

A photograph of an archaeological excavation site. In the foreground, a large, irregularly shaped, reddish-brown mosaic slab is visible, partially covered by a layer of light brown soil and debris. The mosaic appears to be made of small, reddish-brown tiles. To the left of the mosaic, a small green and white tool, possibly a trowel or brush, is lying on the ground. In the background, the ground is uneven and covered with dirt and small stones. A person's legs and feet are visible in the upper right corner, standing on the ground. The overall scene is an outdoor excavation site.

Cambridge Independent Archaeology - CIA7 (NWBV11)

Excavation of a Roman bath house mosaic at Nine Wells TL 45185 47475

CAMBRIDGE INDEPENDENT ARCHAEOLOGY - CIA4 (NWBV11)

Excavation of a Roman bath house mosaic at Nine Wells TL 45185 47475

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1. Summary

The excavation was made as a result of finding a small piece of in situ mosaic at a depth of 1.02 metres in a 1 x 1 metre test pit E1718 during the 2010 excavation of the site. The prime objective for the 2011 excavation was to determine the extent of that mosaic.

The 2010 in situ mosaic was relocated and found to be on the surface of the bottom of a semicircular bath laid on an opus signinum base and that it did extend to an area about 60 x 15 cm. A further small fragment approximately 20 x 15 cm of in situ mosaic was also found in the opposite corner. Only the base of the bath remained.

The base of the bath had been severely damaged by antiquarian diggings in 1818, and evidence of these excavations was shown by finding two glass bottle fragments and a clay pipe stem of that period. Despite the damage, sufficient remained of the base to be able to work out the dimensions of the bath. It was 10 Roman feet (2.96 metres) along the straight edge of the bath with a radius of 5 Roman feet (1.48 metres). A great number of loose tesserae were found in the area of the bath. It is deduced from its position and depth relative to the adjacent area in the trench that the bath was a cold bath located in the frigidarium. Evidence for a doorway leading into another room outside of the trench was found. This room is possibly a tepidarium.

Many pieces of painted wall plaster were also found with a wide variety of colours and patterns.

Only a few pieces of pottery were found which have yet to be expertly analysed and dated, although a large quantity of probable Roman pottery was found by fieldwalking around the site after the excavation.

A few coins and fragments of window glass, along with the style of the painted wall plaster, enable a preliminary date to be suggested for the bath house as 2nd -3rd century.

At the south west edge of the trench two parallel walls close to each other were uncovered, and one of these could well be the foundation of a hypocaust as it had capping tiles which could be pilae and there was black ash either side of it on top of reused part flue tiles.

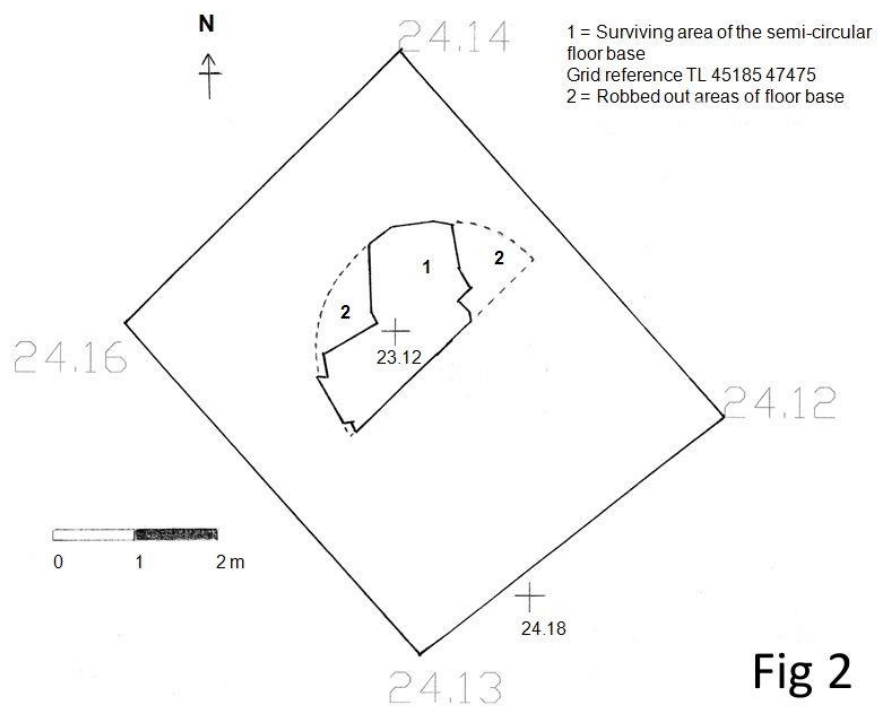
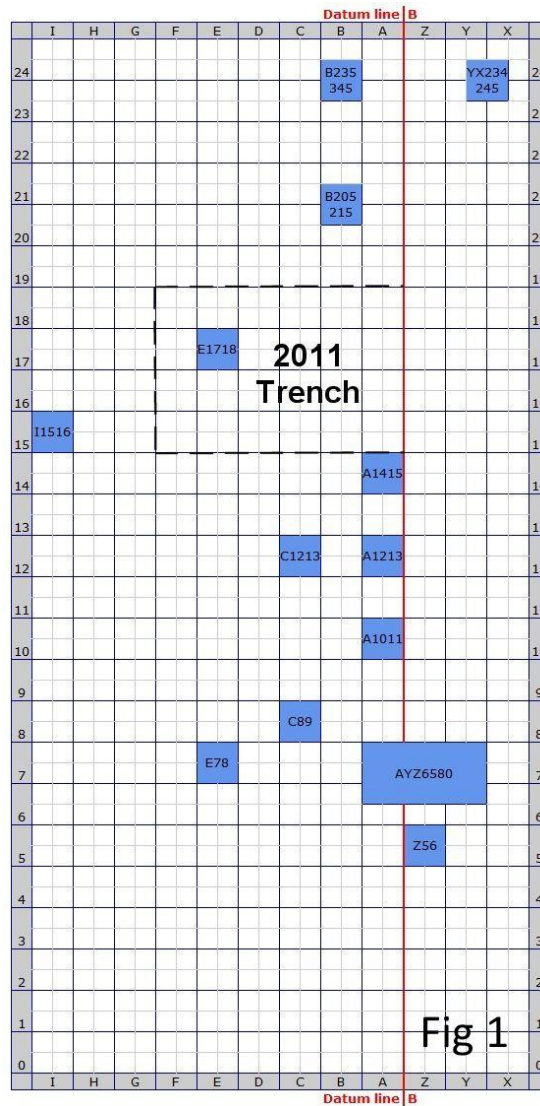
Based on this limited excavation a tentative reconstruction of the bath house layout is offered.

It is planned to do further excavation in 2012 in adjacent areas to this excavation to clarify and hopefully resolve the layout more accurately. Limited fieldwalking after the excavation around the site has highlighted other areas for investigation so further fieldwalking will be done in 2012.

2. Excavation

The excavation was made between Saturday 20 August and Friday 23 September 2011.

Firstly, a trench 4 x 5 metres was mechanically dug by a JCB machine with a 1.5 metre toothless bucket, around the location of the mosaic found in the 2010 excavation in trench E1718 (Scarle 2011)



This was dug to a depth of approximately 75cm leaving a safety margin of 27cm above the mosaic which was found at a depth of 102cm in 2010. No obvious features were noted during this machine dig. Thereafter digging was by hand.

