

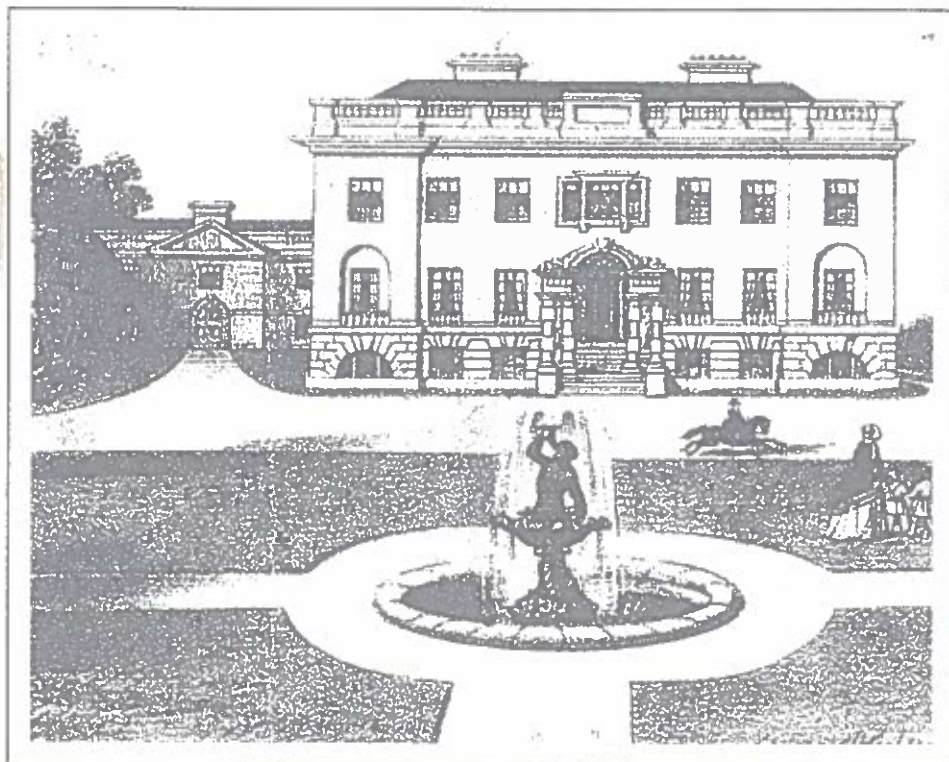
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CAMBRIAN ARCHAEOLOGICAL PROJECTS LTD.

Peach House Excavations 2001, National Botanic Garden of Wales, Carmarthenshire

Archaeological Excavation



Middleton Hall. Lithograph by Augustus Butler, 1853

**By Phil Evans BA
and
Helen Milne MA**



CAP Report No. 194

ARCHAEOLOGICAL EXCAVATION

**Peach House Excavations 2001,
National Botanic Garden of Wales,
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**BY *Phil Evans BA (Hons)*
and
*Helen Milne MA***

**Prepared for:
National Botanic Garden of Wales
Carmarthenshire**

CAP Report No: 194

Date: October 2001



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ii) IFA Standards and Guidance

THE INSTITUTE OF FIELD ARCHAEOLOGISTS (IFA)

Standard and Guidance for an archaeological excavation

The Standard

An archaeological excavation will examine and record the archaeological resource within a specified area using appropriate methods and practices. These will satisfy the stated aims of the project, and comply with the *Code of conduct*, *Code of approved practice for the regulation of contractual arrangements in field archaeology*, and other relevant by-laws of the IFA. It will result in one or more published accounts and an ordered, accessible archive.

Definition of excavation

The definition of archaeological excavation is a programme of controlled, intrusive fieldwork with defined research objectives which examines, records and interprets archaeological deposits, features and structures and, as appropriate, retrieves artefacts, ecofacts and other remains within a specified area or site on land, inter-tidal zone or underwater. The records made and objects gathered during fieldwork are studied and the results of that study published in detail appropriate to the project design.

Purpose of excavation

The purpose of excavation is to examine the archaeological resource within a given area or site within a framework of defined research objectives, to seek a better understanding of and compile a lasting record of that resource, to analyse and interpret the results, and disseminate them.

The Standard and Guidance for an archaeological excavation was formally adopted as IFA approved practice at the Annual General Meeting of the Institute held on 14th October 1994.

Non Technical Summary

The following report is the result of work undertaken by Cambrian Archaeological Projects Ltd. on behalf of The National Botanic Garden of Wales, in order to further understanding the site located during the 2000 excavations. The works undertaken during 2001 included excavation of the southern room of the Glasshouse back to the Phase 2 structure, and the excavation of three trenches to the east of the building to look for the remains of a possible manure pit. Excavation in room 2 of the Stokehouse was also undertaken to try to locate the return/southern wall of the original "cottage" building (see location Fig. 2).

Excavations to the east of the Glasshouse revealed that the internal Phase 2 brick floor continued through the arches and also located the remains of a red brick drain which probably related to an external manure pit to the east of the present structure. Excavation of the southern room of the glasshouse showed the constructional sequence of the various heating systems from Phase 2 through to Phase 4. Excavation within the stoke house revealed the return/southern wall of the original Phase 1 "cottage".

1 Introduction

Planning background

Cambrian Archaeological Projects Limited has been asked by the National Botanic Garden of Wales to act as their agent for archaeological excavation of the Southern room of the Glasshouse, three trenches immediately to the west of the Glasshouse and a trench within room 2 of the stoke house (Fig. 2). The works were undertaken in accordance with a brief written by Robin Whalley, a private consultant to the National Botanic Garden, who also monitored the works whilst they were in progress.

Site description

The Double Walled Garden (PRN 30968) and Peach House at Middleton Hall, which comprises of a Stokehouse on the western side of the inner wall of the Double Walled Garden and a Glasshouse on the eastern side, (NGR SS 52301820) were built by Paxton towards the end of the 18th century. They were established before 1815, and were extended to the north between 1815 and 1824 to enclose an orchard (PRN 30969).

Soil and geology

The solid geology beneath Middleton Park comprises Devonian Old Red Sandstone of the Downton series (Raglan Marl Group), steeply inclined to the south. An unconformity runs SW-NE across the north-west area of the site, Ordovician shales of the Arenig and Llanvirn series, follow a similar dip, rising from beneath the sandstones to the north-west.

Drift geology comprises glacial boulder clays that overlie both the sandstones and the shales through most of the park. Sandstone outcrops in the west of the site, and shales likewise in the north west corner.

Archaeological background (Figs 2, 3, 4 & 5)

William Paxton bought the Middleton Estate in 1789 and employed architect Samuel Pepys Cockerel (1753-1827) to design and build a new mansion at Middleton between 1793 and 1795. Much of the garden design can be attributed to James Grier, Paxton's engineer, who also probably had a hand in the development of the walled garden. It has been suggested that other landscape gardeners including William Emes (1730-1803) may have played a part in the development of the landscape.

There would have been two main aspects that would have influenced the position of the walled garden in the 18th century. The first related to the contemporary fashion, for 'natural landscapes', and the second would be to take advantage of the nature of the land to provide the practical necessities for horticulture.

In all likelihood the walled garden is a designed entity surviving from the Paxton landscape. It does not appear to be part of a continuing development from an earlier phase of building(s) in that position. However, a small portion of stone wall which survives today as part of the 'Peach House' probably relates to an earlier 'cottage' or other small building in this area. Further changes occurred within the walled garden throughout Paxton's life and by the time of the Estate Map in 1824. The outer north wall seems to have disappeared since Horner painted the garden in 1815 (Fig.3), and may have never been built at all, whilst the area to the immediate north of the garden has been enclosed by a wall which links with the original walled garden. The Tithe map of 1847 shows that two cross walls in the slip garden have been inserted and by 1886 two new entrance gates had been constructed, as had a small enclosed area in the south-west of the slip garden.

Previous Archaeological work in the Walled Garden (Fig. 6)

Previous archaeological works within the walled garden have been undertaken by Cambrian Archaeological Projects (CAP) throughout the development of The National Botanical Gardens at Middleton. During 1997, CAP undertook a series of trial trenches to ascertain the extent of the survival of the floor inside the 'Peach House' and establish the phasing of the standing remains. Further trenches were excavated to establish the layout of the garden paths within the inner garden and to establish the nature of the central feature (CAP Report No. 32). An archaeological watching brief was also undertaken during the excavation of a modern service trench across the garden, from the south-east corner, through the northern gateway, on to the north-west corner of the orchard (CAP Report No. 149). Archaeological work undertaken during 2000/2001 (CAP Report 167) involved excavation within the Peach House to investigate the nature of the heating system, and also evaluation trenches to ascertain the layout of the Double Walled Garden (Plates. 1-4).

Peach House Phasing

The 2000 excavations revealed that the Peach House had undergone six main phases of development since their original layout c.1800.

Phase	Description	Date
<i>1</i>	<i>Stone 'cottage' fossilised in inner west wall.</i>	<i>Pre-1800</i>
<i>2a</i>	<i>Inner and outer walls of the garden, and 'Peach House' with manure heating.</i>	<i>c. 1800</i>
<i>2b</i>	<i>Infilling of manure heating system and division of structure. Possibly no heating system in use.</i>	<i>c. 1800-50</i>
<i>3</i>	<i>Furnaces and two beds (with red bricks) added to 'Peach House'.</i>	<i>c. 1850</i>
<i>4</i>	<i>Heating system of 'Peach House' replaced (with yellow bricks). Glasshouse re-built.</i>	<i>c. 1906</i>
<i>5</i>	<i>'Peach House' furnaces out of use. Glasshouse re-built.</i>	<i>c. 1950s</i>
<i>6</i>	<i>MSC 'restoration' of brick walls.</i>	<i>1970s</i>

2 Aims and Objectives

The Stokehouse area:

The aim here is to try to identify the extent of the phase 1 building and its relationship to the Phase 2 development.

Excavations to the east of the Glasshouse:

The aim of these excavations is to uncover the lower levels contemporary with the Phase 2 brick arches and to investigate the purpose of these arches in connection with the Phase 2 manure heating system. Also to investigate the possibility of a floor to the system and any associated retaining wall running parallel to the east wall of the Glasshouse.

South room of Glasshouse:

It is proposed that this area is excavated stratigraphically down to the Phase 2 floor which is contemporary with the arches. The aim of the excavation is to uncover the duct heating system of Phases 3 and 4, record their extent and verify the assumptions made about their directions after the earlier excavations. After recording the heating system the excavation will remove Phases 3 and 4 and uncover the Phase 2 structure.

3 Methodology

All excavation was done by hand.

Recording was in four formats:

- Photographic record
Photographs were taken in 35mm colour slide, black and white print and digital formats.
- Drawn record
Site drawings, where appropriate were produced at scales of 1:10, 1:20 or 1:50 on drafting film. Finished drawings have been related to Ordnance Survey datum and published boundaries where appropriate.
- Written record
Written text was produced using a continuous numbering sequence for all contexts, and identified features tied in to the OS survey grid where applicable.
- Survey record
All trenches and features were surveyed into the OS survey grid.

All works were undertaken in accordance with both the IFA's *Standards and guidance: for archaeological excavations* and current Health and Safety legislation.

4 The Results of the Excavations

The following numbers contained within brackets () refer to context numbers allocated during the excavations. A detailed list of all contexts is given in Appendix III of this report. Phase numbers preceding each section of text refer to the phases of features in each individual trench, and which features are associated with these phases (see Phase table above).

Trench 1 (Figs. 5 & 6, Plate nos.6-8)

Phase 2a

Two archways in the eastern wall of the Peach House were revealed during the excavation of this trench. The base of the arches were at 1.2m below the present ground surface and the piers of the arches had been constructed on a layer of laid stone (18).

Phase 4

After removal of the ceramic drainpipes (8), located during the previous excavation, a deposit of large angular stones was uncovered (4), which filled the entire trench. This deposit was c.0.4m deep and another layer of ceramic drainpipes (8) was located directly beneath deposit 4. After the removal of the drainpipes a north/south cut (12) was visible occupying the full width of the trench. This cut was filled by a yellow compact clay (13) with a rough stone and broken brick culvert (15) located at its base. Further excavation of the western side of the trench revealed another stone culvert (16) 0.1m from the east wall of the Peach House at the same depth as culvert.

Trench 2 (Fig. 7, Plate no. 9)

Phase 2a

Excavation of this trench revealed a very similar sequence of deposits to that found in Trench 1. However, the culvert (27) nearest the eastern wall of the Peach House was neatly constructed of red bricks and lay directly beneath the level of a red brick floor surface (62) which projected 0.1m out beneath the eastern wall of the Peach House.

Trench 3 (Fig. 8, Plate nos. 10-11)

Phase 4

The uppermost deposits within this trench were similar to those located in Trenches 1 and 2. However, the large angular stone deposit and ceramic drainpipes terminated c. 1m from the northern section of the trench where a cut (39) for their deposition was clearly visible.

Phase 2a

A red brick culvert (38) was located at the base of the eastern wall of the Glasshouse in alignment, and at the same depth as the culvert in Trench 2. The culvert continued at a right angle corresponding with the corner of the Glasshouse and ran towards the inner western wall of the garden, rising slightly to the west.

Trench 4 (Fig. 9, Plate no. 12)*Phase 1*

A trench was excavated within Room 2 of the Stokehouse in order to attempt to locate the return/southern wall of the original Phase 1 'cottage' building. Excavation revealed a cut (42) 0.6m in width running at right angles from the butt joint in the western wall of the Stokehouse at the southern point of Room 2. At the eastern end of the trench, possible foundation remains (43) were located in this cut.

