

IMTO – Italian Mission to Oman

University of Pisa

SUMHURAM

Preliminary Report

September – December 2015 (SUM15C)



PRELIMINARY REPORT (SUM15C)

September - December 2015

The third IMTO's campaign of 2015 (SUM15C), under the direction of prof. A. Avanzini, started on 26th September and finished on 10th December 2015.

Excavation was performed in two areas with different goals.

In Area A, southern part, excavation was completed in building BA12 and in A176. Furthermore two deep soundings were dug to clarify first stratigraphic relations in the area.

In Area F five different operations took place to clarify stratigraphic relations and relative chronology of the city wall and the surrounding of MB2. Excavation in the square A20, near the walls of the temple of Sin (BF3) to clarify the earlier stratigraphic relations in the area and the relations between the temple's wall. Excavation to the south of the building named Monumental Building 2 (BF5) with the aim of expose the first layer of the city contemporaneously with the water channel that excavated during the campaign SUM15A and SUM15B. Excavation concerned also the street A217 to expose in a deep sounding the earliest deposits in the area.

Excavations were conducted on the field by Prof. Alexander Sedov, dr. Vittoria Buffa, dr. Alexia Pavan, dr. Silvia Lischi, dr. Cleto Carbonara, Mr. Said al Mashani and Mr. Said al Amri, senior student Carlotta Rizzo and students Giada Manzinali, Divina Centore, Eleonora Serra.

Arch. Alessandro Massa was responsible of the architectural survey, the CAD digitalization and the updating of the plans of the city.

The restoration activities have been carried out at the wall (partially dismantling and rebuilding) M134 and at the walls M555 and M550 inside the city.

The restoration of the walls M134 can be considered a huge intervention that involved the partial dismantling, the reconstruction of the walls.

The restoration and consolidation of ancient masonry structures has been done under the coordination and direction of Arch. Valter Filatondi as indicated in the restoration chapters.

The work of IMTO has been possible thanks to the collaboration of the Office of the Adviser of His Majesty the Sultan for Cultural Affairs in Salalah and in Muscat, in particular Ghanem al Shanfari, Said al Mashani, Ali al Kathiri, Said al Amri, Said al Salmi, Hassan al Jabri. We thank them all, together with all the Museum's team, for their kind helpfulness.

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Archaeological Report

Excavation in Area A, room A176 (trench supervisors: Alexia Pavan and Carlotta Rizzo)

Room A176 was investigated during the archaeological campaigns: SUM11A and SUM11C. It is placed between BA12 and BA6. The perimeter walls of A176 are from north to west: M126, M514, M127 and M184.

During the present campaign the area was investigated in order to reach the water channel M719 brought to light in street A75.



A176: before excavation.

The works started with the removal of the staircase M538 to reach the levels left *in situ* and the mud-bricks walls M519 and M520.

The first level brought to light was **US517floor**, reached at an elevation of 29.73 m. It was a well preserved floor brownish gray in colour and medium compact in consistence. The US517floor was cut by a pit, named **US805**, made of loose reddish brown soil with several stones of medium and big sizes and a lot of mud-bricks. Below M127 there were a lot of plaster fragments, probably fallen down from M127. Below M126 there were a lot of crumbled mud-bricks, probably fallen from M126.

Very few findings were collected: some animal bones and marine shells, 18 fragments of storage vessels (10 amphorae), 1 fragment of table vessel, 5 fragments of kitchen vessels, one iron nail (MI272), a stone vessel (S2784).

The bottom of US805 pit corresponded to **US522floor**, found at an elevation of 29.17 m. So far, US805 was removed. The US522floor was flat and quite regular, brownish gray in colour, rather compact in consistence with several mud-bricks used to level the layer. Few findings were collected, few bones and shells, an iron nail (MI274) and some fragments of pottery (12 storage vessels, 4 amphorae; 1 kitchen vessel).



A176: US805 pit.