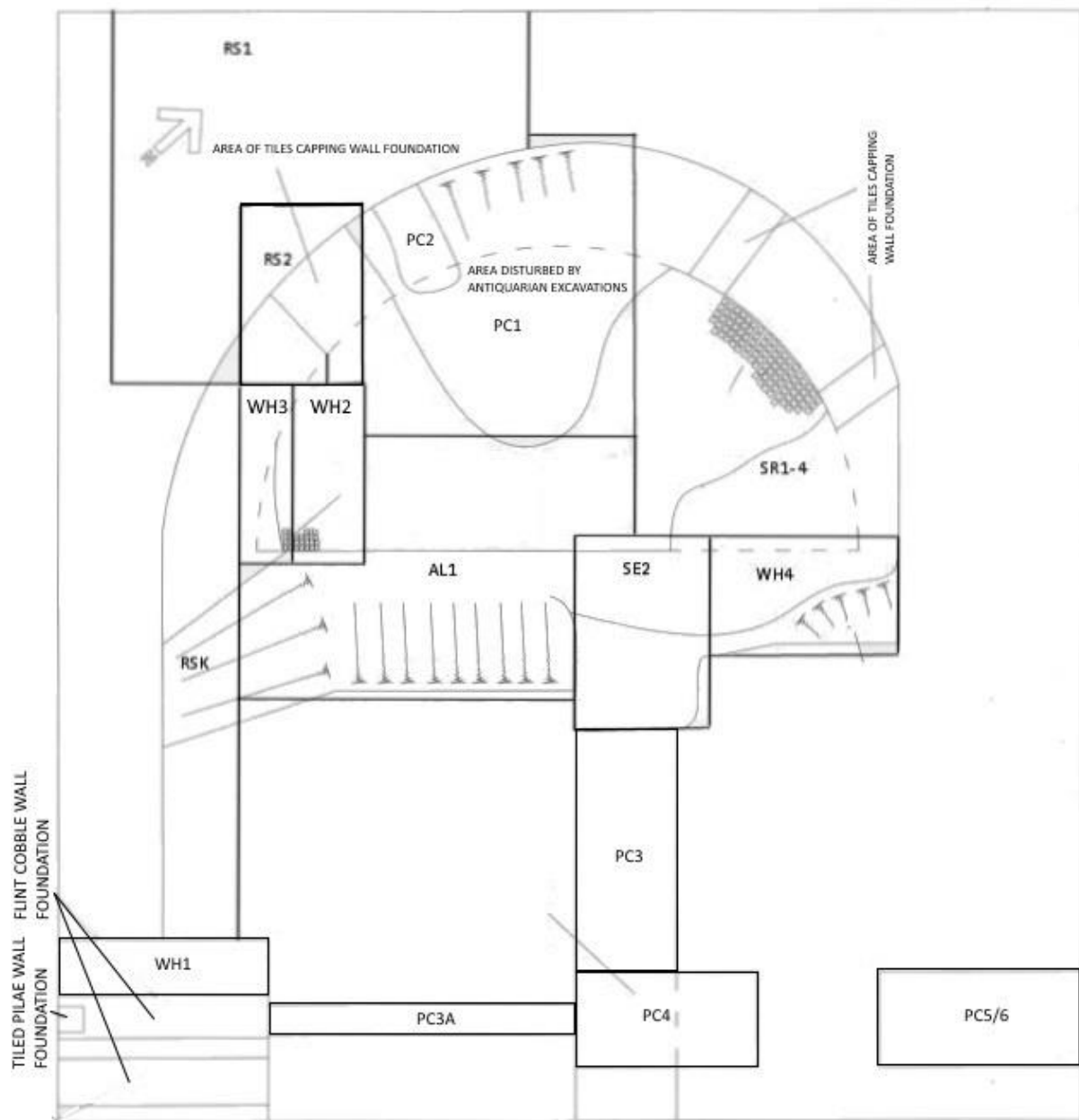


Fig 3

A trench plan is shown in Fig. 3. Trench notation uses the initials of the excavator.

Four areas were initially tackled. They were in order of importance,

1. Area adjacent to the mosaic of 2010 to check extent of mosaic. (trench SR1)
2. A central area, also to check extent of mosaic (trench AL)

3. An area in the south corner (trench WH1), which had revealed in the edge section of the mechanically dug trench a number of stacked tiles apparently on top of a flint wall which had dark burning either side of it



4 An area in the north west corner, to check if there was any building there (trench RS 1).

Trench SR 1

The 2010 trench E1718 with the mosaic in it was quickly relocated and excavation was extended around it in trenches SR 2-4 & SE 2.



It became clear that the mosaic did extend a little either side and that it was on the edge of a semicircular floor with a foundation of opus signinum. Following excavation of trenches AL, SE 1 & 2, WH 3 & 4, PC 1 it was clear that it had been destroyed in 3 sections of the semicircle.



These 3 destroyed areas were investigated in trenches PC 1, WH 4, WH3. It was clear that this floor was in an apse and this confirmed the predication made when the mosaic was found in 2010 that it was in an apse based on the orientation of the edge of the mosaic which was on an east-west alignment, whereas all the other features found in 2010 were aligned north east/south west. A large number of loose white tesserae were found this being the most common colour of the in situ mosaic. Other colours, as can be seen in Fig. 6 were grey and black which are on the outside of the mosaic. The dig was extended over the area of the opus signinum (SR2).



Fig 6

Trench SR 2

This confirmed the presence of the Opus Signinum floor but no in situ tesserae were found, but only many loose ones, mainly white.

Trenches SR 3 & SR 4

These looked at the outside of the mosaic where the apse wall was expected. The capping tile of the wall was found just below the level of the mosaic floor. The thickness of the opus signinum floor at this point was 20cm above a mortar layer.

Trench AL

This revealed the straight edge of the opus signinum foundation. This trench had a lot of red tile tesserae in it. It was therefore apparent that the opus signinum floor was semicircular in the north west with a straight edge to the south east (see Figs.4 & 5 above). This trench also showed that there was a sloping backfill of chalk coming down from the floor of the trench at 70cm depth down to a mortar level of 130cm depth adjacent to the straight edge of the opus signinum floor. This backfill was in a cut into the natural in situ chalk, with the edge of this cut being 16cm North West of the southern part (at a depth of 70cm) of the main trench. The bottom of the sloping backfill in the North West was about 15cm away from the straight edge of the opus signinum floor. That is, it was at the outer edge of the robbed out wall that would have encompassed the side wall of opus signinum plus mosaic of the bath. Why this cut was larger than that necessary for the opus signinum base and the wall on the straight side cannot be explained.

Trench WH 1

The feature referred to in note 3 above re initial dig areas had been revealed in the south west edge section when the main trench was mechanically dug. Therefore a trench 90 x 140cm was dug to resolve matters. The base of the main trench in this area following the machine excavation was at a depth of 70 - 75cm

Beneath three layers of tiles which were mortared together there was a possible flint wall. Behind these tiles was a dark layer of burning. As this was outside of the trench it was not excavated. It is possible that this "wall" was actually part of a hypocaust system extending to the south west. The top tile was at a depth of 64cm. As the flints were not completely mortared together it initially was not clear if it was a definite wall.



Further digging however showed that the lower layers were mortared together and it could be confirmed that it was a wall or a possible substitute for hypocaust pilae. Adjacent and parallel to this apparent wall was another wall. The two walls separated by approximately 13cm. This second wall was also partially dismantled to confirm that it was a definite wall. The bottom of the trench in this part was in situ natural chalk at a depth of 127cm. The removed flint was kept and can be seen in the picture (Fig. 8 above) alongside the trench.

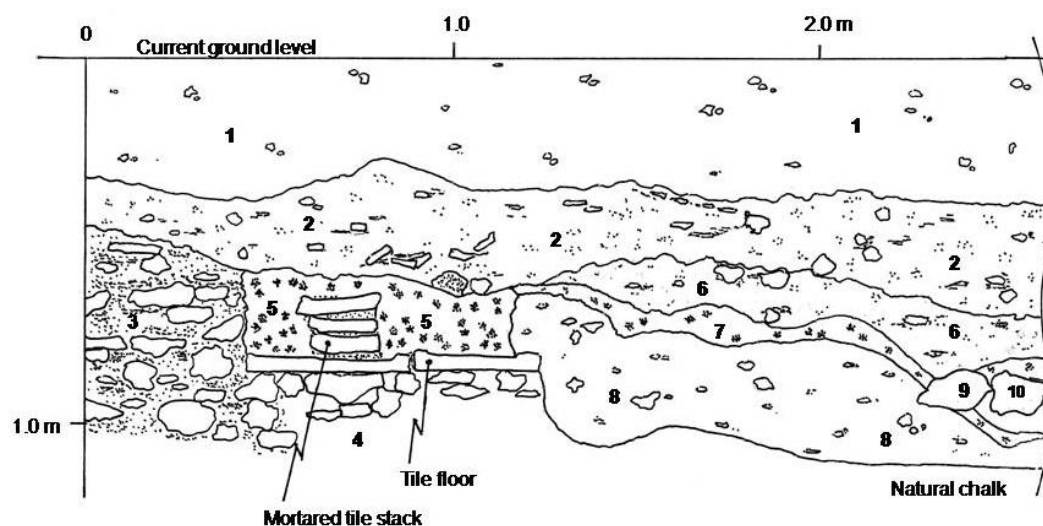
An explanation for these two parallel walls and more detail on the possible adjacent hypocaust is not possible at present but will hopefully be resolved when excavation to the south west is scheduled for next year. However they do suggest that there was more than one phase of construction, but dating them is not possible. It should be noted that in the 2010 excavation a large number of flue tiles were found. At this stage only the walls were investigated but later on a detailed excavation of the south west edge was done. This revealed that the northern wall had part flue tiles laid horizontally either side of it and each of these tiles had a quantity of burnt material/charcoal lying on top (Fig.9 & 10).



South West Side

This side was cleaned up with some pieces of painted wall plaster being found. A detailed section drawing was made of the whole side (Figs.11A & B). This showed very complex demolition layers. It is not certain if these demolition layers are from the Roman period or relate to the levelling work in 1818.