Phase 4

A red brick structure was located at the eastern end of this trench, possibly a set of steps associated with furnace 2, but further excavation was not undertaken at this time as it was not in the remit of the brief. Two other features were also exposed, firstly a Phase 4 service trench with ceramic pipe, and secondly a deep cut feature (44) which provided no dating evidence but which probably relates to Phase 4, as the uppermost fill consists of an ash and cinder spread. This is identical to the material in which the Phase 4 flooring is bedded.

Southern room of Glasshouse (Figs. 10-15, Plate nos.13-38)*Phase 2a (Figs.10 & 16, Plate nos. 28, 29, 31, 32)*

Excavation of the southern room of the Glasshouse revealed that the double brick walls with archways (64) continued along the entire length of the eastern side of the Glasshouse. In the Southern Room the inner eastern wall had six arches, and in the areas where the central slot could be fully excavated, each arch had a corresponding arch on the external wall. A double wall (65) was also exposed running along the southern side of the building, with a single arch centrally located in both walls. This wall terminated 1.1m from the western wall of the Glasshouse. Scarring on the western end of the southern wall (Plate. 33), and mortar patches on the red brick floor (which covered the entire building) suggests that another arched wall ran north/south along the western side of the building at this point (Fig. 16). Another similar feature at the eastern end of the southern wall (Plate. 34) would appear to be a scar from wooden beam or other structural fastening. The western wall of the Glasshouse forms part of the inner wall of the garden, and is constructed in the same manner as the rest of the inner wall i.e red brick wall with stone foundation. However, within the southern room of the Glasshouse the stone foundation is covered with a red brick batter (Plate. 35), which has a red brick culvert (66), similar to that located in Trenches 2 and 3, forming a base beneath the batter (Plates. 31-32).

Phase 2b (Fig.10, Plate nos. 28,30, 36-7)

Excavations revealed that the gap between the double arched walls and the interior of the building was backfilled with a mid brown/yellow clay deposit (67) between the time when the manure heating system was in use and the construction of the furnace heating system. During this phase the gap between the two arched walls, on the eastern and southern sides of the building, were capped with bricks and sealed with mortar. Resting on this mortar spread, bricks placed at regularly spaced intervals appear to form beam supports for a wooden floor (Plate.30). At this time two drains were also created over the gap in the arches, one at the northern end of the eastern wall, which still has its flagstone capping, and the other half way along the same wall (Plate. 37). During this phase it would appear that the building of phase 2 was divided, with the insertion of a stone wall at the northern end of the South Room This again has regularly spaced

bricks on its upper surface, suggesting beam supports for a floor. The western arched wall was also removed during this phase and another brick wall (68) constructed in the south western corner of the building.

Phase 3 (fig. 11, Plate nos. 14 - 19)

The southern and eastern outer walls of the South Room were raised 0.5m above the top of the outer arched walls of the earlier phases, to a height of c.1.8m above present ground level (CAP Report No. 167 p.16). On the southern wall there is evidence of scarring in the render (Plate 38), probably from wooden beams, suggesting a structure above the tops of the walls consisting of wood and glass. This phase also saw the construction of the cold air return flues (69 & 70) for the Phase 3 and 4 furnace heating systems. The return flues consisted of two courses of red brick for the side walls, and sandstone slabs sealed with mortar for the capping. The base of the flues was not slabbed, but consisted of the clay deposit into which they were bedded. The cold air sank back into the vents via red brick 'chimneys', which rose vertically from the flue to the Phase 3/4 floor level of the southern room of the Glasshouse.

Phase 4 (Figs. 12-15, Plate nos. 13-27)

Excavation of the southern room of the Glasshouse allowed the constructional sequence of the Phase 4 heating system to be assessed. The cold air return flues (69 & 70) were already in place from the Phase 3 furnace and were incorporated into the back of the air heating chamber of the Phase 4 furnace (Plates. 15-17). The eastern wall of the air heating chamber, in the Phase 4 furnace, had been constructed against a cut into the deposits that were used to infill the Phase 2 structure. The gas flue for the furnace was constructed next; a mixture of sandstone and slate slabs were used for the base, three courses of bricks formed the side walls, and 0.06m thick tiles, sealed with mortar formed the capping. A cast iron pipe was laid within this, directing the gases from the furnace into the main part of the flue (Plates. 14 & 25-26). The gases were directed south along the western wall of the south room and exited the Glasshouse via a chimney in the western wall (Plate. 27). The final part of the heating system's construction saw the insertion of three hot air flues. Two flues led from the hot air chamber, behind the main furnace, north and south against the western wall of the Glasshouse and the third ran directly east across the middle of the room. The construction of these flues was similar to the cold air and furnace gas flues. After the construction of the heating system the whole of the southern room of the Glasshouse was paved with large slate slabs (Plates. 1 & 5) with circular vent holes cut to correspond with the position of the hot and cold air outlets. These holes were then covered with decorative cast iron grills.

5 Final discussion and conclusions

During this series of excavations it has been possible to gain more information about the earlier Phase 2 structure, and the constructional sequence of the heating systems within the southern room of the Glasshouse, and to locate the southern wall of the original Phase 1 'cottage' has also been located, whilst the external trenches provided evidence that the manure heating system suggested to have existed, had been destroyed by later activity.

Trenches 2 and 3, excavated to the east of the Glasshouse, revealed that the double arches and red brick flooring of the Phase 2 manure heating system, located within the Glasshouse during the 2000 excavations, continued through to the east. A well constructed red brick culvert was also located within Trenches 2 and 3, lying at a level directly beneath the red brick flooring, and it seems likely that this culvert could have provided drainage for an outer manure pit. Unfortunately, the insertion of a later culvert 2 m to the west has destroyed any potential brick flooring and outer retaining wall, expected to have been associated with a manure heating system. Excavation of Trench 3 also verified that the phase 2 brick arches finished at the same point as the visible Phase 3 outer walls. Trench 1, which was excavated to the east of a single row of arches, at the northern end of the Glasshouse, revealed that the arches continued through to the eastern side of the Glasshouse. However, the excavations also revealed that these arches had been built on a stone foundation and there was no evidence of a brick floor protruding through to the east. It should also be noted that excavations within the north room of the Glasshouse, during the 2000 excavations (CAP Report 167), also revealed no sign of a brick floor within this area. It therefore appears that the manure heating system had terminated by this point, probably at the northern end of the middle room of the Glasshouse, in which the double arches and the brick floor were located during the 2000 excavations. Two rough stone culverts were also located in Trench 1. It can be assumed that the easternmost culvert is a continuation of the eastern culvert located in Trenches 2 and 3, and that the western culvert joins into the red brick culvert located in Trenches 2 and 3. Within Trench 3 the brick culvert slopes down along the southern side of the Glasshouse and then turns at a right angle to flow northwards, it would therefore appear that at some point the two culverts meet and run eastwards towards the centre of the garden.

Within the South Room evidence of an inner arched western wall c.1m from the west wall of the Glasshouse was located. Also beneath a brick batter, which was probably built to support the original inner wall of the garden, another red brick culvert similar to the culvert located to the east of the Glasshouse was revealed.

Another phase to the development of the Peach Houses was also revealed during these excavations (2b). During this phase the gap between the double arches was filled in and then capping it with mortar. The inner western wall was dismantled, a wooden floor constructed and a stone wall built at the northern end of the southern room. It would appear that during this phase the Glasshouse was being used just as a green house as no conclusive evidence exists for a heating system being in use during this phase.

The next development of the Glasshouse was the construction of the Phase 3 heating system, of which only the cold air return flues survive in the southern room of the Glasshouse. The constructional sequence of the Phase 4 structure is as follows:

- 1 The construction of the furnace and heating chamber.
- 2 The furnace gas flue.
- 3 The hot air flues.
- 4 Slate slab floor with cast iron vents.

The excavations also validated assumptions made about the directions of air and gas flow after the 2000 excavations.

In order to ascertain the full extent of the Phase 2 structure and its relationship with the single arched structure beneath the northern room of the Glasshouse further excavation would be required. Also, if any future works were undertaken in order to refloor the Stokehouse then further archaeological work should be undertaken in order to assess and record other features which may be disturbed, such as those revealed in Trench 4.

6 Acknowledgements

Thanks to; Kevin Blockley for his help and advice during the completion of this report, Helen Milne for help with the excavations and for her illustrations. Thanks also to; Robin Whalley, and the staff at the National Botanic Gardens.

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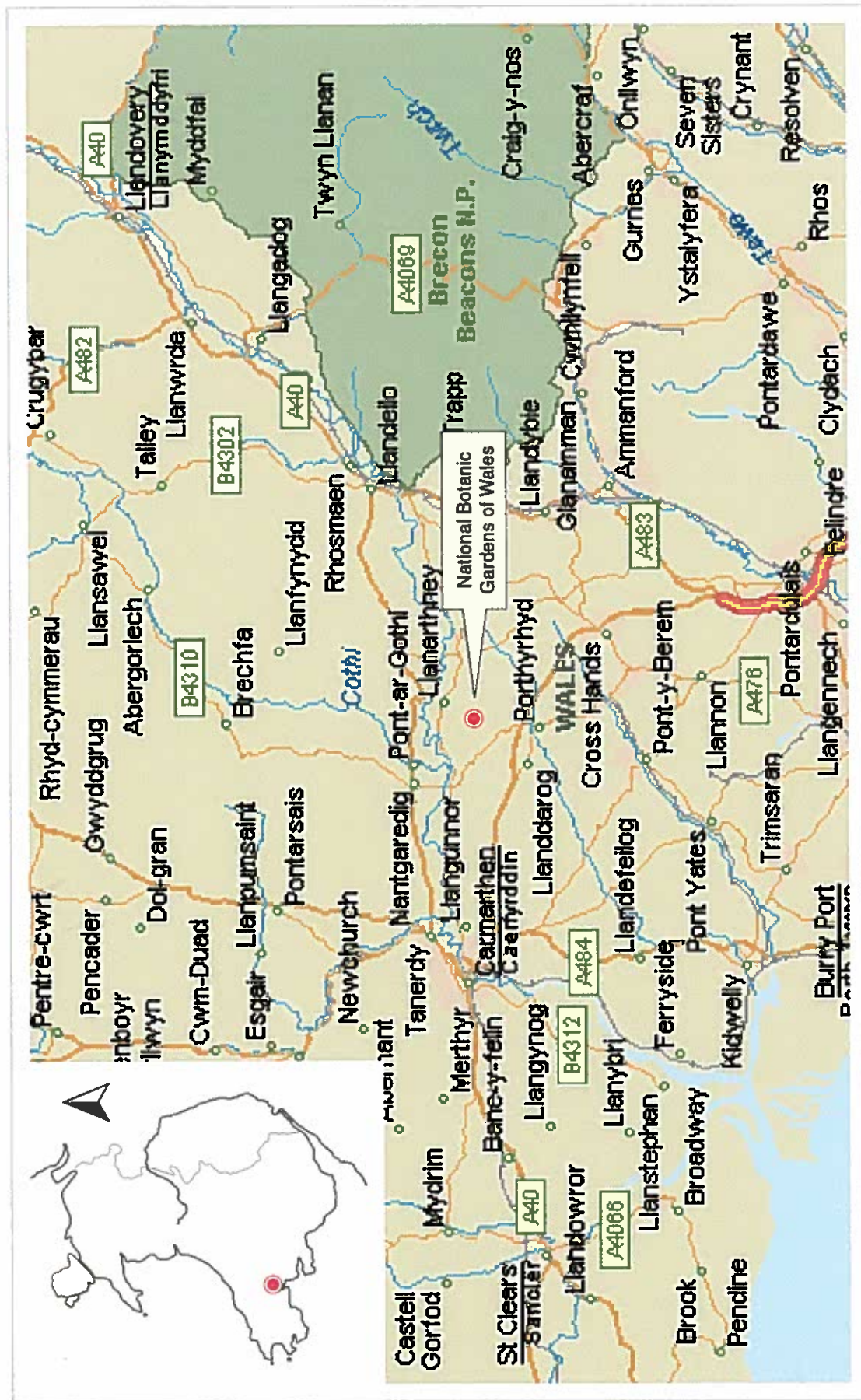