Below US522floor, **US524** was unearthed. It was an accumulation loamy and loose in consistence, with quite regular surface, brownish gray in colour. A lot of charcoals, mud-bricks, animal bones, marine shells and pottery shards were collected. Interesting findings were the burnt date seeds, collected as samples (n. 29).



A176: burnt date seeds.

The pottery shards belong to different categories and shapes: 67 storage vessels, 14 amphorae; 6 table vessels (1 Wheeler type 1); 19 kitchen vessels. The following objects were unearthed: a coin (Co971); a clay object (C174); a bronze fragment (MB932); an oil lamp (Sh791) and a whetstone (S2808). In the interface between US522floor and US524 the remaining part of M519 and M741, the small wall leaning it, were found. The area delimited by walls M519, M741 and M742 was named **A257**.

During the removal of US524 the mud-bricks walls M743, M739, M740 were found. The delimited area was named **A258**. The US524 leans on walls M519, M520, M740, M739, M743, M741, M742

and covers also part of the foundation of these walls. With the aim to follow the water channel M719 found in street A76 the two ambient A258 and A257 were investigated.

Ambient A258

A258 was delimited by walls M739, M743 and M127. **US524** was discovered also here. At an elevation of 28.46 m, a new layer was found named **US813**. It was made by loam, gray in colour, with white inclusions, some charcoals and few animal bones. Four fragments of storage vessels (2 amphorae) and a small bronze plaque (MB936) were found. After the removal of this layer, the foundation filling of the water channel, **US775**, was dug. Only a fragment of straw temper ring base was found (US775,1). It was possibly reworked as suggested by the traces on the upper part and the intentional hole inside the base. It could be connected to water device.

The upper part of the water channel, M719, was reached at an elevation of 28.38 m.

Continuing the excavation eastward, with the aim of following the water channel M719, **US811** was unearthed (sup. el. 29.17 m), between M741 and M743. It was an accumulation layer, medium compact in consistence, brownish gray in colour, with some crumbled mud-bricks, charcoals and burnt animal bones. Very few fragments of pottery were found (5 storage, 2 amphorae, 2 kitchen vessels). After the removal of US811 the foundation filling, **US775**, was found at an elevation of 28.38 m.

Ambient A257

A257 was delimited by walls M519, M741, M742 and M127. It was investigated in SUM11C. After the removal of **US526**, **US812** was found. It was a medium compact deposit (th. 6 cm) made of crumbled soil with reddish small stones. Two coins were collected (Co972, Co982).

In the north-eastern part of A176, below US524, **US814** was found at an elevation of 28.70 m. It was an accumulation layer medium compact in consistence and light brown in colour. 3 fragments of storage vessels (1 amphora) and the head of a nail (MB937) were found. Below US77, M719 was found at an elevation of 28.50 m.



A176: after excavation.