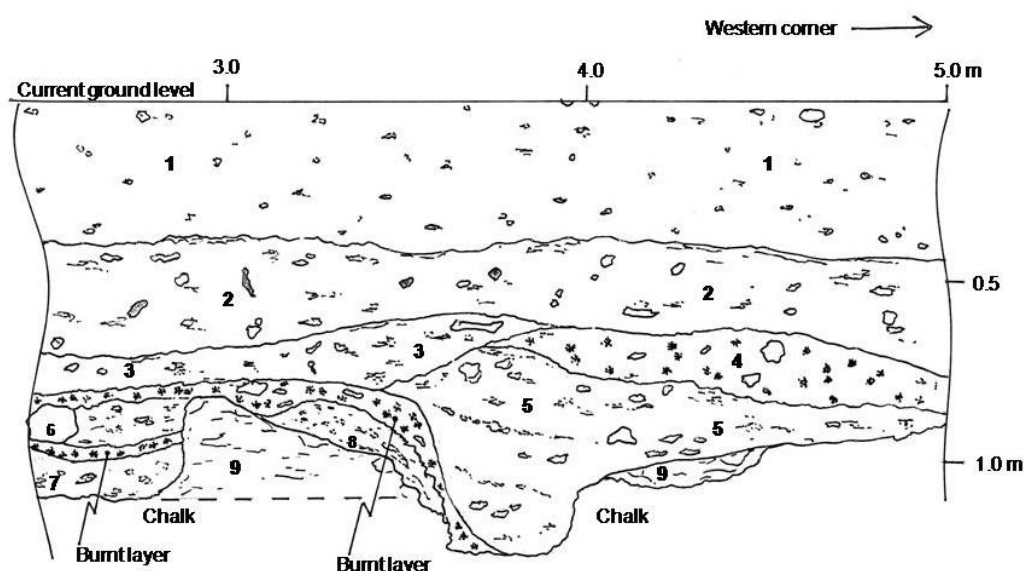
Southern corner



- 1 = Plough soil, 2 = Yellowish grey with chalk, building debris, 3 = Wall foundation, large stones, mortar
4 = Flint foundation, 5 = Dark ash, 6 = Yellowish with mortar, building debris, 7 = Burning and building debris
8 = Yellowish gravel, 9 = Lump of opus signinum, 10 = Lump of chalk

Mosaic trench – section of south western side, viewed from north east

11A



- 1 = Plough soil, 2 = Yellowish grey with chalk, building debris, 3 = Yellowish with mortar, building debris
4 = Burning and building debris, 5 = Yellowish with mortar, chalk, building debris, 6 = Lump of chalk
7 = Yellowish gravel, 8 = Hard orange deposit with opus signinum, 9 = Re-deposited chalk?

Mosaic trench – section of south western side (continued)

11B

Trench WH 1A

This extension to WH 1 was made to see the possible extent of the wall as revealed in the slot trench PC 3A. It showed that the northern wall in WH 1 was linked to the southern wall with a flint cross wall and that this butted up to the in situ chalk as shown in PC 3A. It is possible that this wall extended to the North West and joined the apse wall of the bath in its south west corner. This cannot be confirmed as the area between WH 1 and the bath was not excavated on that line.

To investigate what was outside of the opus signinum floor, further trenches were dug, WH 2, WH 3, SE 2. These revealed wall foundations capped by tiles at two locations around the semicircle of the Opus Signinum, thus showing that it was an Apse of the building (See figs. 6 above and 17 below).

Trench WH 2

This was 30 cm wide and parallel to the South West edge of the main trench and covered part of the opus signinum floor.

Trench WH 3

This was 30cm wide and parallel to WH 2. A significant find was part of a glass beer bottle at a depth 15cm above the floor level, and 2.25 metres from south west side of the main trench. This is interpreted as a deposit made at the time of the levelling of the site in 1818.

The southern edge of the opus signinum floor was revealed and it had a small patch of in situ mosaic approximately 18 x 15 cm (Fig. 13). No wall foundation was revealed. The thickness of the floor foundation opus signinum layer was 21cm and that of the underlying mortar layer 7cm at this point.



Trench WH 4

This showed that the sloping backfill of chalk, as discovered in trench AL, was against in situ chalk which was later shown to extend over all of the south eastern area of the main trench (Fig. 14). The mortar layer of the foundation of the mosaic floor was shown to extend right up to the cut edge of the in situ chalk.



It also showed the curved bottom of the remnants of the mortar layer under the east corner of the opus signinum which could be the result of a robber trench that destroyed that corner of the mosaic.

Trench SE 2

This investigated the eastern edge of the opus signinum floor and the predicted wall line to the south east of trenches SR 3 & SR 4. No in situ wall was found or any foundation, implying that it had been robbed out. The location of the eastern edge of the opus signinum floor was also established. Many tesserae were found.

Trench RS 1

The trench size was north east/south west side 2.3 metres x north west/south east side 1.6 metres.

This determined the western edge of the opus signinum floor. A significant find was a piece of flat green glass 2.4 metres from the west corner and 0.8 metres south east at a depth of 92cm (Fig.15).



Trench RS 2

This was dug in the west area outside of the floor to investigate the outer apse wall. A number of flat floor tiles were found which possibly had capped the wall and formed the foundation for the timber and wattle wall above (Fig.16)



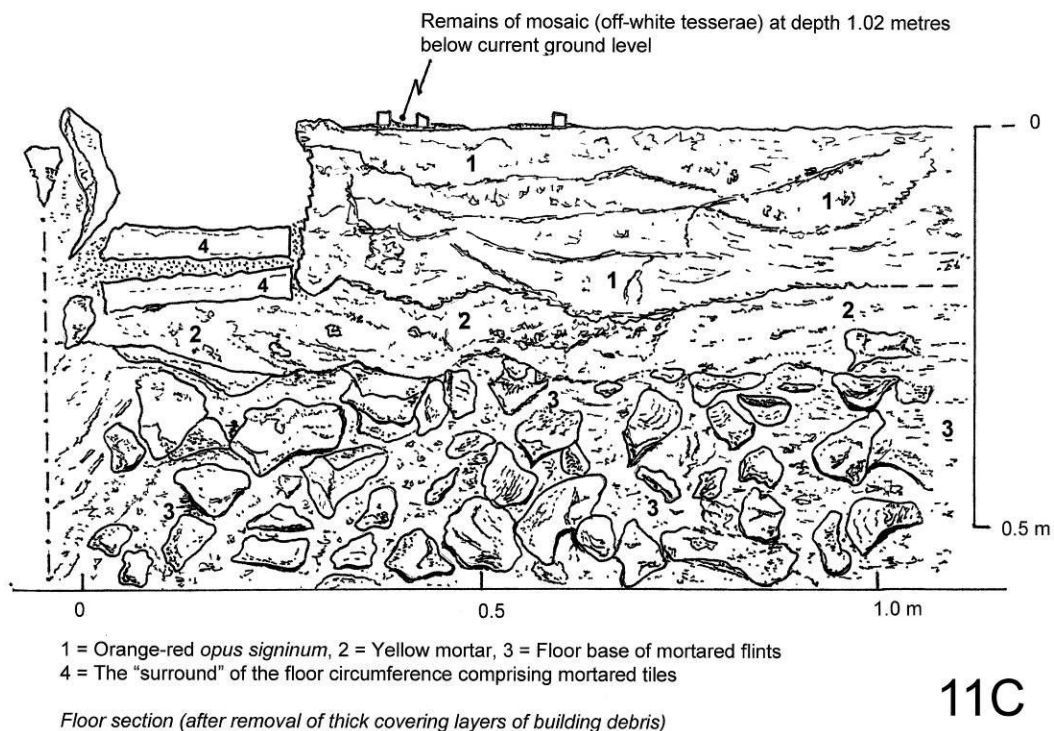
To investigate those destroyed parts of the opus signinum floor which had indications that they resulted from robber trenches rather than natural or controlled destruction in Roman times, trenches PC 1 & WH 4 were opened up.

Trench PC 1

This investigated the destroyed area of the opus signinum floor in the west sector of the semi circle. It showed that the floor had been cut into on a slope, and outside of the apse wall line there was a sloping backfill of chalk which was round in plan, thus being consistent with it being a robber trench (Fig. 17).



It also revealed that the base of the bath had a significant foundation about 15cm depth of large flint cobbles, overlaid by about 15cm of mortar, with about 10cm of opus signinum on top. At the bottom of the trench on the wall line lying on the in situ chalk at depth of 1.51 metres was a thick tile 30 x 20 cm (Roman Besales size is circa 20cm square). This tile is similar to those found in trench RS 2 possibly capping the wall foundation (Fig.19). As it was below the robber trench it could be in situ from Roman times. To determine the extent of the backfill of chalk, trench PC 2 was dug.



11C

Trench PC 2

The extent of the backfill of chalk was revealed and it was shown that the whole area of the opus signinum floor and apse wall was inside a cut in the in situ natural chalk (Fig.18).



Trench PC 3

This was a slot trench to determine what was beneath the layer of redistributed chalk as revealed from the excavation in trench AL. It determined that the redistributed chalk was only at the edge of the trench AL, and that the remainder was in situ chalk except where it exposed a feature that looked like the cut of a wall about 35cm wide that was in line with the wall found in trench WH 1, with the south west edge terminated by in situ chalk (Fig. 20). Therefore trench PC 3A was dug to the south west, and PC4 to the north east.



Trench PC 3A

This was a small slot trench dug on the line of the wall cut in PC 3 and the wall in WH 1. It showed that there was a gap in the wall cut where there was only in situ chalk, and then a flint wall at the southern end. This was interpreted as indicating a doorway between the frigidarium room and a tepidarium room in the south east.