Fig 01: General Location Map

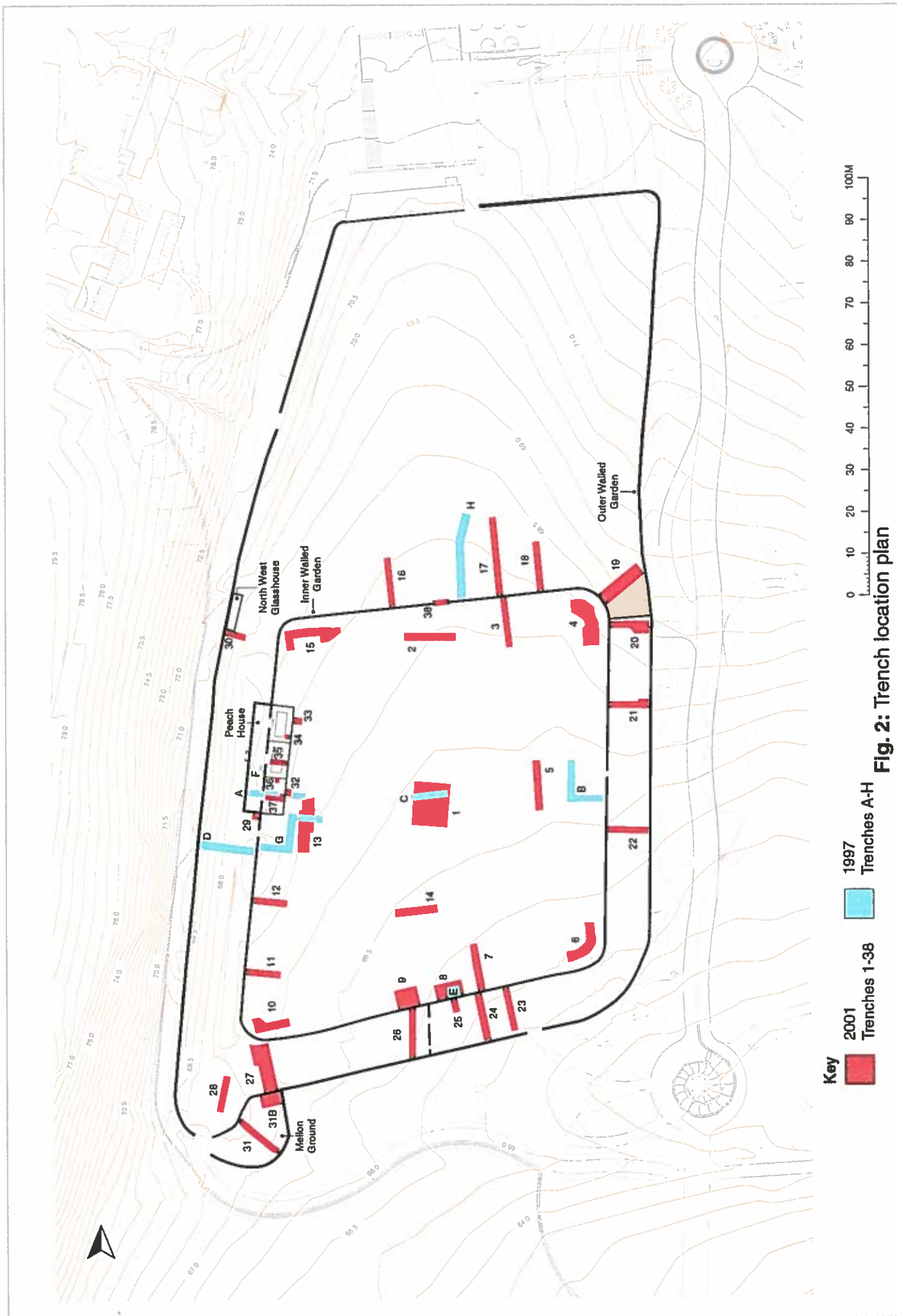


Fig. 2: Trench location plan



Fig 03: Horner Painting of 1815



Fig.4: Simple Heating System. Described by John Chamberlain c.1800

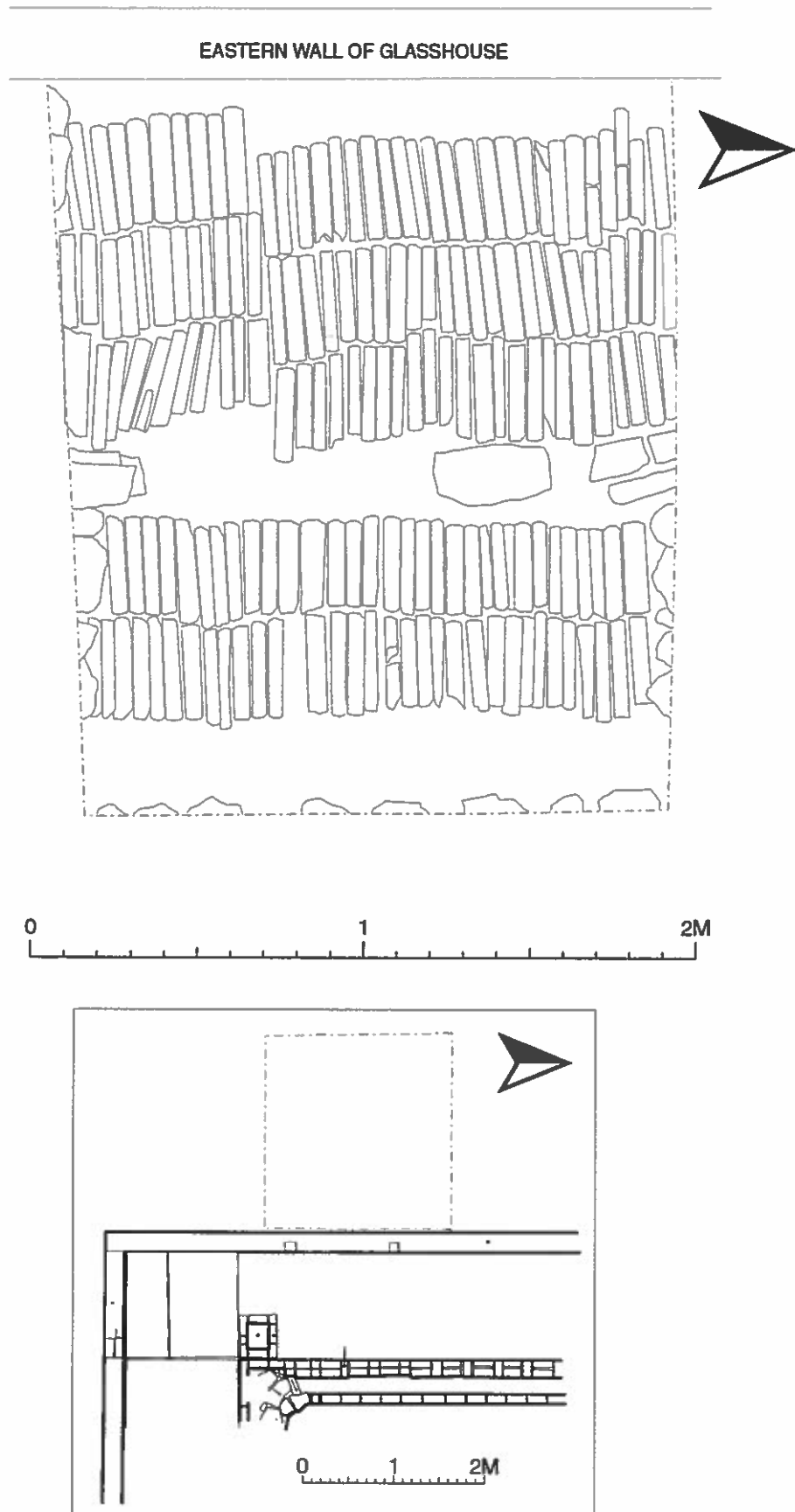


Fig 05: *Trench 1* location and plan.

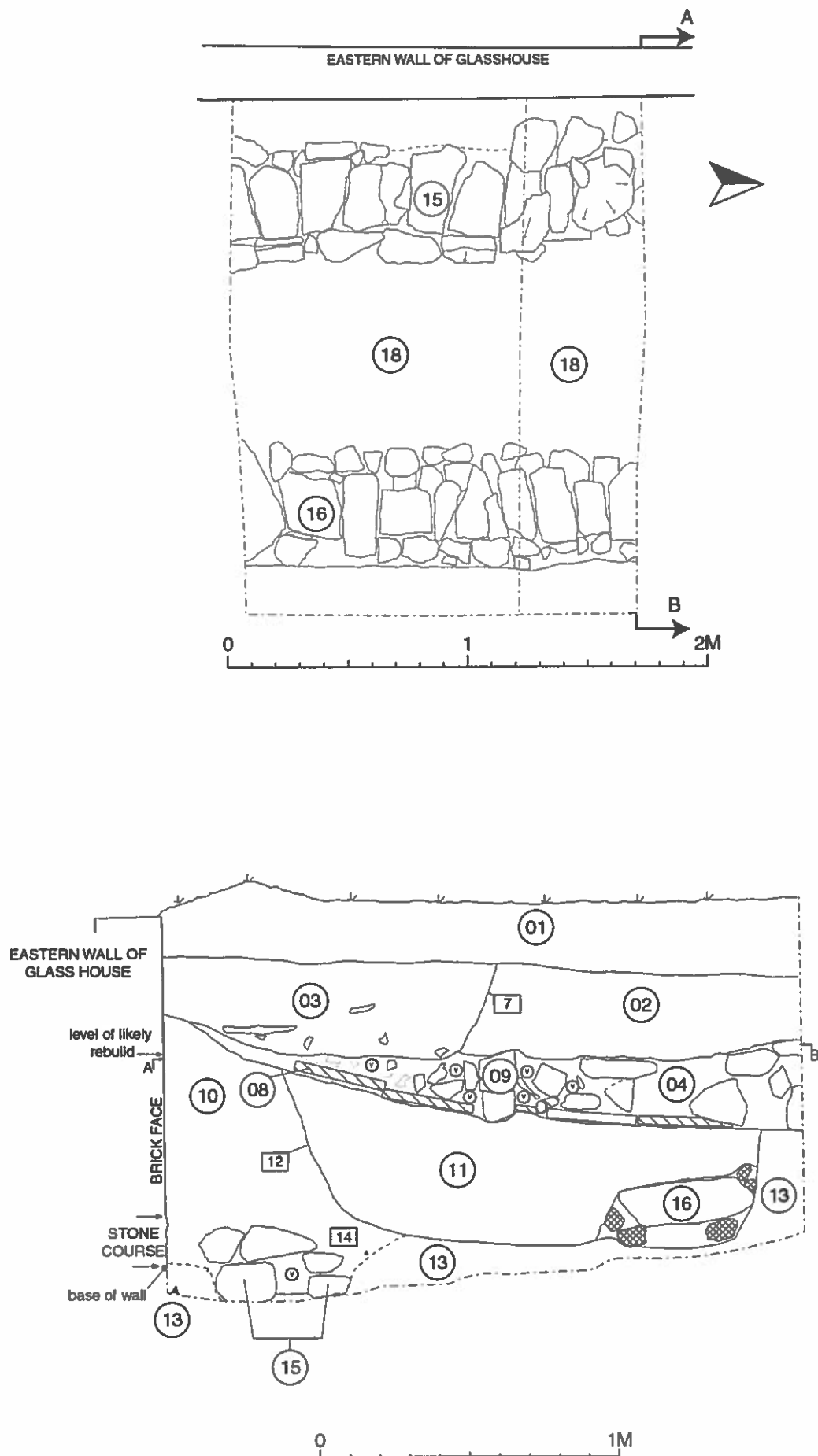


Fig 06: Trench 1 plan and south facing section.

