 1016
1020	II	Layer	Sandy peaty deposit	9.04	8.93	Above 1021, below 1019
1021	II	Layer	Layer of compacted CBM possibly the same as 1037	8.93	9.8	Above 1027, below 1020
1022	II	Structure	Earlier wood piling	9.05		Below 1027
1023	II	Structure	Wood block/post associated with 1022	9.15		Below 1027
1024	II	Structure	Wooden post	9.21		Above 1027, below 1018
1025	II	Service	Metal water pipe	9.05	9.02	Above 1021, below 1018
1026	II	Structure	Wooden plank associated with 1015	9.19	9.12	Above 1015, below 1017
1027	II	Layer	Silty sandy waterlogged layer	8.71		Above 1022, 1023, below 1021
1028	II	Layer	Silty sandy homogenous deposit	9.15	9.08	Above 1017, below 1018
1029	III	Structure	Sheet piling tie-back system	9.3		Above 1037, below 1035
1027	II	Layer	Silty sandy waterlogged layer	8.71		Above 1022, 1023, below 1021
1028	II	Layer	Silty sandy homogenous deposit	9.15	9.08	Above 1017, below 1018
1029	III	Structure	Sheet piling tie-back system	9.3		Above 1037, below 1035
1030	III	Structure	Steel support rod	9.21	9.18	Above 1037, below 1035
1031	III	Structure	Steel support rod	9.14		Above 1037, below 1035
1032	III	Structure	Steel support rod	9.16		Above 1037, below 1035
1033	III	Cut	Linear feature, probably a gully	9.17	8.98	Above 1037, filled by 1034



1034	III	Fill	Deliberate infill of gully feature - high concentration of pottery and CBM	9.17	8.98	Fill of 1033, below 1035
1035	III	Layer	Topsoil	9.37	9.19	
1036	III	Layer	Coarse-grained sand deposit	9.09		Below 1037
1037	III	Layer	thin lens of silty sandy gravels	9.18	9.11	Above 1036, below 1033
1038	IV	Layer	Contemporary gravel path			Above 1039
1039	IV	Layer	Topsoil			Above 1040, below 1038
1040	IV	Structure	Sheet piling tie-back system			Below 1039
1041	V	Structure	Brick footing supporting 1000	9.32	9.08	Above 1043, below 1042
1042	V	Layer	levelling layer for 1000	9.38	9.32	Above 1041, below 1000
1043	V	Layer	Compact sandy deposit	9		Above 1012, below 1041, same as 1011
1044	V	Layer	Coarse sandy deposit	9.66	9.57	Above 1048, below 1045
1045	V	Cut	Contemporary stake hole	9.57	9.19	Above 1044, filled by 1046
1046	V	Fill	Clayey silt fill of stake hole	9.57	9.19	Fill of 1045, below 1018
1047	V	Cut	Modern linear feature, gully?	9.52	9.19	Filled by 1050, 1048, above 1049
1048	V	Fill	Secondary fill of 1047	9.52	9.19	Fill of 1047, above 1050, below 1044
1049	V	Layer	Silty sandy layer	9.52	9.12	Above 1000, below 1047, same as 1010
1050	V	Fill	Primary fill of 1047	9.39	9.19	Above 1047, below 1048
1051	I	Layer	Compact sand layer	8.85		Below 1011