Trench PC 4

This showed a cut into the in situ natural chalk either for a wall that had been robbed out or as a foundation for a timber beam. In the trench, at the eastern end was a slab of mortar with tesserae attached and a slab of opus signinum also with tesserae attached (Fig. 21).



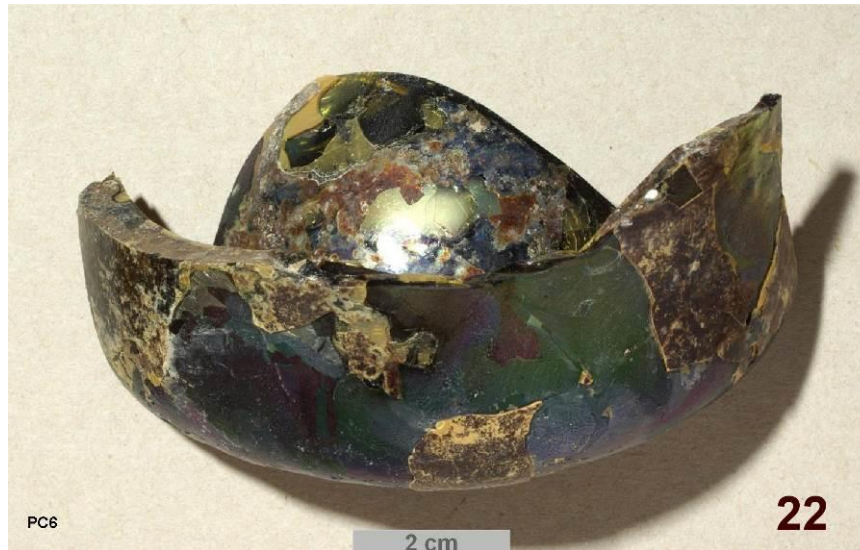
These two items were not excavated further due to their fragility. Clearly these were redistributed remnants from the 1818 antiquarian digging. The opus signinum slab was probably from the destroyed area of the bath but the mortar slab indicates that there were other areas of the bath house that had mosaics.

Trench PC 5

This was in line with trench PC4 and the northern wall in the south west side of trench WH 1. It showed that the cut seen in trench PC 4 with sides cut into the natural chalk did not extend into this trench, apart from a short section (about 20cm) at the end closest to PC4 on the south east side. Instead, it is suggested that either side of the trench, i.e. North West & South East side's and the South East end, were cut by a robber trench or pit.

Trench PC 6

This was a continuation down of trench PC 5 and significantly a part of a beer glass bottle was found. Confirming the robbing from the time of the levelling in 1818 (Fig.22).



A cut into the natural chalk was 1.27 metres deep which is the same depth as that measured in trench WH 1, thus giving evidence that they are from the same building with the same specification for the depth of wall foundation.

Trench RSK

This trench was dug between the southern edge of the opus signinum floor and the south west edge of the main trench following a cut into the sloping backfill and in situ natural chalk (Fig. 23).



We cannot be certain of the purpose of this slot/cut, it could be for a drain going back into the drain system of the rest of the bathhouse or adjacent building or alternatively for a pipe that fed water into the bath, but it is deeper than would be absolutely necessary for a feed pipe.

It should be noted that some areas of the main trench were not excavated due to time constraints and that the site had to be reclaimed for sowing.

Conservation

Advice on conservation was taken from Stephen Macaulay of Oxford Archaeology East and Quinton Carroll of Cambridge County Council H.E.R. Department.

Initial backfilling was done by hand of the trenches surrounding the bath floor up to the level of the floor. Then a layer of sand was put over the mosaics in the north and the south. The whole of the bath area was then covered with a semi permeable close weave plastic sheet and a layer of earth was backfilled over that by hand (Figs 24 to 28). The remainder was machine backfilled by Mr. Harrison.



3. Finds

							BUILDING	MATERIAL	WEIGHT	GRAMS	
RECORD No	DATE	AREA	DUG BY	TRENCH	BAG No	MORTAR	OPUS SIG.	BRICK&TILE	FLUE TILE	STONE TILE	OTHER
19		JCB	JCB	EX JCB DIG	1	0	916	399	111	640	FLOOR TILE 637
33		JCB	JCB	JCB DIG	NONE	6260	4200	16100			
				SUM		6260	5116	16499	111	640	
5		A	AL	MIDDLE	40	740	1348	1497			
10		A	AL	MIDDLE	35	0	770	261		35	
13	21-Aug	A	AL	MOSAIC	6	213	1074	575	34	262	
26	21-Aug	A	AL	MOSAIC	4A	0	0	75			
37		A	AL	MOSAIC	41	0	105	0			
				SUM		953	3297	2408	34	297	
3		C	PC	PC 1	50/1	265	648	1555			
4		C	PC	PC 1	50/2	355	2069	1412			1 FLOOR TILE/PILAE 2440
36		N	PC	PC 2	60	0	0	0	? 1 OFF		
8		M	PC	PC 4	65/1	122	589	617			
32		M	PC	PC 4	70	61	27	139		62	
29		M	PC	PC 5	72	399	218	857			
30		M	PC	PC 6	77	171	127	538	16	131	
31		M	PC	PC 6	77	0	0	459			(B&T IS BRICK 4 OFF)
		C+N+M		SUM		1373	3678	5577	16	193	
39		D	RDS	RS 1	10	0	0	199		19	
22	25-Aug	J	SE	SE1/2	NONE	992	960	519	379	29	
18		K	SR	SR 1	8	0	184	1593		47	FLOOR TILE/PILAE 1123
38		K	SR	SR 1	7B	0	0	0	90		
34		K	SR	SR 4	28A	0	0	86			
				SUM		0	184	1679	90	47	
27	20-Sep	F	RDS	SW SIDE	74	0	0	0	528		1 NV CC POT
28	03-Sep	F	RDS	SW SIDE	53	0	0	0	250		

		F	RDS	SW SIDE	54	191	1295	1056			
				SUM		191	1295	1056	778		
35		A	AL	SW SIDE MOSAIC	48B	0	113	420		215	
12		G	WH	WH 1	11	489	443	506	67		NB. B+T INC. I BRICK 369
25	24-Aug	G	WH	WH 1	NONE	0	0	176			
		G		SUM		489	443	682	67	0	
9		H	WH	WH 2	21	247	544	568		301	
11		H	WH	WH 2	32	139	1027	251			
21		H	WH	WH 2	NONE	188	876	2185	176	2909	
23	25-Aug	H	WH	WH 2	NONE	177	40	175			
		H		SUM		751	2487	3179	176	3210	
16		I	PC+WH	WH 3	44	0	831	1623	193		NB. B+T INC. I IMBEX 256
17		I	PC+WH	WH 3	44/2	0	0	42			
20	27-Aug	I	WH+RDS	WH 3	42	597	1167	456	160		FLOOR TILE 352
24	27-Aug	I	WH+RDS	WH 3	43/0	11	45	141	26	27	
		I		SUM		608	2043	2262	379	27	
1		L	WH	WH 4	66	90	156	64			
2		L	WH	WH 4	61	29	283	616		160	
6		L	WH	WH 4	49/1	211	1083	553			
7		L	WH	WH 4	55	391	966	1129			
14		L	PC+WH	WH 4	46	378	826	619		196	
15		L	PC+WH	WH 4	46/1	0	0	0			CHARCOAL 23
40		L		SUM		1099	3314	2981	0	356	
41											
42		TRENCH	EXCAVATED	TOTAL	WEIGHT	6456	17754	20677	1919	4393	
43				TOTAL	WEIGHT	12716	22870	37176	2030	4933	FLOOR TILE TOTAL WT 4552
44	GRAND	TOTAL	WEIGHT	84277							