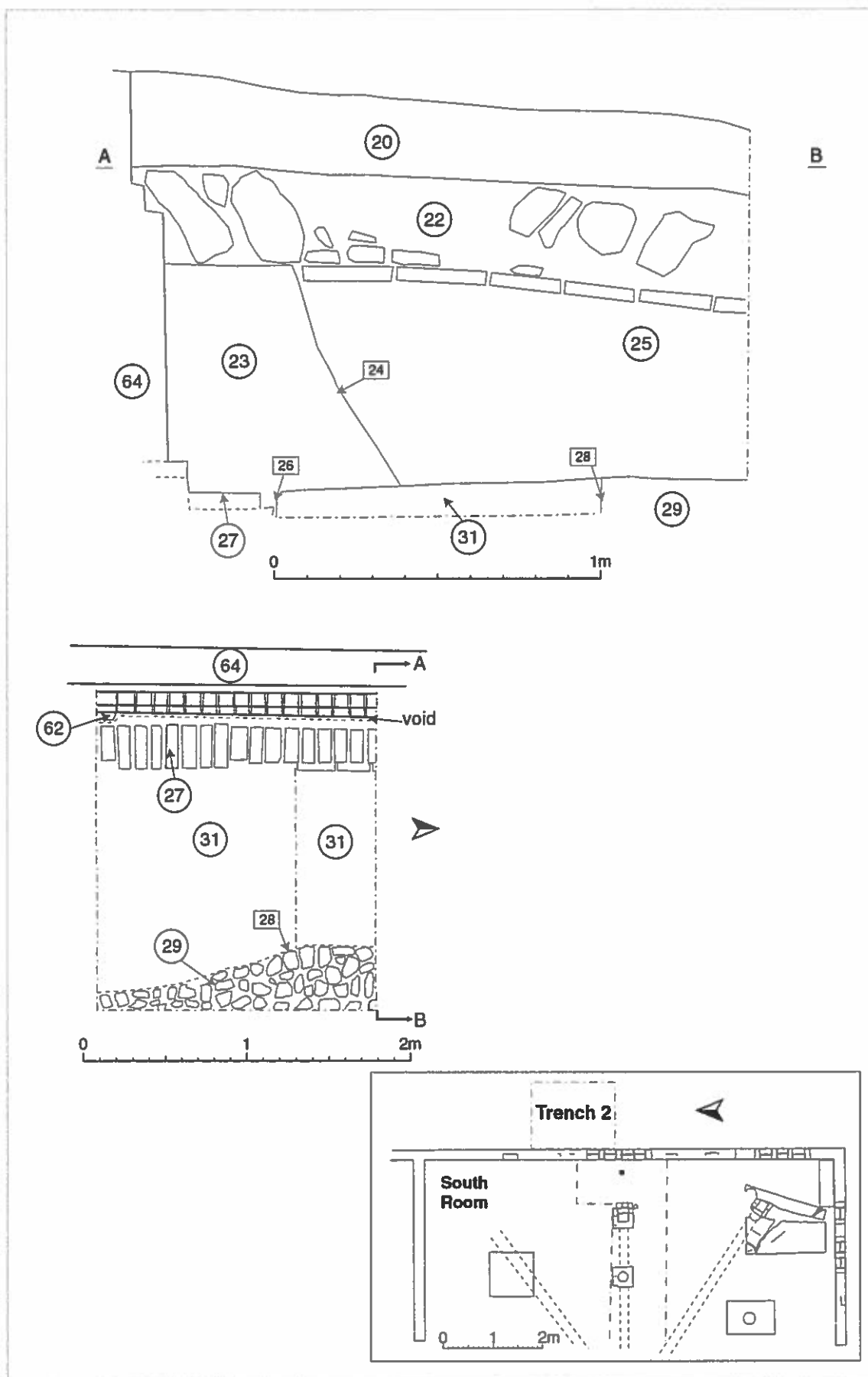
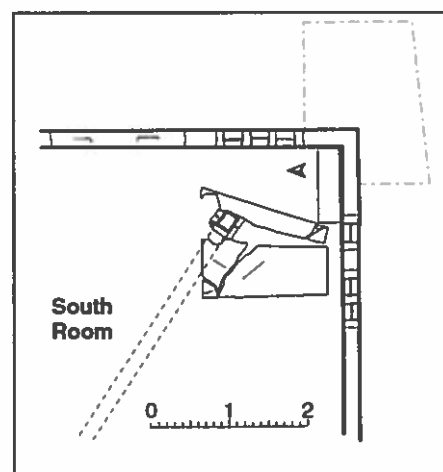
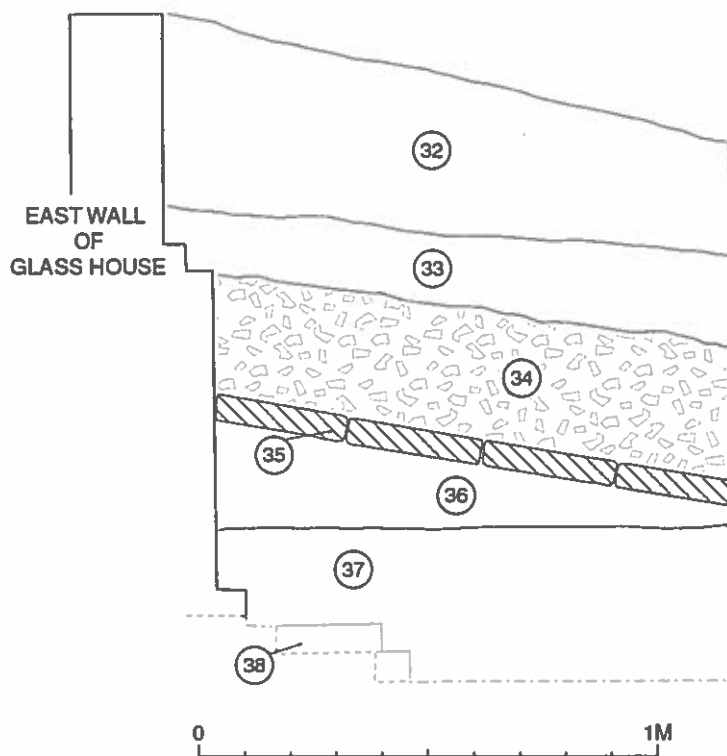
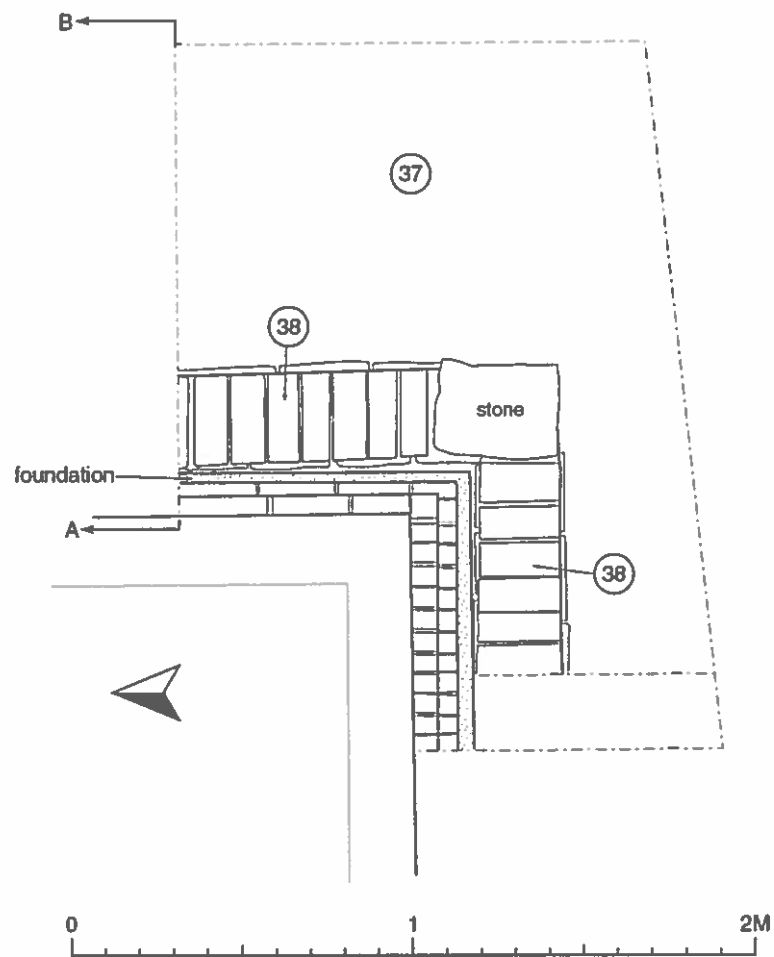


Fig 7: Trench 2 section, plan and location drawings.



Inset showing trench location.

Fig 08: Trench 3 location, plan and south facing section.

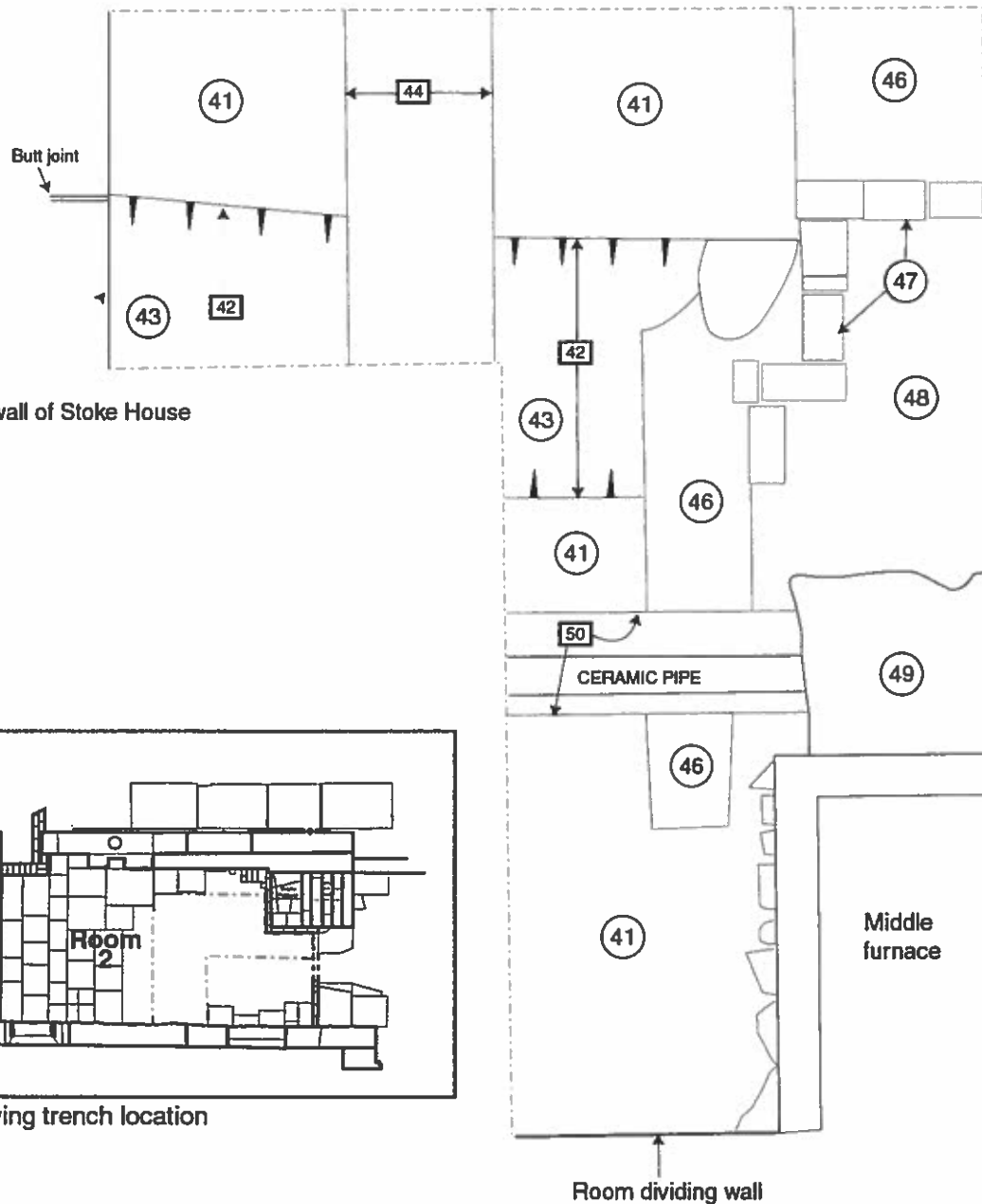
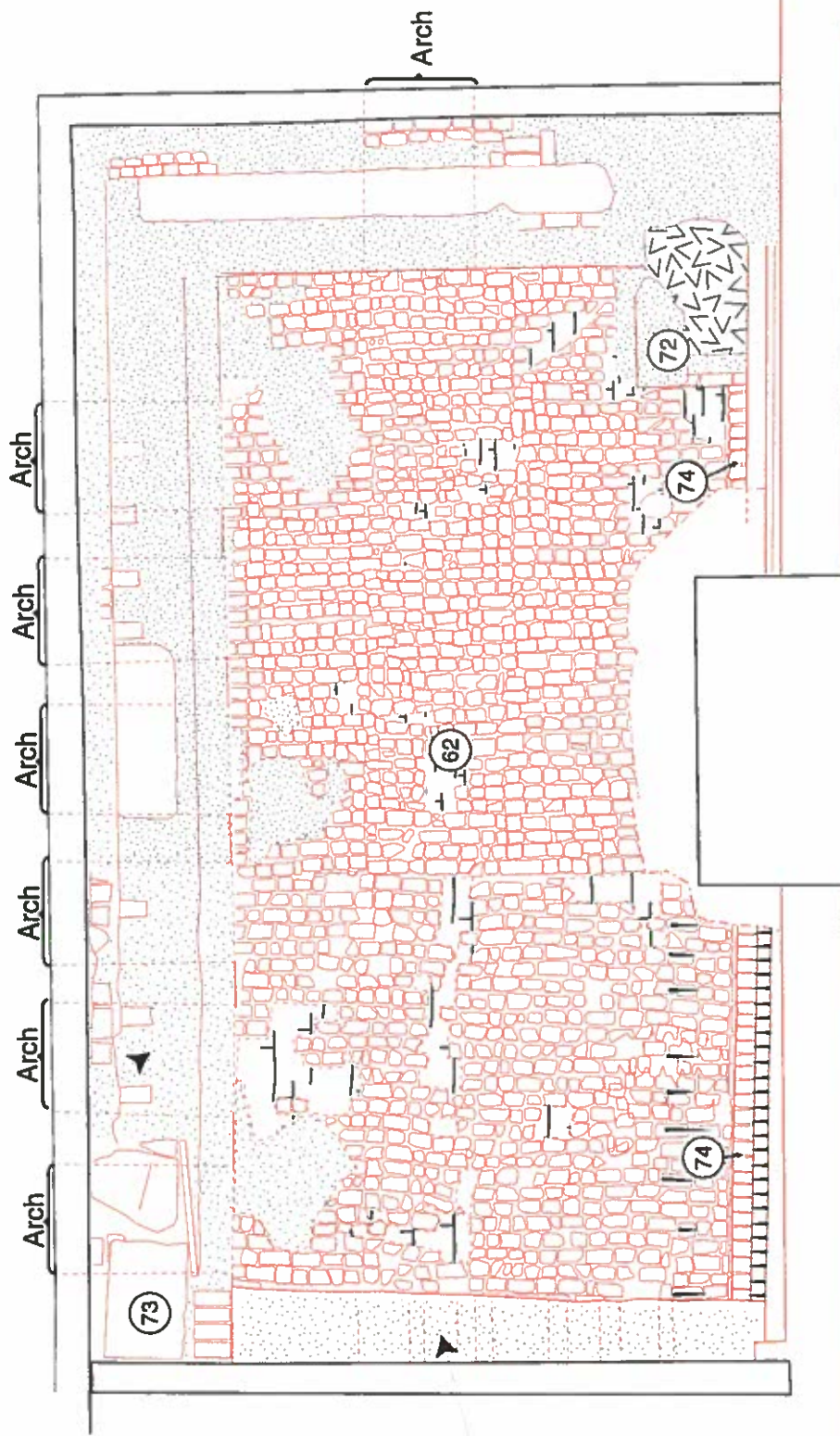


Fig.9: Trench 4 Location and Plan



Possible beam slots
(Phase 2a)



Possible beam slots
(Phase 2a)

Key	
—	= Phase 2
—	= Phase 4
—	= Mortar spread
—	= Crushed brick



Fig. 10: South Room of Glass House (Phase 2)