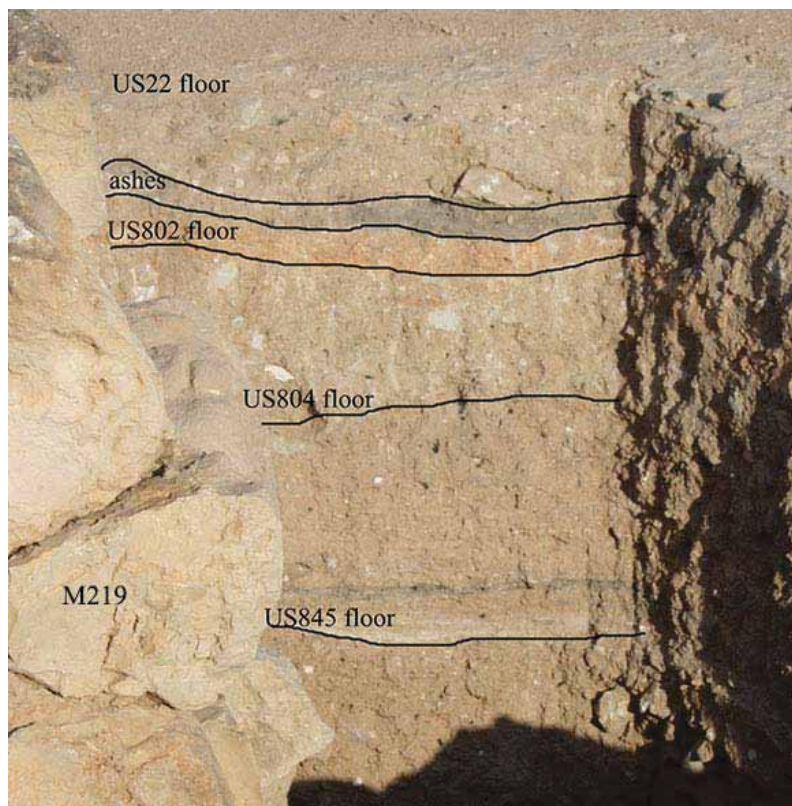
Excavation in Area A, A75 (trench supervisor: Alexia Pavan and Carlotta Rizzo)

With the goal of investigate the water channel M719, brought to light in SUM15A, during this campaign it was made a trench to follow it.

The sequence drawn in the section of SUM15A was: US22floor, US769, US770, US775, bedrock. But after the removal of US22floor, the walking layer, instead of US769 a new layer was found named **US802**. The accumulation, which had a thickness of about 10 cm, was brownish gray soil with ashes lenses and charcoals. The floor, reached at an elevation of 29.29 m, was made by reddish brown compact soil and clay matrix. Few pottery sherds were collected: 6 storage vesseks (1 amphora), 2 kitchen vessels.

Only two objects were found: a whetstone (S2788) and an oil lamp (Sh784).

Below US802, **US804** was brought to light. It was an accumulation made of crumbled loam brownish gray in colour, with charcoals, animal bones and marine shells. Only 4 storage vessels (2 amphorae) were found. Few objects were collected, a coin (Co962), a shell bead (Sh777), a bronze hook (MB921), an iron nail (MI269) and a stone hand mill (S2792). The floor was made by medium compact light gray loam (el. 29.16 m). After the removal of US804floor, **US845** was investigated. It was made by an accumulation brownish gray in colour medium compact in consistence, with some charcoals, animal bones and marine shells. An hard packed well made floor light gray in colour, was reached at an elevation of 29.98 m. It was made by greyish loam with white inclusions and fragments of white plaster. After the removal of the US845floor it was impossible to continue because we found the continuation of M770.



A75: sequence of layer found western of A75.

Enlargement North and Southward of the sounding in the street A75 (trench supervisor: Cleto Carbonara with Carlotta Rizzo and Alexia Pavan)

The enlargement of the sounding did in the SUM15A campaign in A75 has the aim of clarify the relationships among the walls of BA6, M106 and M126, the wall of BA12, M125, and the wall discovered below them in SUM15A, named M767.



Deep sounding in A75 after SUM15C excavations.

The excavations of SUM15C campaign in A75 starts from the northern section of the deep sounding, from an elevation of 29.05 m. The removal of US22 floor and US769 unearthed a row of big limestone blocks oriented North-South, below M106. The top of this alignment is at an elevation of 28.92 m. Its base has been found on the US769 floor that is at an elevation of 28.61 m. Below US769, the US770 has been excavated. It consists of loam reddish brown in colour and medium compact in consistence. Its floor, that consists of a well preserved earth-packed soil grayish in colour and very compact in consistence, was found at an elevation of 28.47 m. At this level is visible the foundation of the wall M106, consisting of stone slabs protruding from the wall. From the excavation we can understand that the wall M106 had two constructional phases. The upper part was built with big limestone blocks. The lower part, named M106a was built with smaller and more regular blocks.