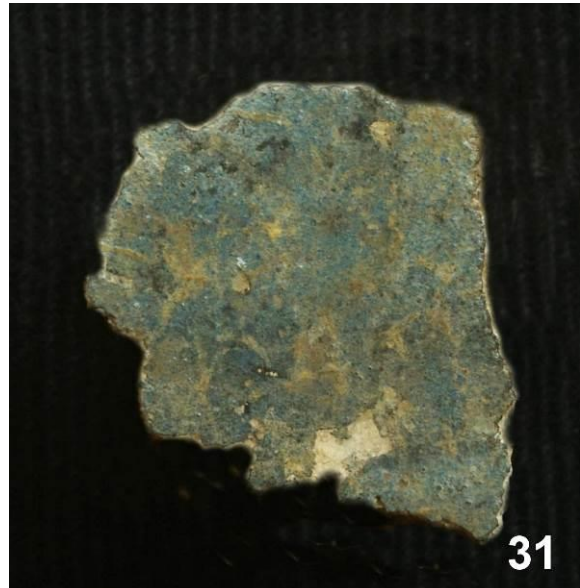
Tessera

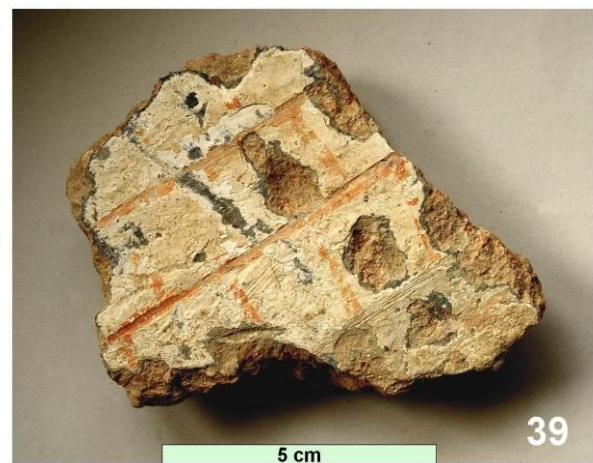
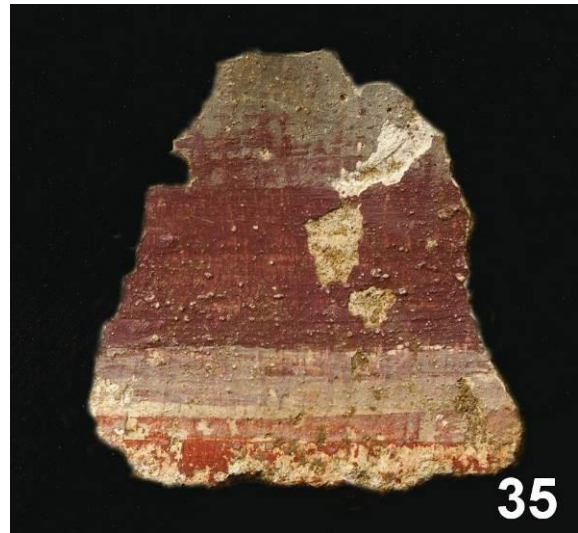
Most of the tesserae which were white were found in the area of the opus signinum floor as expected. In trench AL, which was probably a surround to the bath at a higher level than the bath floor, most were red ex tile, totalling 90. Grand total for all of the excavation was 809 white, 476 red, 63 grey, 20 buff, 8 black. It is worth noting that the red tesserae were in general larger.

To determine how many tesserae would have covered the whole of the floor a triangular area 203 square cm was marked out in the centre of the patch of mosaic in the North and the number of tessera counted. This gave a count of 92 which gave a density of 4532 per square metre. However see Discussion section for comment on this density.

Painted wall plaster

153 pieces were found of many colours. Although most painted wall plaster was found in the bath area, it cannot be said that they all related to the bath. Because of the widespread demolition in Roman times and the levelling in 1818 they could have come from other parts of the bath house.







A selection of the painted wall plaster is shown in Fig. 30 to 40 where the many colours and designs can be seen. Also to be noted is that some show signs of being replastered or covered with mortar, a possible indication of repairs. In the Britannia Monograph Series 3 publication "Wall Painting in Roman Britain (Davey & Ling 1981) comment is made that painted wall plaster in the 1st & 2nd century was evenly applied and highly burnished whereas in the 3rd & 4th century it was coarse with a rough finish. These terms are rather arbitrary and do not help us much in dating the plaster from this site which is considered to be of good standard.

Pottery

Relatively few pieces of pottery were found, but this is not too surprising considering the location to be in a bath house. 30 pieces were found with the most being in one trench, i.e. RS 1 with 9 pieces. A selection of pieces is shown in Figs 41 to 52.







A detailed analysis has not been made of the types, but these results will be amalgamated with those from the excavation of the site in 2010 and any that are found in the proposed excavation in 2012 of the adjacent areas to this excavation. It is then hoped that they can be catalogued by a pottery expert.

Glass

Two types of glass were found, flat green window and black beer bottle glass. Only nine very small fragments and one larger piece of flat green window glass were found, which is not too surprising as glass is easily broken. However it is more likely that the glass was reclaimed at the time of the demolition in Roman times or even later (See figs.15A & B above). The glass can be classified as “double glossy sided” which was more prevalent in the 3rd & 4th centuries, as against “matt and glossy” which is common in the 1st to 3rd centuries (Douglas, Gerrard, Sudds 2011 P121) & (Stern E M 1995). Two pieces of black beer bottle glass were found where it is believed robber trenches were dug at the time of the levelling of the site in 1818, i.e. in trench RS 1, and PC 6 (See fig. 22 above). These bottle pieces can be attributed to the early 19th century so the dates are consistent with the reported date of the levelling in 1818.

Coins

Metal detecting over the excavation trench, its spoil heaps and the surrounding area found a total of twenty-one coins. There were three silver coins, one being an unidentifiable fragment. The rest were bronze and all but three were very badly corroded. All the corroded coins were determined as being 3rd or 4th C Roman from their sizes alone (i.e. AE3, AE4 or minim). (Fig. 52, 60, 61A, 61B, 62)



Metal detected coins from area around the mosaic trench
 Top – AR siliqua of Constantius II, AD 353 – 355
 Bottom – Bronze nummus of Constantine I, AD 307

60



Six corroded bronze coins were recovered from the mosaic trench

Six of the bronze coins were recovered after the mechanical digger had prepared the trench. One coin from the central area of the trench and at a depth of about 0.75 metres was barely identifiable and tentatively ascribed to Constantine II, 317-337.

Details of the identifiable coins are listed below, following examination at the Fitzwilliam Museum.

1. *Dupondius*, Marcus Aurelius, Rome mint, 161-181, condition – very worn, location – 10.4 metres from NE side of trench and 13.6 metres from datum line along SE side of trench.
2. *AR denarius*, Julia Maesa, PIETAS AVG, BMC 73, Rome mint, 218-222, condition – almost uncirculated, location – 10.4 metres from NE side of trench and 9.2 metres from datum line along SE side of trench.(Figs. 61A & B)
3. Barbarous radiate, 3rd C, condition – very worn, location – not precisely recorded by metal detectorist.
4. *AE nummus*, Constantine I, the Great, RIC 240, Lyons mint, Autumn 307, condition – fine, location – not precisely recorded by metal detectorist (Fig.60).
5. *AR siliqua*, Constantius II, VOTIS/XXX/MVLTIS/XXXX, RIC 180, Lyons mint, 353-355, condition – worn/fair, location – not precisely recorded by metal detectorist (Fig.60).

The oldest of the coins is the *dupondius*. It had been in circulation for a long period, being very worn, which is common for the type. The *denarius* may never have been in circulation because of its sharp condition. The mint date of the Constantine bronze can be given precisely because the type was struck to mark his elevation to Augustus. From the coin evidence, the villa/bath house can reasonably be dated from the early 3rd century through to the mid-late 4th century.

Metal

One iron L shape hook found in trench WH 1 could possibly be a hook for hanging clothes on as this part of the trench is possibly the Frigidarium area where people would undress before going to the cold bath or other parts of the bath house. Seven straight nails in trenches SR 3, AL, WH 2, WH 3, & RS 1 can probably be associated with the apse timber external walls.



Lead fragments were in WH 1, WH 2, & RS 1. A lead fragment was also found in the very edge of the main trench east corner at depth of 74cm. Nearby to the main trench the following were found by metal detector; 23 pieces of lead weighing 116g, all scrap fragments with 1 piece rolled up, 1 lead plumb bob steelyard weight with part iron suspension hook weighing 63 gm, and 1 iron nail (Fig.53).

Miscellaneous

An intriguing find in Trench AL at the Southern corner near to the small patch of mosaic, and below the level of the opus signinum, was a piece of stone (Barnack ?) that appeared to have been worked, and it is speculated that it was the elbow part of a statue (Fig. 54).



One clay pipe stem was in trench SR 1. This, like the beer bottle glass found in trenches RS 1 and PC 6, is further evidence of the levelling activity in 1818.

Small amounts of charcoal were noted in trenches AL, PC 1, WH 2, with fairly large deposits either side of the northern wall in trench WH 1, where they lay on top of horizontal placed part flue tiles (See fig.10 and 11). A total of 20 oyster shells were in trenches AL, SR 1, WH 2 (7 off), WH 3 (3 off), and RS 1 (5 off). Just one bone fragment was in trench WH 2.



There were four pieces of flint in total, with the one from trench RS 1 having a very interesting “Concorde aircraft” shape (Fig. 55), and that from WH 3 as probably being Neolithic. But they are all

resulting from the levelling time and could have originated from other parts of the site hence they are out of context.



Building Material (See table below)

In total the following weights were found in hand dug trenches.

Mortar 6,456 g, opus signinum 17,754g, brick & tile 20,677g, flue tile 1919g, stone tile 4393g.

And in the mechanically dug part, that is down to approximately 70-75cm depth, recovered/revealed in spoil.

Mortar 6,260g, opus signinum 5116g, brick & tile 16,499g, flue tile 111g, stone tile 640g.

It should be noted that most of the finds were not in location contexts that could be assigned to their original locations due to the extensive demolition and levelling and redistribution that was done in Roman times and in 1818. This is also evident from the limited 2011 fieldwalking where over 16Kg of surface finds were found, this after many centuries of farming, Beveridge's fieldwalking in the 1970, metal detecting, and many finds by walkers and farmers over many years.