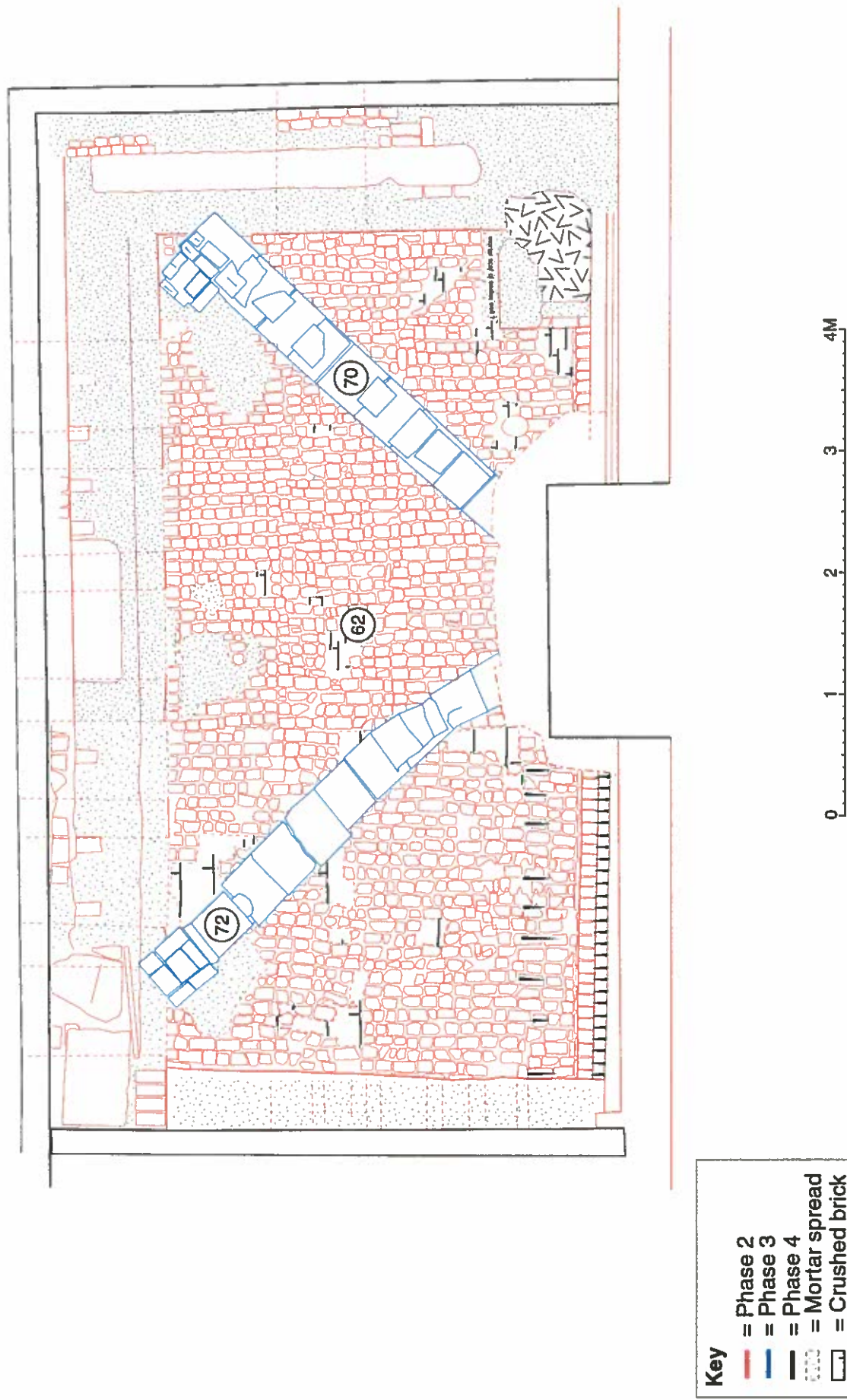


Fig. 11: South Room of Glasshouse with cold air return flues inserted

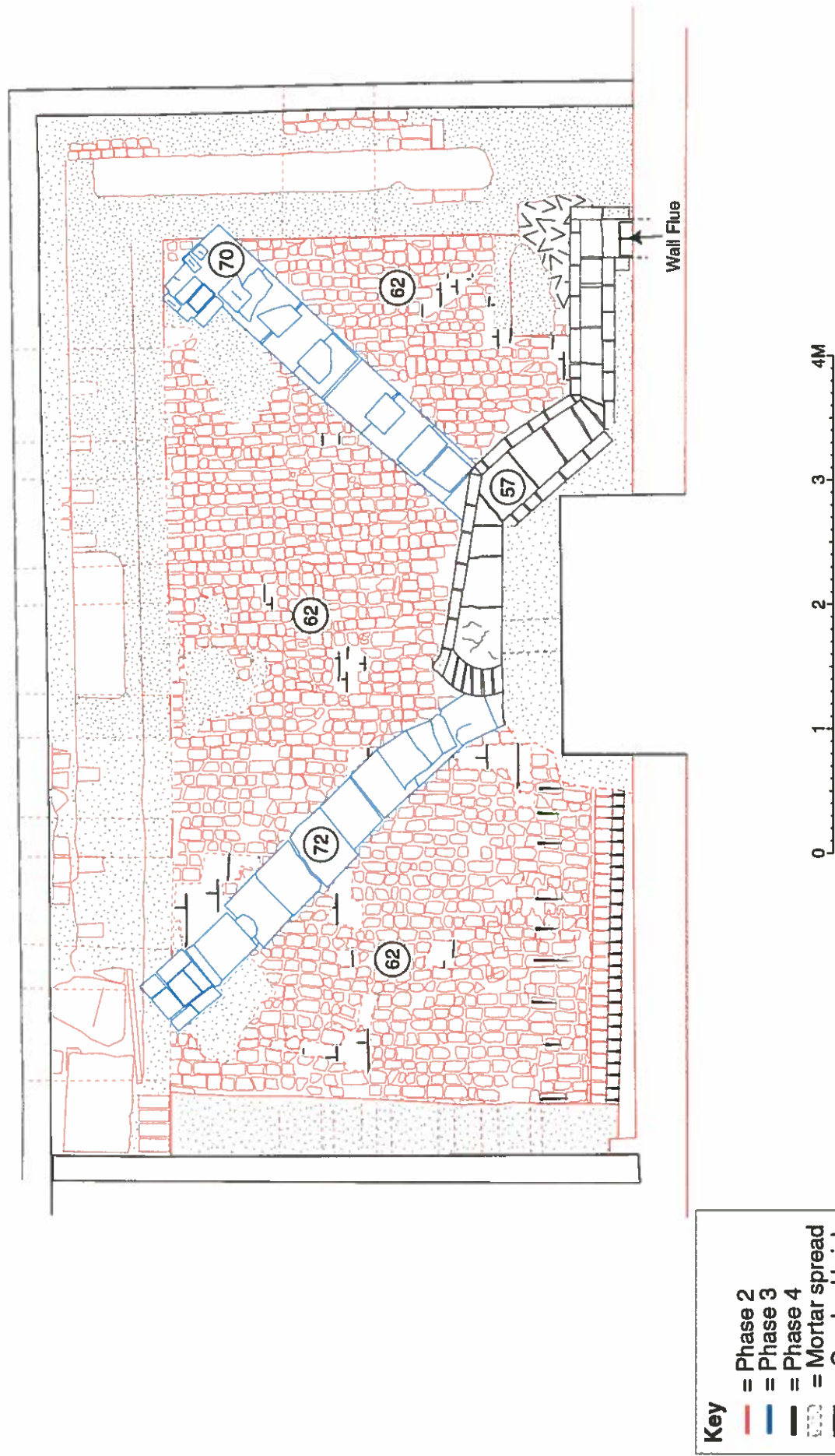
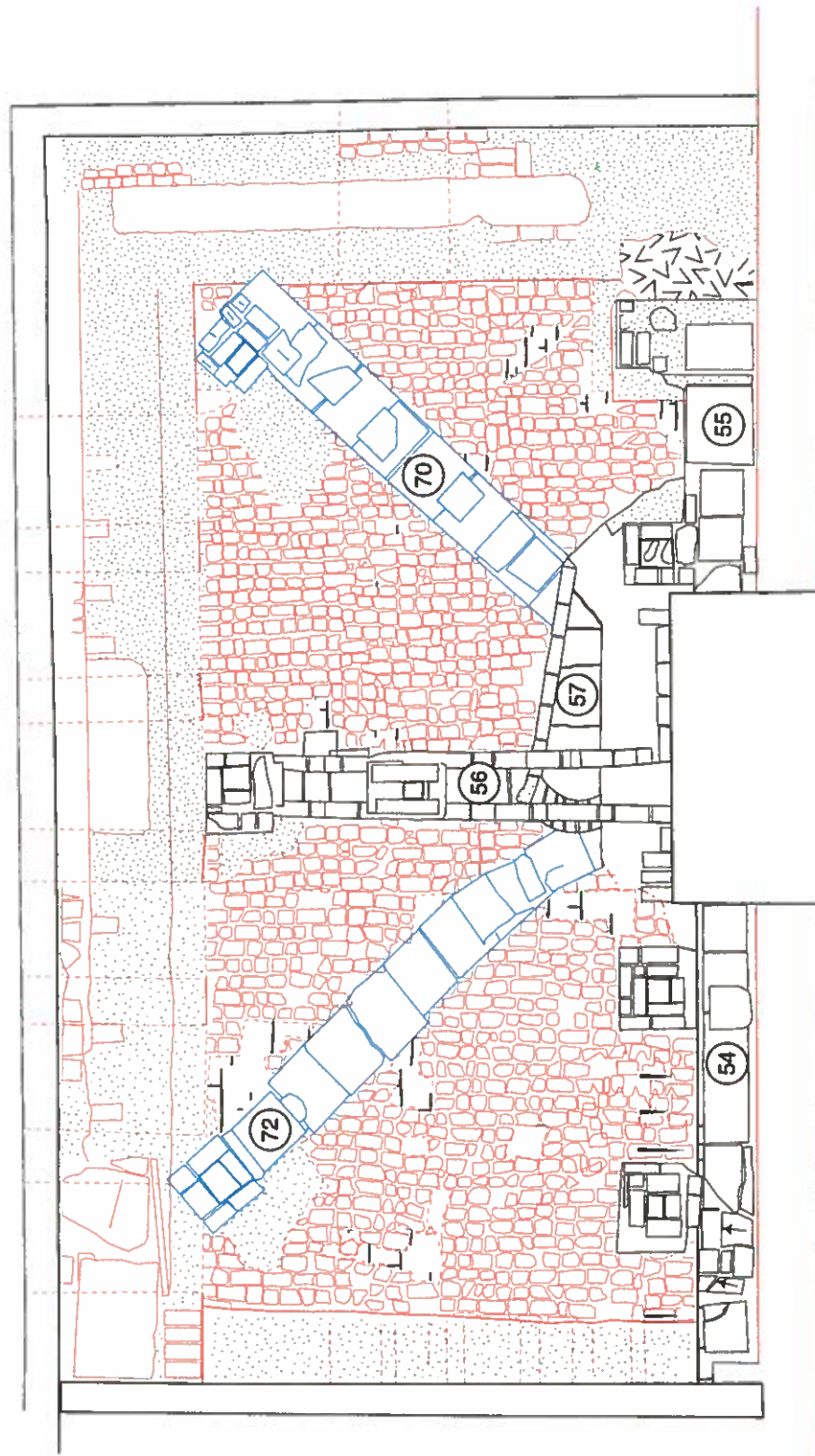


Fig. 12: South Room of Glasshouse with gas flue inserted



Key

- = Phase 2
- = Phase 3
- = Phase 4
- · · = Mortar spread
- = Crushed brick

Fig. 13: South Room of Glasshouse with cold air return flues, gas flue and hot air flues

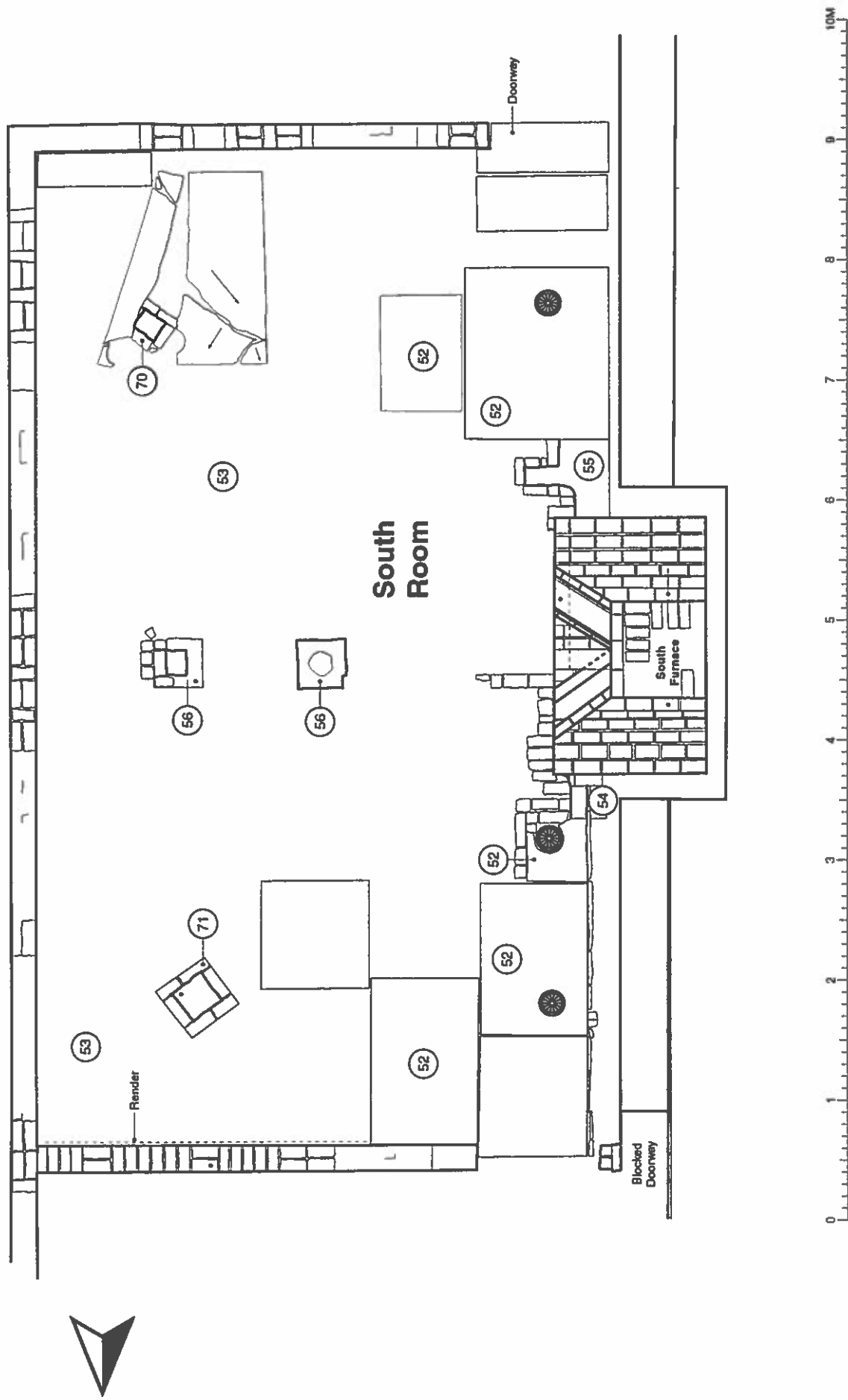


Fig. 14: Remains of South Room/Phase 4 (Taken from CAP Report. 167)