## Photographic Register

Shot Number	Description	View	Scale
1	General view of threshold	W	N/A
2	General view of threshold	W	N/A
3	General view of threshold	SW	N/A
4	General view of threshold	W	0.5 m
5	General view of threshold	NW	N/A
6	View of 1003 and 1001	W	0.2 m
7	View of 1003 and 1001	W	0.2 m
8	Detail of 1001	In plan	0.2 m
9	Detail of 1001	In plan	0.2 m
10	Detail of 1002	In plan	0.4 m
11	General view of southern end of threshold	In plan	0.4 m
12	Detail of lead caulking on 1001	In plan	0.2 m
13	Contexts 1000 and 1001	In plan	0.2 m
14	Contexts 1000, 1001 and 1002	In plan	0.2 m
15	Contexts 1000, 1001 and 1002	In plan	N/A
16	Contexts 1003, 1000 and 1001	In plan	0.5 m
17	Contexts 1003, 1000 and 1001	In plan	0.5 m
18	Detail of 1003	In plan	0.2 m
19	Detail of 1003	In plan	0.2 m
20	Detail between 1000 and 1001	W	0.2 m
21	Detail of northern pier and gate fixtures	N	0.2 m
22	Detail of southern pier and metal fixtures	S	0.2 m
23	View of northern pier and plinth	W	0.5 m
24	View of northern pier and plinth and the excavated sondage with 1003 and 1004	W	0.4 m
25	Contexts 1012 and 1013	W	0.4 m
26	Oblique view of northern side of threshold	SW	0.4 m
27	Oblique view of 20th century garden gate	SW	0.4 m
28	General view of 20th century garden gate	SW	N/A
29	General view of 20th century garden gate	SW	N/A
30	General view of 20th century garden gate	NW	N/A
31	General view of 20th century garden gate	W	N/A
32	Threshold steps: 1000, 1001	In plan	0.5 m
33	Detail of gate fixtures on the southern end of threshold and pier 1008, plinth 1007	S	0.05 m
34	Threshold steps	In plan	N/A
35	Detail of keep and gate fixtures on 1001	In plan	0.05 m
36	Contexts 1005, 1006, 1012, 1013, 1004	W	0.5 m
37	Detail of relationship between 1006 and 1004	SW	N/A
38	Detail of relationship between 1006 and 1004	SW	N/A
39	Contexts 1005, 1006, 1012, 1013	SW	N/A
40	Detail of 10004	W	N/A
41	View of 20th century garden gate	E	N/A



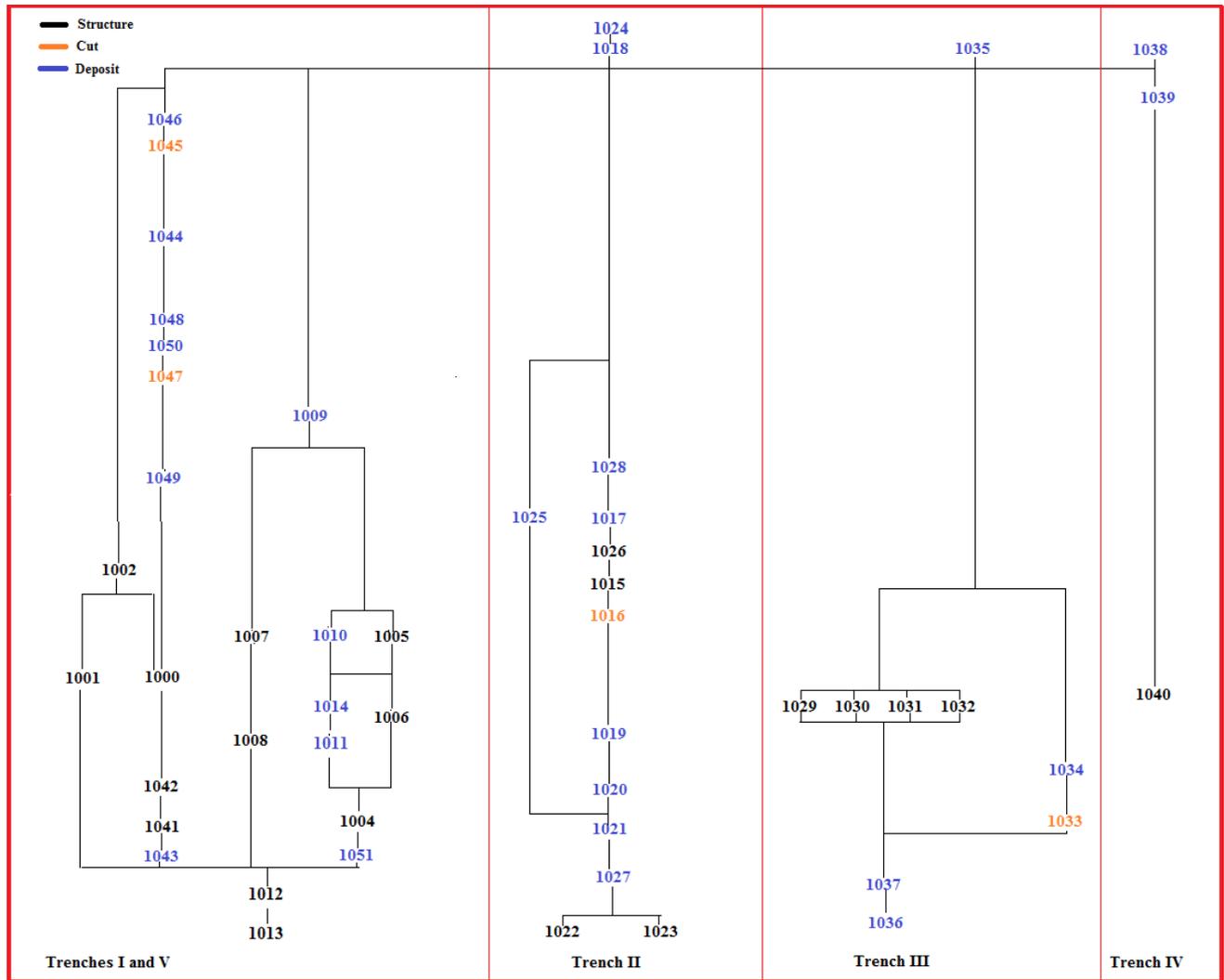
42	General view towards Great Fountain Gardens	SW	N/A
43	Section showing deposits 1010, 1011, 1014	S	0.5 m
44	Detail of fissure in the northern plinth stone	W	N/A
45	Detail of fissure in the southern plinth stone	W	N/A
46	View of palisade wall further to the south	SW	N/A
47	View of palisade wall further to the south	SW	N/A
48	Fountain Garden gates	E	N/A
49	Detail of fixtures on Fountain Garden gates	E	N/A
50	Northern pier of Fountain Garden gates	E	N/A
51	Southern pier of Fountain Garden gates	SE	N/A
52	Southern pier of Fountain Garden gates	NE	N/A
53	Fountain Garden Canal north, Trench II	E	0.5 m
54	Fountain Garden Canal north, Trench II	E	0.4 m
55	General view of Trench II	E	N/A
56	Trench II	E	0.5 m
57	Trench II	E	0.5 m
58	Trench II	E	0.5 m
59	North-facing section in Trench II	N	0.4 m
60	South-facing section in Trench II	S	0.4 m
61	General view of Trench II	N	N/A
62	General view of Trench II	S	N/A
63	Trench II	S	N/A
64	Trench II	N/A	N/A
65	General view of Fountain Garden canal north	NE	N/A
66	General view of Fountain Garden canal north	SE	N/A
67	North-facing section in Trench II	S	0.4 m
68	North-facing section in Trench II	S	0.4 m
69	North-facing section in Trench II	S	N/A
70	Trench II	S	0.4 m
71	Contexts 1022, 1023, 1025	S	0.4 m
72	General view of Fountain Garden canal north	NE	N/A
73	General view of Fountain Garden canal north	SE	N/A
74	Context 1021	W	N/A
75	View of 20th Century Garden gate location	E	N/A
76	Fountain Garden canal north	SE	N/A
77	Trench III	NE	N/A
78	Piling tie-back system 1029, 1030, 1031	E	0.5 m
79	Trench III	N	0.5 m
80	West-facing section in Trench III	E	0.4 m
81	West-facing section in Trench III	E	0.4 m
82	Trench III	E	0.5 m
83	South-facing section in Trench III	N	0.4 m
84	South-facing section in Trench III	N	0.4 m
85	North-facing section in Trench III	S	N/A
86	Trench IV	W	0.5 m