Finds have also been mapped onto a 'heat map', a method of visualisation where various colours denote the proportional weight or quantity of the finds in the various 'areas'. These areas are what we have used to nominally collate individual trenches into meaningful blocks. For details of which trenches are grouped in the areas, see the spreadsheets.

Three heat maps are shown in figures 63, 64, 65, 66 for tesserae, painted wall plaster, pottery and general building materials. More heat map information can be found at <http://bit.ly/wf86Kp>. Here, you can also access and visualise the excavation finds records in various ways.

The results do show the wide dispersal of finds with no real pattern emerging relating find types to any specific areas.

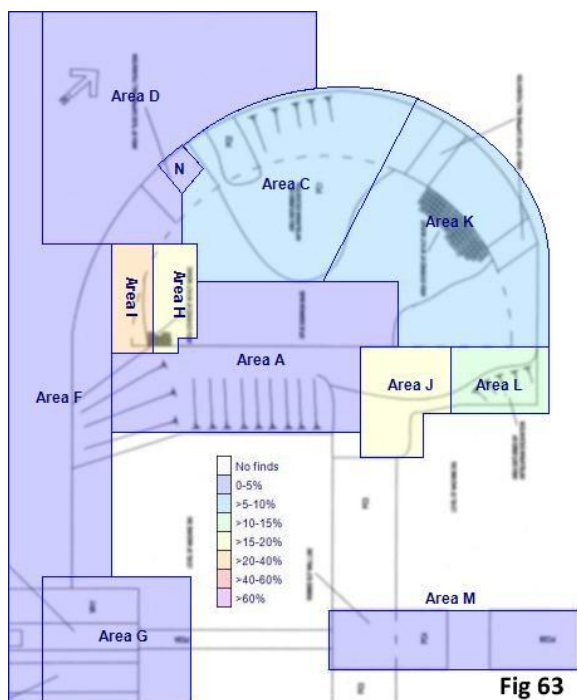


Fig 63

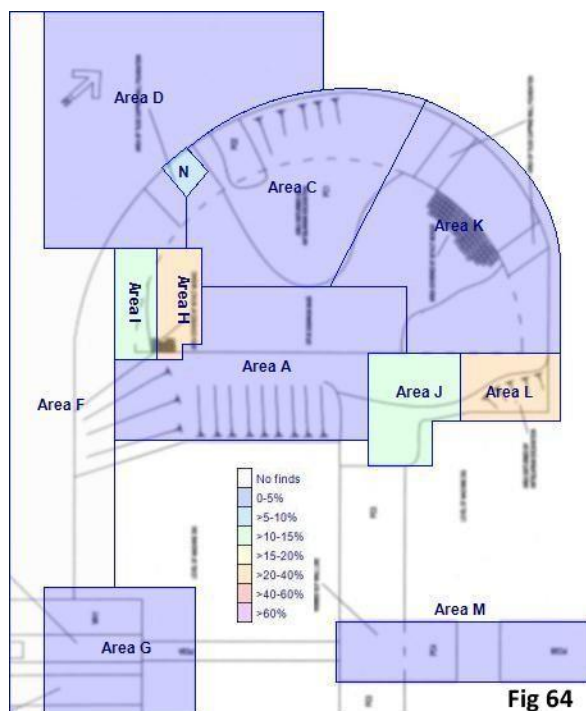


Fig 64

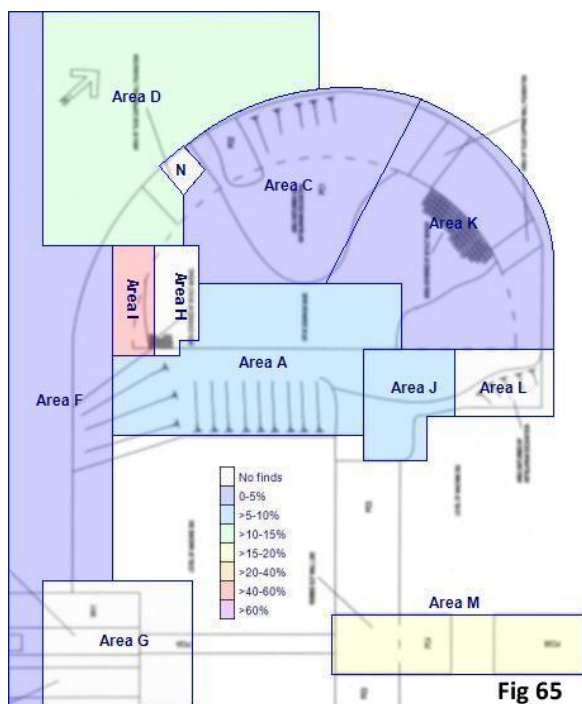


Fig 65

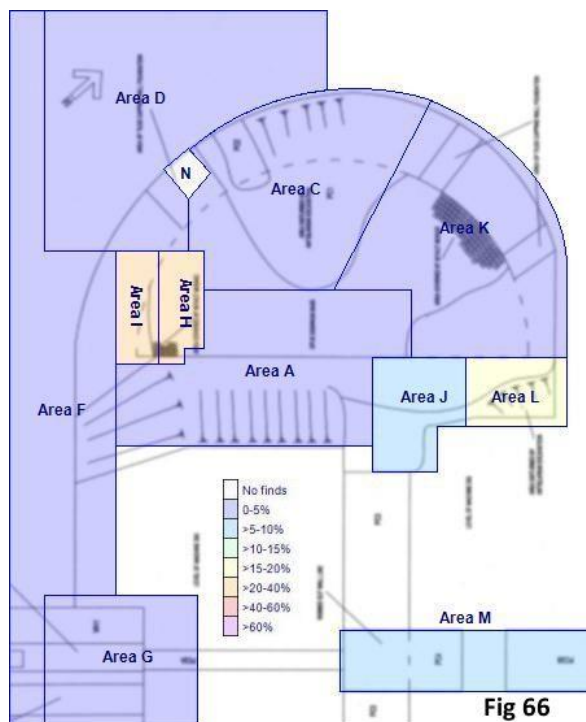


Fig 66

Building materials

Record No	Date	Area	Dug by	Bag No	Trench	TESSERA					Wall Plaster	Pottery	Colour & Type	Other
						White	Red	Grey	Black	Other				
52		SU	?	NON E	SURFACE		6							
58	21-Aug	A	AL	4B	60-80CM		32							
59	21-Aug	A	AL	4C	60-80CM						1			1 OYSTER
43	28-Aug	A	AL	34	CENTRE		17							1 NAIL
24		A	AL	35/2	MIDDLE						1			
42	28-Aug	A	AL	39	MIDDLE									CHARCOAL
37	21-Aug	A	AL	6B	MOSAIC						1			
39	28-Aug	A	AL	41	MOSAIC		12							1 OYSTER, 1 NAIL
40	21-Aug	A	AL	6A	MOSAIC	1	21							
8		A	AL	48A	SW SIDE MOSAIC		2				9			OYSTER, CHARCOAL
		A			SUM	1	90	0	0	0	12	0		
60	21-Aug	SP	GS	3	EX SPOIL	3	6	1						1 BUFF TESS.
44		SP	LC	69	NW SPOIL	0						1	NV CC	
87		D	LC	K	RS 1	0								1 FLINT
					SUM	3	6	1	0	0	0			
14		C	PC	51/1	PC 1	162	16	6	2					
15		C	PC	51/2	PC 1						18			
16		C	PC	51/3	PC 1							1	BUFF	
17		C	PC	52	PC 1									1 FLAT GLASS, CHARCOAL
					SUM	162	16	6	2	0	18	1		
18		N	PC	60	PC 2	5	2				2			
19		M	PC	65/2	PC 4						1			
		M	PC	71	PC 4	4	36			5	5			
		M	PC	73	PC 5	5	14			4		1		1 BLACK POT

89		M	PC	77	PC 6	0	10	0	0	13	2	1		1 BLACK POT, 1 BOTTLE GLASS
					SUM	9	60	0	0	22	8	2		
20		C	PC	NON E	SURFACE						2			
82	27-Aug	D	RDS	33	EX EAST SPOIL							1	GREY	
83	24-Aug	D	RDS	16	RS 1									1 FLINT
84	21-Aug	D	RDS	10	RS 1	9	24	11			12	9		1 DARK BUFF TESS.
85	21-Aug	D	RDS	10	RS 1									2 NAIL,1 LEAD,1 FLAT GLASS
86	21-Aug	D	RDS	10	RS 1	0	0	0	0	0	0	0		4 OYSTER,1 LARGE SNAIL
		D			SUM	9	24	11	0	0	12	9		
81	25-Aug	E	RDS	19	RS 2	87	6	3			1	2	1 NV,1 GREY	
88	20-Sep	F	RDS	74	SW SIDE							1	1 NV CC. BLACK	
80	20-Sep	F	RDS	75	SW SIDE		1					1	GREY	
		F	RDS	54	SW SIDE						8			
		F			SUM	0	1	0	0	0	8	2		
77	26-Sep	G	RDS	J	WH 1	0	1		1					
79	09-Sep	G	RDS	59	WH 1	0								CHARCOAL/ASH
		G			SUM	0	1	0	1	0	0	0		
76	28-Aug	I	RDS	I	WH 3	10	9	3			X? RDS ?			1 NAIL
78	28-Aug	I	RDS	36	WH 3									1 BOTTLE GLASS
					SUM	10	9	3	0	0	0	0		
30		J	SE	24	SE 1	26	16	4						
31		J	SE	27	SE 1									1 GLASS
32	25-Aug	J	SE	23	SE 1	101	1	4				2	?	
34	25-Aug	J	SE	25	SE 1						7			NB. INC 5 PARTIAL.
29		J	SE	NON E	SE 1/2						3			
33	25-Aug	J	SE	26	SE 2						10			NB. INC. 1 CORNER BRICK DARK GREY