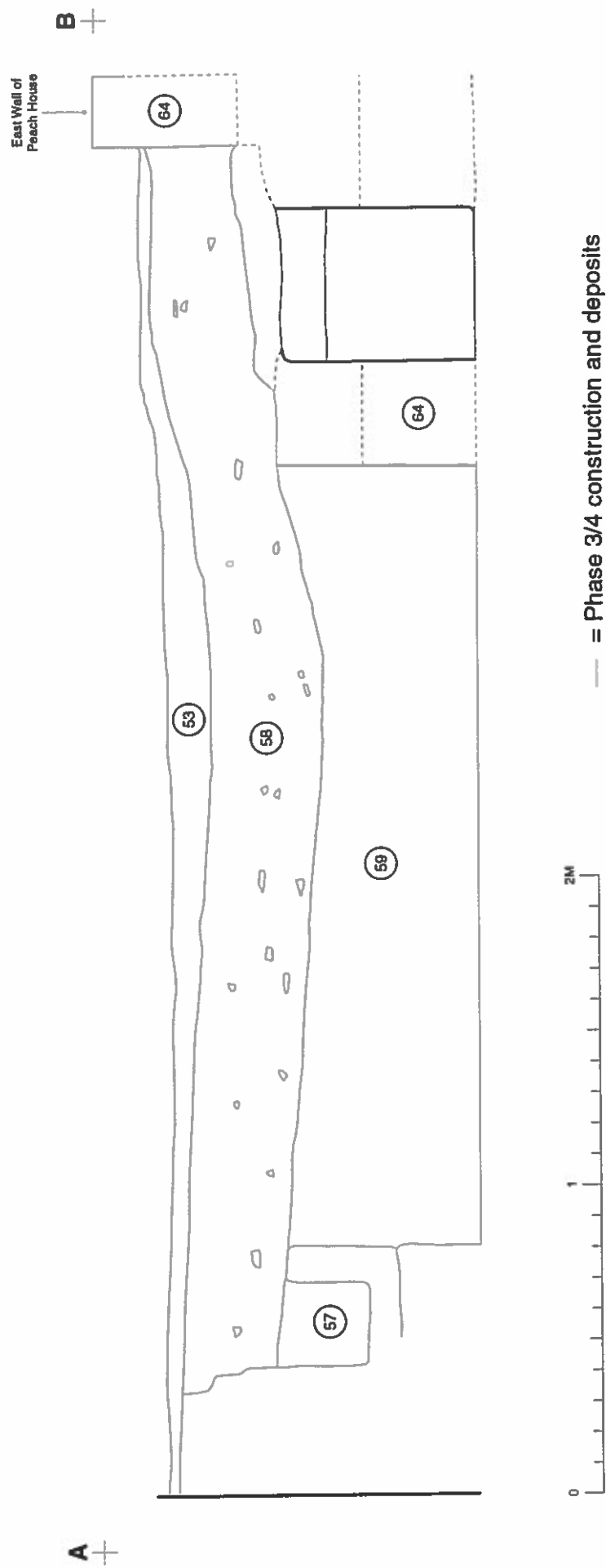


Fig. 15: West facing section across South Room (Taken from CAP Report 167)

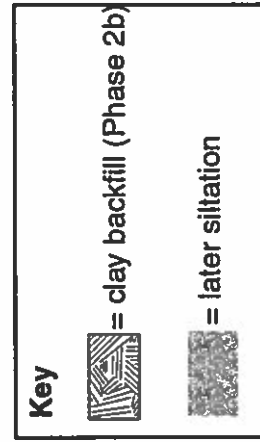
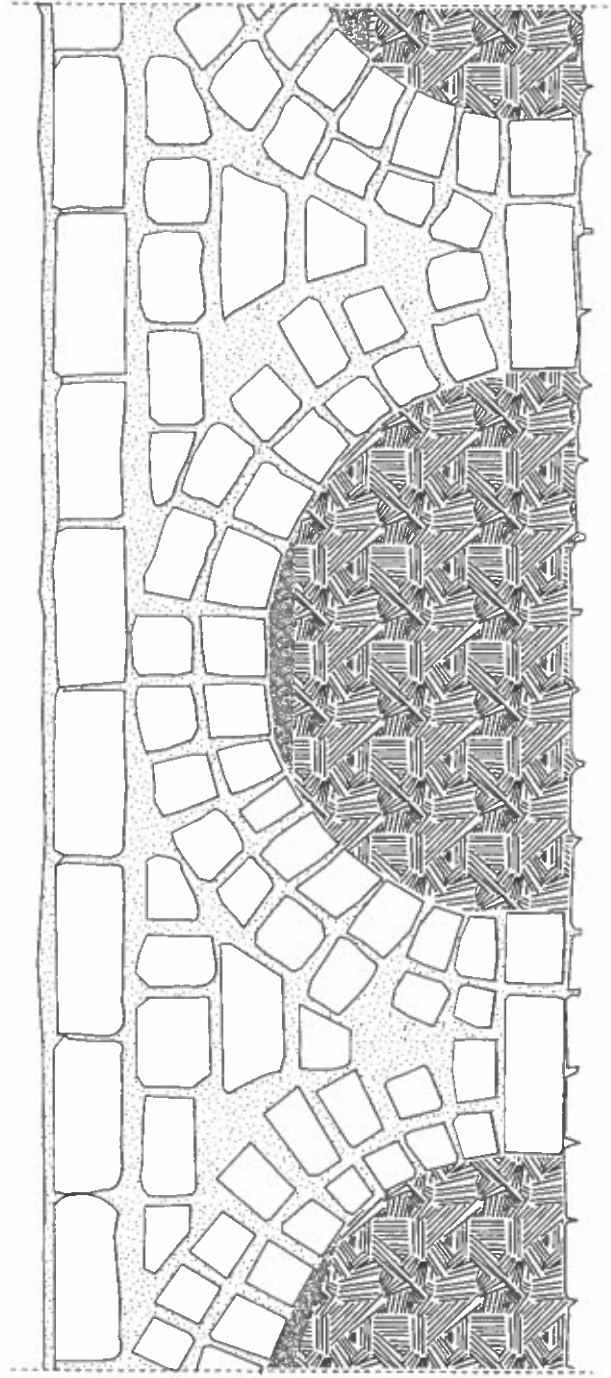


Fig. 16: Detail of Arches



Plate 1: Overview of Peach House, looking north-west.



Plate 2: Phase 4 heating duct and gas flue, as revealed during 2000 excavations. (Scale 2m. looking east)



Plate 3: Detail of hot air and gas vents, revealed during 2000 excavations. (Scale 2m. looking west)



Plate 4: Detail of phase 2a arches, revealed in trench 37 during 2000 excavations. (Scale 2m. looking east)



Plate 5: Overview of southern room of Glasshouse, showing principal features of the phase 4 heating system revealed during 2000 excavations. (Scales 1 and 2m. looking north)



Plate 6: Trench 1, showing position of cut (highlighted) for eastern culvert. (Scales 2 x 1 m. looking east)



Plate 7: Trench 1, showing layer of ceramic field drains. (Scales 1 x 2 m. looking east)



Plate 8: Trench 1, showing N - S culverts (15) and (16). (Scales 1 x 2 m. looking east)



Plate 9: Trench 2, showing N - S culverts (27) and (29). (Scales 1 m. looking east)



Plate 10: Trench 3, showing ceramic pipes (35) and cut (39)
(Scale 2m. looking north).



Plate 11: Trench 3, showing culvert (38)
(Scales 1 x 2m. looking west)



Plate 12: Trench 4, showing robber trench (cut highlighted) for southern wall of Phase 1 'cottage'.
(Scale 2m. looking south)

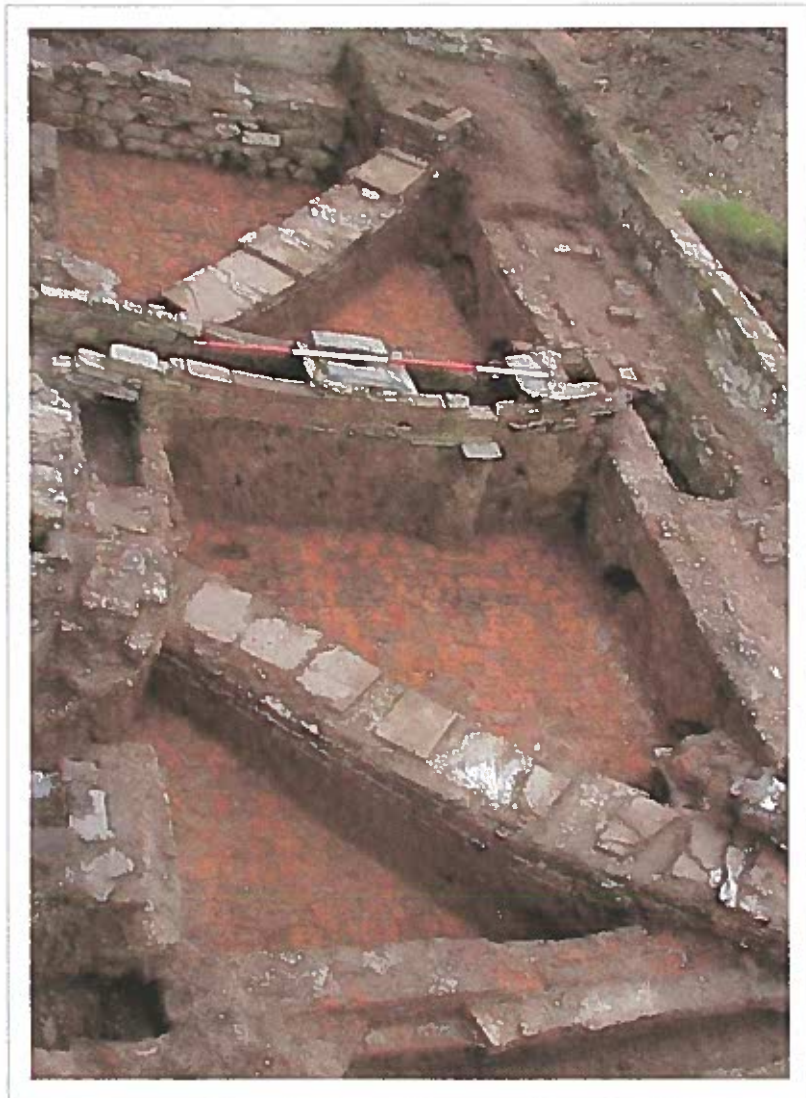


Plate 13: Overview of phase 3 - 4 heating system in southern room of Glasshouse, with phase 2a floor and walls beneath.
(Scale 2m. looking north oblique)



Plate 14: Overview of heating systems in South Room, with illustrations of air flow and gas flow through flues.
(Scale 2m, looking north oblique)



Plate 15: Cold air return flue *with* capping, entering hot air chamber of southern furnace. (Scale 1m. looking west)



Plate 16: Cold air return with capping removed. (Scale 1m. looking west).