87	Trench IV	S	0.5 m
88	Piling tie-back system 1040	W	0.4 m
89	Piling tie-back system 1040	W	0.4 m
90	East-facing section in Trench IV	W	0.4 m
91	General view of trenches III and IV	W	N/A
92	General view of Fountain Garden canal north	SW	N/A
93	Gravel infill 1048 in Trench V	E	0.5 m
94	Gravel infill 1048 in Trench V	N	0.5 m
95	Gravel infill 1048 in Trench V	N	0.5 m
96	Trench V, contexts 1041, 1043, 1000	E	0.5 m
97	West-facing section in Trench V, contexts 1000, 1041, 1042, 1043	E	0.4 m
98	West-facing section, north end	E	0.4
99	West-facing section, north end	SE	0.4 m
100	West-facing section, north end	E	0.4 m
101	West-facing section, detail of 1041	E	0.4 m
102	West-facing section, detail of 1041	E	0.4 m
103	West-facing section, detail of 1041	E	0.4 m
104	Plinthstone 1005/1006, 1041	E	N/A
105	North-facing section Trench V, 1049, 1047, 1048, 1050	S	0.4 m
106	South-facing section in Trench V, 1047, 1048, 1049	N	0.4 m
107	East-facing section 1047, 1048, 1049	W	0.4 m
108	Contexts 1041, 1000, 1042	W	N/A



Stratigraphic Matrices for trenches I to V



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