					SUM	127	17	8	0	0	20	2		
75	26-Aug	SP	SE	H	SW SPOIL	0	2				1			
					SUM	0								
62	21-Aug	K	SR	7B	60-90CM							4	3 GREY+1 RED	
63	21-Aug	K	SR	7C	60-90CM						3			
25		K	SR	8B	A						1			1 OYSTER
61	21-Aug	K	SR	7A	CENTRAL Tr A	35	21	3						6 BUFF TESS.
1		K	SR	17	MOSAIC	129								
2		K	SR	18	MOSAIC	6	3	2	1			1	GREY	1 CLAY PIPE STEM
5		K	SR	37A	SE 2						16			
6		K	SR	37	SE 2	170								
7		K	SR	38	SE 2		45	5						
4		K	SR	29	SR 3	3								1 NAIL
3		K	SR	28	SR 4	0	4					1	BUFF	
					SUM	343	73	10	1	0	20	6		
36		SU	WH	15	SURFACE	0								1 AMPHORA BODY ?
35	21-Aug	G	WH	9	EAST CRN	0								1 LEAD(METAL DETECT)74CM DEPTH
64	21-Aug	G	WH	12	WH 1	0	16	4						3 BUFF TESS.
65	21-Aug	G	WH	13	WH 1	0					4			
72	24-Aug	G	WH	F	WH 1	0	2	1						
74	21-Aug	G	WH	14	WH 1	0								
		G			SUM	0	18	5	0	0	4			
13		H	WH	22	WH 2									1 FLAT GLASS
23		H	WH	21B	WH 2		2				1			
28	24-Aug	H	WH	NON E	WH 2						7			
38		H	WH	32/3	WH 2						8			CHARCOAL
41		H	WH	32/2	WH 2	3	17		1					
48	25-Aug	H	WH	20	WH 2	1	16	2						
53	24-Aug	H	WH	A	WH 2	3	22	1						

54	24-Aug	H	WH	B	WH 2						7			
55	24-Aug	H	WH	C	WH 2									7 OYSTER+2 FRAGS.
56	24-Aug	H	WH	D	WH 2									1 LEAD, 1 BONE
57	24-Aug	H	WH	E	WH 2									CHARCOAL
73	25-Aug	H	WH	G	WH 2	1	1							LARGE L HOOK,1 LEAD,1 ROUND STONE
		H			SUM	8	58	3	1	0	23	0		
67	27-Aug	I	WH	43/2	WH 3						5			
68	27-Aug	I	WH	43/3	WH 3							5	4 GREY,1 RED	
69	27-Aug	I	WH	43/4	WH 3									1 FLAT GLASS,1 FLINT
70	27-Aug	I	WH	43/5	WH 3									1 NAIL
71	27-Aug	I	WH	43/6	WH 3									3 OYSTER
66	27-Aug	I	WH	43/1	WH 3	21	42	11	1					
		I			SUM 2	21	42	11	1	0	5	5		
21		L	WH	49/2	WH 4						10			
22		L	WH	49/3	WH 4	4	26							
45	09-Sep	L	WH	62	WH 4	5	6							
46	12-Sep	L	WH	68	WH 4						4			
47	12-Sep	L	WH	67	WH 4	1	5							
49	09-Sep	L	WH	63	WH 4						2			
50	08-Sep	L	WH	56	WH 4	12	8	1	1					NB BLACK IS FLINT
51	08-Sep	L	WH	57	WH 4		2				13			
		L			SUM	22	47	1	1	0	29			
26		JCB	JCB	1	EX DIGGER	0	7	0	1	0	1	1	?	1 OYSTER,1 LEAD
27	27-Aug	I	WH/ RS	NON E	WH 3	1	4				3			
9		I	WH+ PC	45/1	WH 3						5			
10		I	WH+ PC	45/2	WH 3	1	5							1 FLAT GLASS
		I			SUM	2	9	0	0	0	8	0		

11		L	WH+ PC	47/1	WH 4	3	4	1						
12		L	WH+ PC	47/2	WH 4						15			
					SUM	3	4	1	0	0	15	0		
				GRA ND	SUM	811	494	63	6	22	188	32		
			TOTA L	TESS ERA	1396									

4. Discussion

It is clear that the mosaics found are the bottom of a cold water bath. The best estimate based on measurements taken of the surviving floor gives the size of this bath as 10 Roman feet (1 Pertica) (2.96 metres) along the straight edge and a radius of 5 Roman feet (1 Passus)(1.48 metres) for the semicircle. Precise measurement is not possible because of the destruction of both ends of the straight edge of the bath floor. However we believe the estimate to be accurate as it is likely that the bath was constructed to a size that used exact Roman feet.

The evidence for the feature being a cold bath is:-

The level of the mosaic at 102cm is below that of the adjoining southern area. A difference in level of at least 38cm (If a level of 64cm for the hypocaust capping tile depth in trench WH 1 is used to indicate the lowest floor level for the South East area).

The base is a substantial foundation of opus signinum on top of a mortar layer. This construction would not be used for example in an apse area in a dining room.

On the northern side of the floor there is a small section where there is upstanding opus signinum which indicates the side of the bath.

The absence of any hypocaust in the area of the bath and adjoining area is supporting evidence for a Frigidarium area. This area in the south east section of the trench is in situ chalk at about 80-85cm depth and was mechanically excavated to 70cm below ground level, but had a possible floor at a depth of 64cm or less, below current ground level based on the level of capping tile in the south corner of the main trench. However it would appear that based on the feature in the south corner of the main trench (trench WH 1) which had capping tiles to a flint wall at depth of 64 cm, that there is a probable hypocaust system to the South West.

A possible layout for the bath house is presented in Fig. 56. This is based on the cold water bath being in the Frigidarium and also takes into consideration that the slot trench PC3A between PC 4 and WH 1 showed a doorway which could have led into a Tepidarium to the south east. The Tepidarium then connected to a caldarium and furnace room in the East. This postulated layout should be compared with the features excavated at the site in 2010 (Scarle 2010).

For example trenches B235245 & YX 235245, which are only a few metres to the east of the main trench and in the possible area of the caldarium had floor bottoms of 1.09 metre or more which would allow about 45cm for a hypocaust if it is assumed the floor is at the same level as the adjacent Frigidarium at 64 cm depth below current ground. In deriving this interpretation, the section 4.2 "Reconstruction of the Bath House" in the report by Pre-Construct Archaeology of excavation of a bath house at Shadwell, was most helpful. It discusses the problems of reconstructing when the available excavation information is limited and discusses the construction and materials used. (Sudds B, pages 153 to 163, in Douglas A, Gerrard J, Sudds B. "A Roman settlement and bath house at Shadwell" 2011)

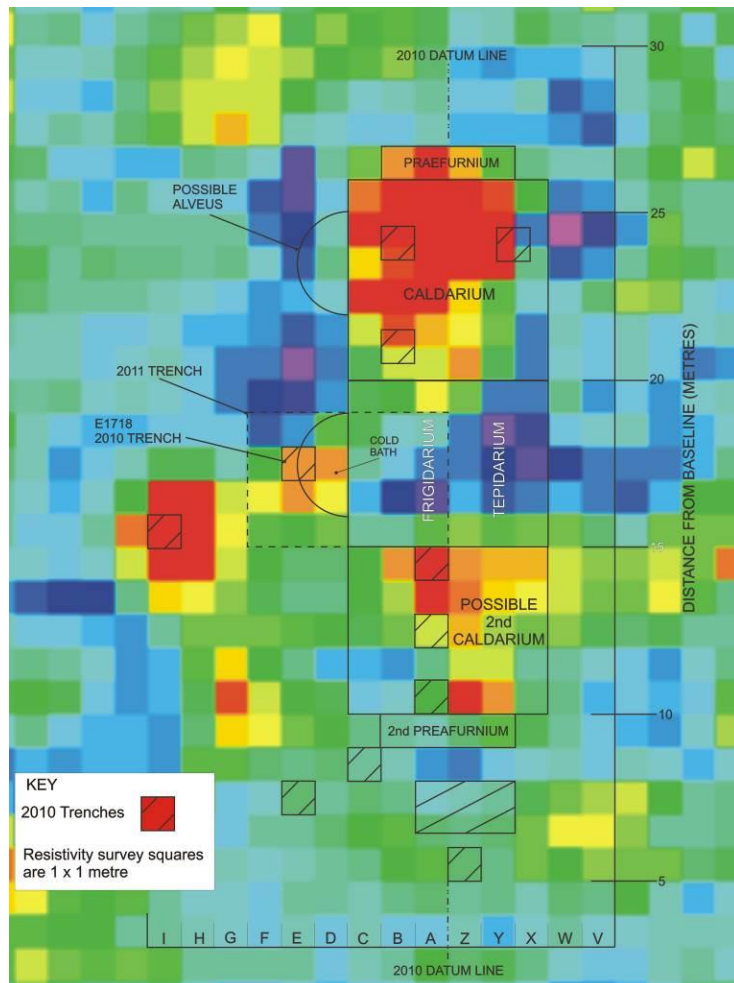


Figure 56

The robber trenches that destroyed parts of the bath can safely be linked with the levelling activity in 1818, due to the finds of the beer glass bottles in trenches WH 3 & PC 6, and the clay pipe stem in SR 1