Plate 17: Cold air return flue entering hot air chamber of southern furnace. (Scale 1m. looking south)

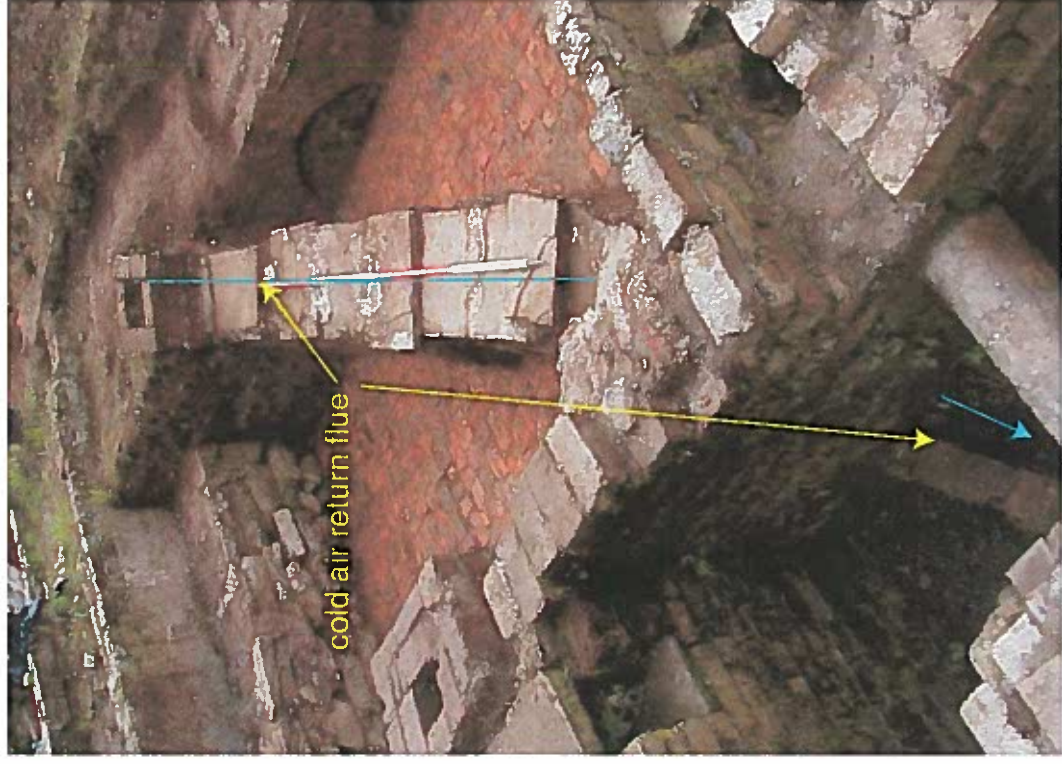


Plate 18: Northern cold air return flue with air flow illustrated.
(Scale 2m. looking north-east)

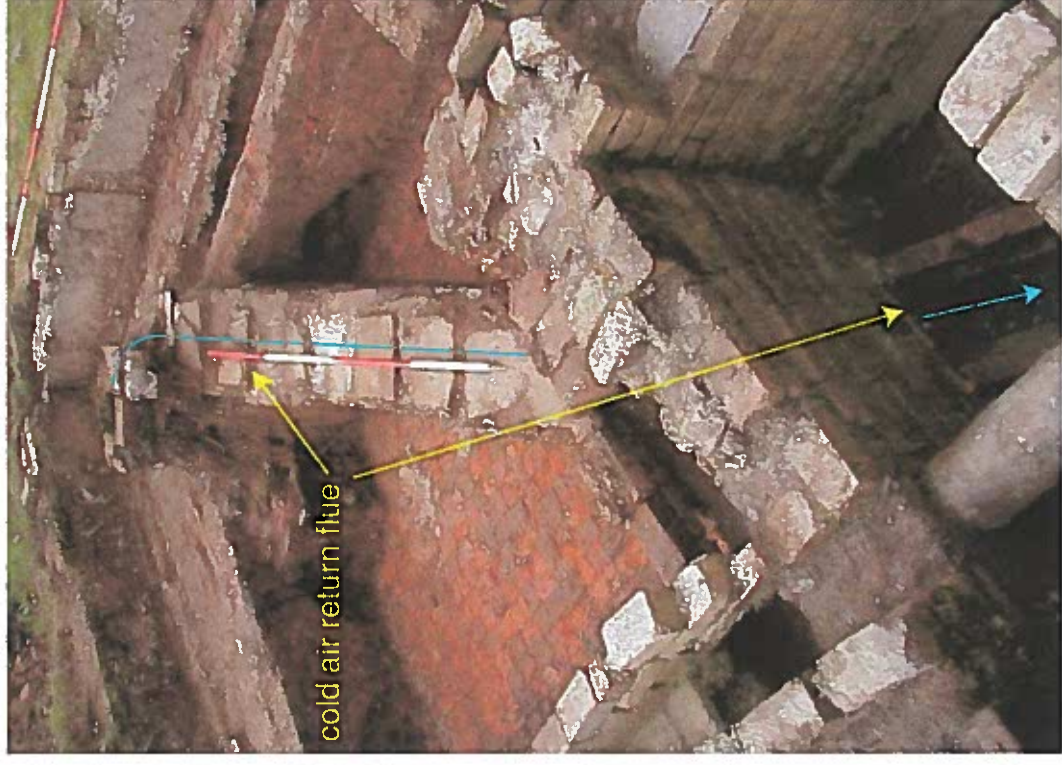


Plate 19: Southern cold air return flue with air flow illustrated.
(Scale 2m. looking south-east)



Plate 20: Southern hot air flue uncovered.
(Scale 1m. looking south)



Plate 21: Southern hot air flue covered.
(Scale 1m. looking south)

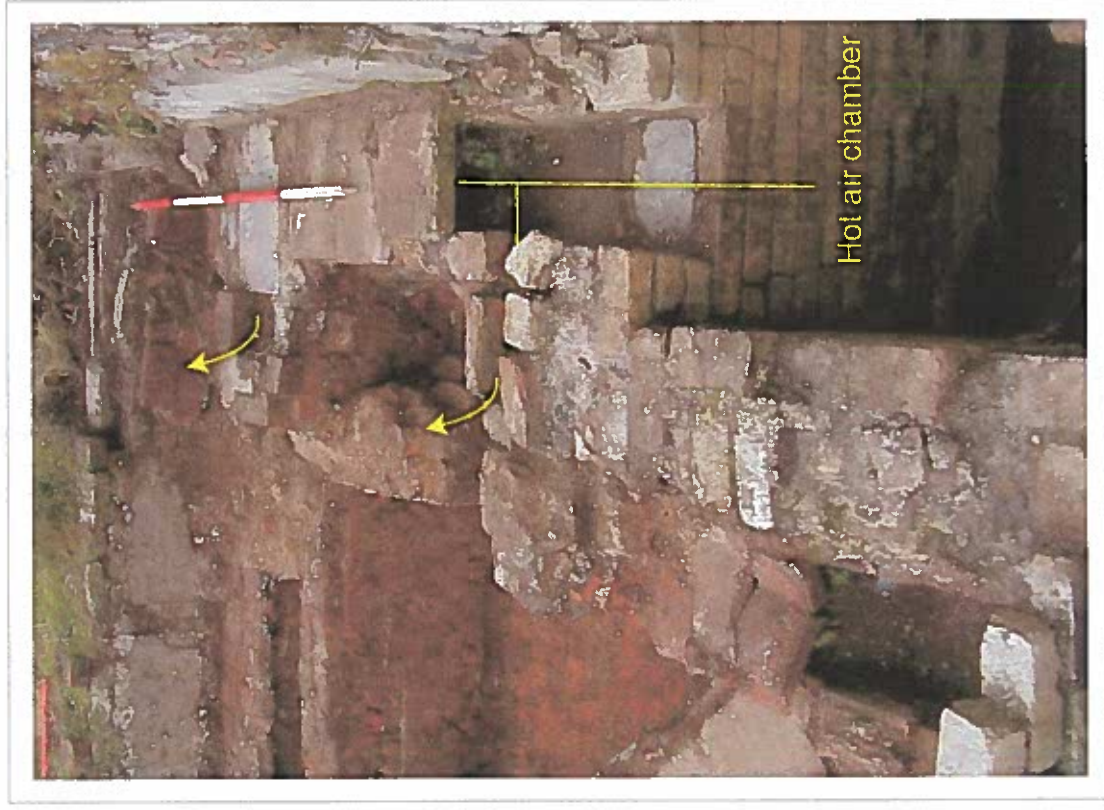


Plate 22: Southern hot air flue with air flow illustrated.
(Scale 2m. looking south)



Plate 23: Northern hot air flue with air flow illustrated.
(Scale 2m. looking north)



Plate 24: Central hot air flue and furnace gas flue, with flow directions illustrated.
(Scale 2m. looking east)



Plate 26: Gas Flue for Southern Furnace with capping removed.
(Scale 1m. looking north)



Plate 25: Gas Flue for Southern Furnace with capping intact.
(Scale 1m. looking north)



Plate 27: Wall Flue taking furnace gases out of Glass House.
(Scale 1m. looking west)



Plate 28: Overview of South Room after excavation showing suggested phasing of structural elements.
(Scales: 1m, 2m . looking north)



Plate 29: Detail of arches in eastern inner wall of south room.
(Scale 1m. looking east)



Plate 30: Detail of floor joist slots on east side of Southern Room.
(Scale 1m. looking east)



Plate 31: Brick culvert at base of west wall, southern room of Glass House.
(Scale 1m. looking west)



Plate 32: Detail of brick culvert (as above) after removal of capping.
(Scale 1m. looking west)

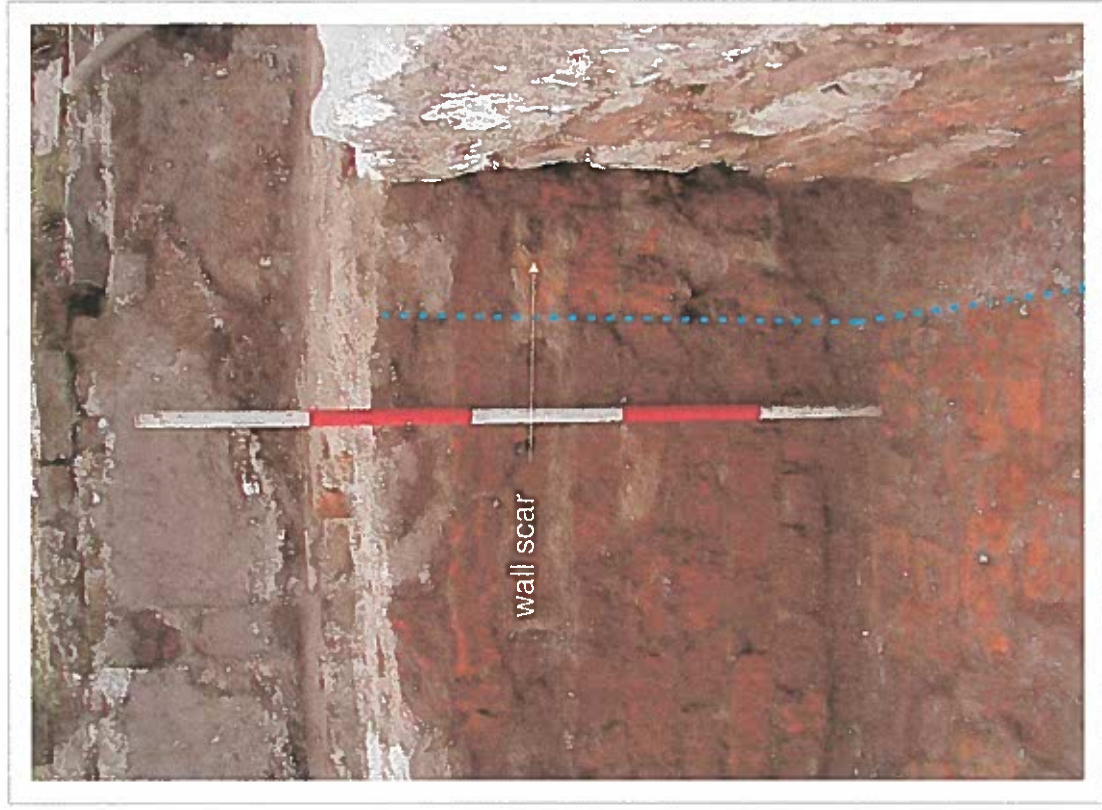


Plate 33: Detail of west end of inner southern arched wall, showing scarring from pre-existing N - S wall. (Edge of scarring is highlighted) (Scale 1m. looking south)

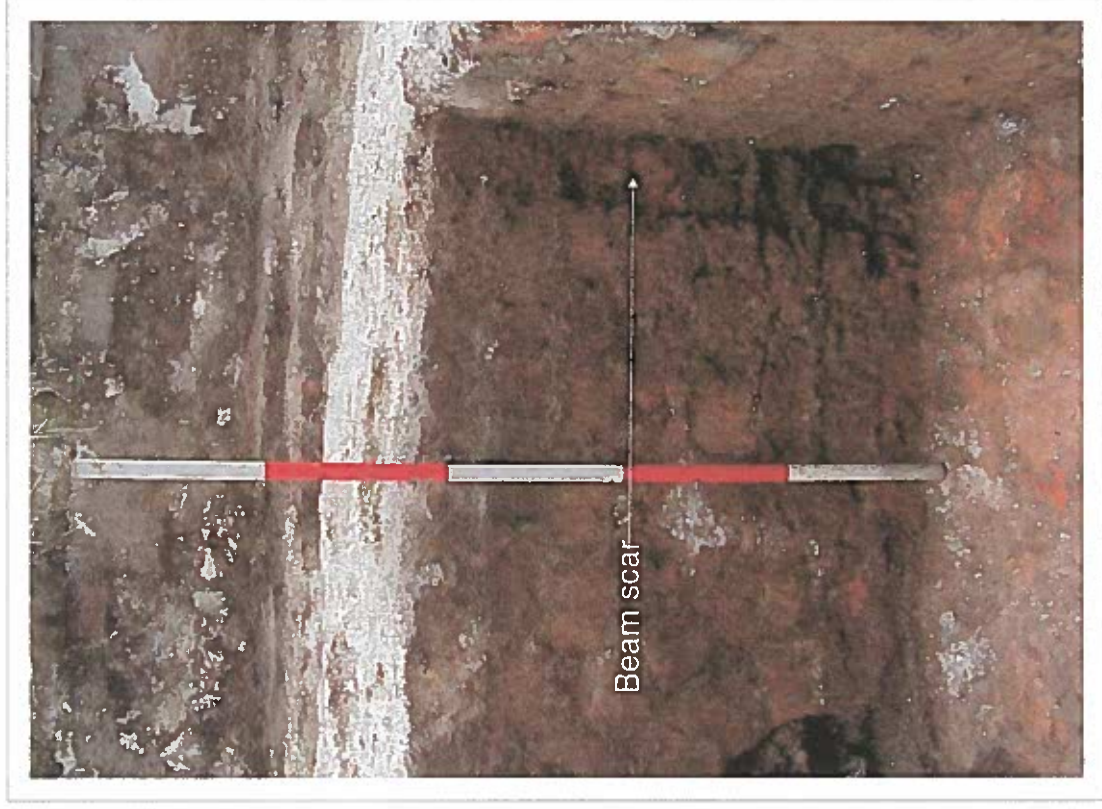


Plate 34: Detail of interface between inner eastern/ southern walls of south room, showing scarring on brickwork, probably caused by a beam. (Scale 1m. looking east)

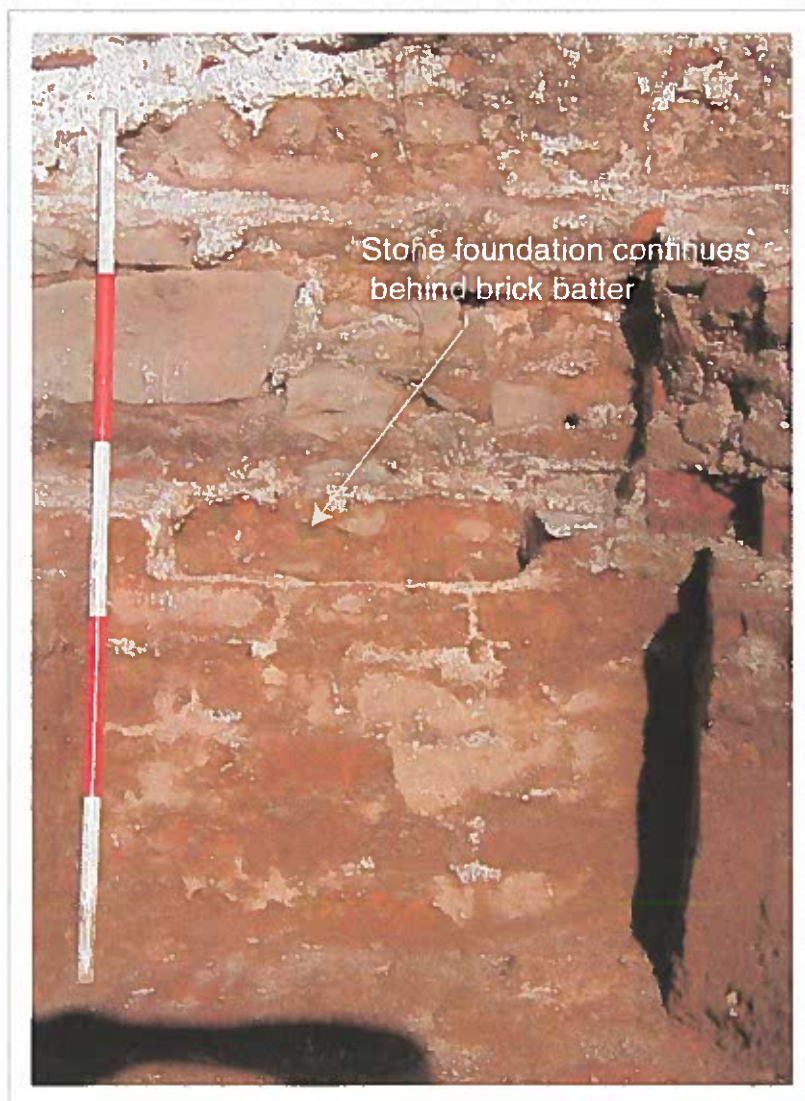


Plate 35: Detail of west wall foundations of Glass House, showing brick batter on stone foundations.
(Scale 1m. looking west)

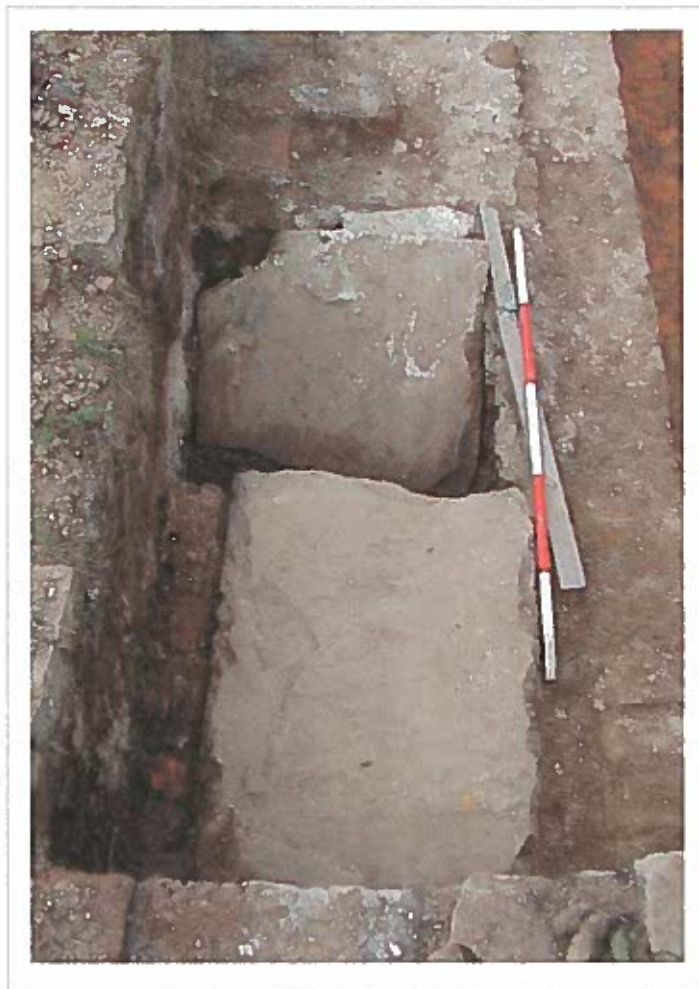


Plate 36: Drain capping, phase 2b. (Scale 1m. looking south)



Plate 37: Detail of phase 2b drain viewed from the south. (Scale 1m. looking north)



Plate 38: Detail of upper south wall of southern room (phase 4) showing upright beam impression in mortar.
(Scale 1m. looking south)



APPENDIX I: **Chronology**

_____ **MODERN (1901 -)**

_____ **INDUSTRIAL (1700 - 1901)**

_____ **POST-MEDIEVAL (1547 - 1700)**

_____ **MEDIEVAL (1066 - 1547)**

_____ **EARLY MEDIEVAL (AD 450 - 1066)**

_____ **ROMAN BRITAIN (AD 43 - AD 450)**

_____ **IRON AGE (700 BC - AD 43)**

_____ **BRONZE AGE (2300 - 700 BC)**

_____ **NEOLITHIC (4000 - 2300 BC)**

_____ **MESOLITHIC (10,000 - 4000 BC)**

_____ **PALAEOLITHIC (500,000 - 10,000 BC)**

Chronological Divisions as used by the Council for British Archaeology (CBA),
in the *British and Irish Archaeological Bibliography*.



APPENDIX II: **Context Register**

Summary of Context

CONTEXT NUMBER	DESCRIPTION
1	Overburden
2	Yellow brown silty clay
3	Mid orange brown silty clay
4	Large stone deposit
5	Dark brown silty clay
6	Cut
7	Cut
8	Ceramic pipes
9	Stone band in between ceramic pipes
10	Dark brown silty clay
11	Yellow clay
12	Cut for 12
13	Light pink/grey sandy silt
14	Cut for culvert 15
15	Stone culvert
16	Stone Culvert
17	Cut for 16
18	Stone base beneath brick arches in trench 1
19	VOID
20	VOID
21	Overburden
22	Dark brown silty clay
23	Ceramic drains
24	Pink/grey brown silty clay
25	Cut for culvert 27
26	VOID
27	Brick culvert
28	Cut for 29
29	Broken brick culvert
30	VOID
31	Natural
32	Overburden
33	Mid brown silty clay
34	Rubble and broken bricks
35	Ceramic drains
36	Red/brown silty clay
37	Yellow brown silty clay
38	Red brick culvert
39	Natural
40	Overburden
41	Orange/brown silty clay
42	Cut for south wall
43	Fill (Reddy/brown silty clay)
44	Cut
45	Fill (Brown/grey silty clay)
46	Lime mortar spread with broken bricks
47	Brick wall (Early furnace?)
48	Rubble deposit
49	Rubble deposit
50	Cut for ceramic drain

51	Ceramic drain
52	Slate slabbed floor surface
53	Mid brown/black silty clay
54	Hot air vent
55	Hot air vent
56	Hot air vent
57	Gas flue
58	Mid orange/brown silty clay
59	Yellow/brown clay
60	Cut for cold air return flue
61	Cut for cold air return flue
62	Red brick floor
63	Outer wall of south room of Glasshouse
64	Eastern wall of Glasshouse
65	VOID
66	VOID
67	Fill of arches
68	Fragment of Phase 2b wall
69	VOID
70	Northern cold air return flue
71	VOID
72	Southern Cold air return flue
73	

Handwritten notes: 4-5-2020, 20/12/20, 20/12/20



APPENDIX III: **Finds Catalogue**

Key to Pottery Fabric Abbreviations:

- BSW** – Brown Salt Glazed Stoneware C17-C18
- BSS** – Bristol/Staffordshire Slipware 1680-1750
- BSM** – Bristol/Staffordshire Mottled 1680-1750
- Bauv** – Bauvais earthenwares 1500 - 1550
- BVS** – Beauvais stoneware, C16
- BW** – Blackware, C17-C18
- BC** – Bone China, late C18
- Cist** – Cistercian wares, C16 (Black-glazed drinking vessels in cylindrical forms)
- CMB** – Coalmeasures Buff, C17-C18
- CMR** – Coalmeasures Red, C17-C18
- CW** – Cream Ware, C18
- CWT** – Creamware tortoiseshell 3rd quarter of C18
- DWW** – Industrially produced Developed White Wares, C19-C20
- EBS** – English brown glazed stoneware, C18-C20
- EMS** – Other C19-C20 English stonewares.
- ESW** – English Stone Ware C17-18
- FP** – Flower Pot C19-20
- Frech** – Frechen stoneware from Rhineland, mottled brown bottles C17
- GRE** – Lead-Glazed Red Earthenware, C17-C18
- GREm** – Lead glazed redwares with micaceous fabrics, C17-mid C18, some slipped
- ISW** – Industrial Stone Ware C19-20
- IYW** – Industrially produced Yellow ware, C19-C20
- LRE** – Local Red Earthenware
- LRE (LG)** – Local Red Earthenware Lead Glazed
- MSW** – Martincamp, 1500-1550
- MP** – Midland Purple
- MW** – Mottled ware
- NSW** – Nottingham Brown Stoneware C18
- ND** – North Devon Gravel Tempered Ware, C17-C18
- ND slip** – ND wares with slip decoration C17-C18
- P(Chi)** – Chinese C18 Porcelain
- PW** – Pearlware, C18-C19
- Raer** – Raeren stoneware from Rhineland 1450-1550
- SGW** – South Glamorgan Ware (medieval)
- SW** – Slipware C17-18
- SRS** – Staffs Red Stoneware, C18
- SRE** – Staffs Fine Red Earthenware C18
- TG** – Tudor Green, C15-C16
- TGE** – Tin Glazed earthenware (English Delft Ware) C17-mid C18
- ESG** – English Salt Glazed Stoneware C18
- WdSW** – Westerwald German Stoneware, C18
- WSG** – White Salt Glazed Stoneware C18
- YSD** – Yellow slipped and feathered press moulded dishes, coal measure buff fabric, C17-C18

YSW- Bristol or Staffs Buff Coalmeasures C17-18

MB – Medieval ‘B’ (local to Mid Wales) C13-C15

M(Card) – Medieval (local to Cardiff) C13-14

M(Silt) – Medieval siltstone tempered (Dyfed/Powys) C13-C15

A1 Dressel 20, Amphora – 10BC-early 7th AD, Spanish

SW- CG – Samian ware, central gaulish, Roman

SUMMARY OF FINDS

Context 4

1 fragment of LRE	5g
1 fragment of China	5g

Context 11

1 fragment LRE	125g
1 Fragment of ND	25g
7 fragments of china	25g

Context 23

2 fragments of china	10g
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Context 24

2 fragments of ND	75g
2 fragments of china	25g

Context 53

6 fragments of LRE	150g	
1 fragment of ND	25g	
1 fragment of 19 th century stoneware		25g
2 fragments of china	25g	

ARCHIVE COVER SHEET

National Botanic Garden of Wales, (MH/01/EX)

Site Name:	National Botanic Garden of Wales
Site Code:	MH/01/EX
PRN:	30968
NPRN :	N/A
SAM:	N/A
Other Ref No:	CAP Reports 12,32,38,112,114,149,167
Site Type:	Historic Garden
Project Type:	Archaeological Excavation
Project Officer:	Phil Evans
Project Dates:	August/September 2001
Categories Present:	N/A
Location of Original Archive:	N/A
Location of duplicate Archives:	N/A
Number of Finds Boxes:	1
Location of Finds:	N/A
Museum Reference:	Not assigned
Copyright:	CAP Ltd
Restrictions to access:	None