Cronicle Hills

In the year 1818 some barrows situated near nine wells on the edge of the high ground where the moor called 'Got moor' which forms a part of the low ground of which Triplow Common is a ^{contingent} part, were cleared away to fill up some of the hollows near so as to improve the land for agriculture, and then a number of antiquities were discovered many of them of undoubted Roman origin though it is probable the tumuli themselves might have been of earlier date.

The writer of this was too young to take much interest in them at the time they were discovered but remembers seeing a large portion of a tiled alated pavement in a comparatively

57

perfect state - part of a bath with a length of lead pipe from the bottom to convey the water away. ~~part of a bath~~ ^{also the} appearance of a number of apartments from the remains of walls foundations and floors which extended a long way about - the proprietor of the ground had a number of holes dug to see how far they extended - they were covered by a layer of moulded broken bricks & tiles of various shapes many having them with running patterns moulded on them & others with the sides turned up as though they had formed part of a roofing, fragments of pottery, shells of oysters & bones of animals also a great quantity of stones consisting of flints & thin pieces of limestone slate.

The ground around the spot at the present time is strewn with fragments

58

There is also written evidence:-. The Whittlesford “antiquarian” Maynard writing in his diary (Figs. 57 & 58) and our transcription below

Main content

In the year 1818 some barrows situated near Nine Wells on the edge of the high ground where the moor called Got Moor which forms a part of the low ground of which Triplow Common is a continuation were cleared away to fill up some of the hollows near so as to improve the land for agriculture, and then a number of antiquities were discovered many of them of undoubted roman origin though it is probable the tumuli themselves might be an earlier date.

The writer of this was too young to take much interest in them at the time they were discovered but remembers seeing a large portion of tessellated pavement in a comparatively perfect state – part of a bath with a length of lead pipe from the bottom to convey the water away. Also the appearances of a number of walls foundations and floors which extended a long way about – the proprietor of the ground had a number of holes dug to see how far they extended – they were covered by a layer of mould about two feet thick and consisted of broken bricks & tiles of various shapes many of them with running patterns moulded on them & others with the sides turned up as though they had formed part of a roofing, fragments of pottery, shells of oysters & bones of animals also great quantities of stones consisting of large flints & thin pieces of limestone slate.

This ground around this spot at the present time is strewn with fragments...

Side note

A person who saw some of these remains excavated on being shown (an?) engraving of a hypocaust discovered at Lincoln said immediately that he well remembered seeing there a place exactly like it with the exception of (?) (?) (?) having been built with square blocks (?) bricks

“The writer of this was too young to take much interest in them at the time they were discovered but remembers seeing a large portion of tessellated pavement in a comparatively perfect state – part of a bath with a length of lead pipe from the bottom to convey the water away. Also the appearances of a number of wall foundations and floors which extended a long way about – the proprietor of the ground had a number of holes dug to see how far they extended – they were covered by a layer of mould about two feet thick and consisted of broken bricks & tiles of various shapes many of them with running patterns moulded on them & others with the sides turned up as though they had formed part of a roofing, fragments of pottery, shells of oysters & bones of animals also great quantities of stones consisting of large flints & thin pieces of limestone slate” (Maynard diary 1818 pages 325 & 326).

This report implies that although some of a mosaic was visible other parts had a cover of two foot of earth.

If the mosaic seen by Maynard was only a part of the bath, and it was the same as the present excavated one, it could explain why the diggers of 1818 dug through the floor. It was because they wanted to discover the extent of the mosaic and in their enthusiasm they dug through it. It is hard to believe that they would have deliberately dug through the bath mosaic if it was visible.

Maynard’s comment on the presence of a length of lead pipe coming out of the bottom of the bath to convey water away would appear to give confirmation of our observation of a gully (Trench RSK) leading away from the bath, if it is the same bath.

Measurements have been made on the area of the mosaic in the North to get some idea of the density of the tessera and thereby calculate how many tessera covered the entire bath floor. A triangular area 19cm x 22cm (less 3.5cm x 3.5cm where there were no tessera) had 92 tesserae.

So $(19 \times 22) - (3.5 \times 3.5) = 418 - 12 = 406$ sq cm with 184 tesserae.

This equates to 4532 tesserae per square metre.

Area of semicircular floor $= 0.5 \times \pi \times R \times R = 0.5 \times 3.142 \times 1.48 \times 1.48 = 3.44$ square metres.

Thus total number of tessera = $3.44 \times 4,532 = 15,590$

An alternative assessment was also made by selecting at random white tessera from trench PC 1 (north west area of opus signinum floor) and reconstructing a dry mosaic by laying them on a 10 x 10 cm square. Allowing for the intervening mortar between the tessera, this required 36 tesserae. Therefore the density using this method is 3,600/sq. Metre, giving a total of $3.44 \times 3,600 = 12,384$. It is therefore reasonable to take a figure in between as being representative of the density. So a probable total of approximately 14,000 is obtained.

This should be compared with the total number of tessera (excluding the red type which is not from bath area) recovered by the excavation of 900, that is 6.4 %. It would appear that a higher percentage of red tessera were recovered but this cannot be backed up by firm figures as the area that the red tessera covered originally is not known, but considering their larger size, they are possibly from a walkway. Total red tesserae recovered was 476.

A subjective comment on the mosaic is that it is of poor quality, with little uniformity of shape and placement. However this may also be considered good use of limited and costly resources as any user of the cold bath is unlikely to spend any time observing the floor of the bath. On the other hand the quality of the wall painted plaster appears to be reasonably good. So again resources are used appropriately.

The construction of the above ground walls of the bath and the Frigidarium in general cannot be defined. But the construction sequence for the bath may be deduced. First the bath area was located in a cut in the in situ natural chalk with the apse wall and straight edge wall then being built up to the top of the bath, and then the opus signinum base and sides were laid and the mosaics added. The gap between the cut in the chalk and the encompassing wall was then backfilled with chalk sloping down to the base of the wall, with the remainder being levelled up with earth when the bath wall was complete. Re the roof it should be noted that only a few roof tiles of terracotta and stone were found, but it is likely that this type of building material would have been reclaimed when the building was destroyed. Alternatively the roof could have been thatched. The walls above the foundation were probably of wattle and daub with main timber supports though no daub was found at all. If any part was of brick, then again it could have been reclaimed when the building was demolished. Limited fieldwalking made after this excavation revealed large amounts of building materials particularly concentrated around the excavations of 2010/11, also evidence from Beveridge's fieldwalking in 1975 (although not precisely recorded by him) also found significant quantity of building materials.

Definite dating of the construction, use and demolition of the bath house cannot be made at the moment, but the evidence from coins and glass indicate construction possibly in 2nd /early 3rd century and use into the 4th and maybe the 5th century. Pottery as previously explained has not been examined by experts so when this is done more accurate dating may be possible. It may be relevant that a piece of Samian pottery was found on the surface approximately 10 metres to the east of the main trench and this had a potters stamp on it of Constans, of probable date 160-180 AD. This piece cannot be directly associated with the bath house and possibly came from the nearby villa. Also there were many fragments of flue tile with many differences in fabric etc, suggesting possibly a

number of phases of building. This may explain the presence of two adjacent walls in the south east corner.

5. References

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6. Acknowledgements

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Quinton Carroll of Cambridge County Council HER Department is thanked for his approval of the project. Advice on conservation was also given by him and Stephen Macaulay of Oxford East Archaeology.

Mark Hinman of Pre-Construct Archaeology has been very supportive of our excavations at Nine Wells since 2009 and is specially thanked for taking precision GPS measurements of the site and the datum points used in the geophysical survey made by the RheeSearch Archaeology Group.

Colin Butler of Whittlesford saved us many hours of digging by mechanically excavating the top layer with his JCB.

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Thanks also for the following contributions to the report.

Peter Cornelissen. Creating the software for the Heat Map and displaying the finds on the maps.

Adam Lister. Drawings of the Site plan and Finds area trench plan.

Stephen Reed. Photographs of pottery, painted wall plaster, tesserae, glass.

Rodney Scarle. Drew the section drawings and wrote the section on coins.