Below US770 floor, the bedrock has been reached to an elevation of 28.30 m.



Enlargement northward before excavation



US769 floor with stone alignment



US770 floor with stone alignment



Bedrock with foundation of M106

A further enlargement of the sounding northward has been done during SUM15C campaign. Here, between US22 floor and US769, has been recognized the US833. Its superior elevation is 28.85 m. It consists of a loam mixed with some limestone and sandstone blocks small and medium in size. It is loose in consistence and reddish brown in colour. US833 returned a lot of crumbled animal bones, a fragment of a soft-stone jar (S2824), and a total of twenty-three pottery sherds, among which nineteen belong to storage vessels, two to table and two to kitchen ones. US833 rests on floor consists of a compact earth packed soil grayish brown in colour, found at an elevation of 28.77 m. US833 floor was cut by a channel 0.32 m wide, used for the draining of the water, oriented North-South. The excavation of its filling returned some animal bones and only one pottery sherd. The drain channel, US832, was filled by a very soft soil brownish in colour with traces of plaster and some whitish pebbles in it. Its bottom was found at an elevation of 28.60 m.



US833 floor with drain channel US832

Below US833, US769 was excavated. It consists of loam medium compact in consistence and reddish brown in colour. In it we can recognize few calcareous stones small in size, some charcoals and few animal bones. No objects or small finds were found in US769. It returned a total of twelve pottery sherds. Only one of them belongs to a kitchen vessel. Other ones belong to storage vessels. The floor of US769, found at an elevation of 28.57 m, consists of a grayish earth packed soil.



US769 floor

To understand the relationships among this layers and the buildings placed West of A75, we decide to enlarge the trench westward. In the western enlargement we can recognize the same stratigraphy until US769. The sequence is summarized as follows:

US22 floor
US833
US769.

The US769 floor in the western part of the trench has a light slope from West to East. It is cut by another drain channel oriented North-South (US847). In our trench it is visible for a section 1.72 m long and 0.20 m wide. It is filled by a very soft soil brownish in colour. In it has been possible to recognize traces of plaster and few calcareous stones small in size. The filling of the drain channel also returned a large amount of animal bones. Its bottom was found at an elevation of 28.41 m.



US769 floor with drain channel US847

US769 covers US770. It is an accumulation layer that consists of loam grayish brown in colour and medium compact in consistence. Loam is mixed with some scattered stones small in size and few charcoals. US770 returned few animal bones and seven pottery sherds (4 storage, 3 kitchen). No objects or small finds were found in it. US770 floor is a very compact earth packed soil grayish in colour. Also this floor is cut by the drain channel US847 and has a light slope from West to East.



US770 fl. with drain channel (northern trench)



US770 fl. with drain channel (western trench)

The layer covered by US770 is US846. It is a not very thick accumulation layer made of loam grayish brown in colour and compact in consistence. In it we can recognize few scattered calcareous stones small in size and some traces of ash and charcoals. US846 returned few animal bones and four pottery sherds. Among them three belong to storage vessels and one to a kitchen vessel. No objects or small finds were found in it. US846 rests on a very compact earth packed soil grayish in colour, found at an elevation of 28.43 m and cut by the drain channel US847. In the western part of the trench, US846 floor has a light slope from West to East.



US846 floor with drain channel US847



US846 floor with drain channel US847

It is possible to suppose that the channel US847, cut in US846 floor, is raised with the accumulation in the street A75, and was also used with the two higher floors, US769 and US770 floor.

In the north-western part of the trench, below US846, we can recognize another layer made of clay reddish in colour and compact in consistence, named US848. It didn't return any object or pottery sherd. It is possible that this layer had the function to level the bedrock that below it was found at an elevation of 28.21 m. In the western part of the trench, along the wall M66, US848 is cut by a large pit filled by clay matrix loam very loose in consistence and brownish in colour (US849), mixed

with a lot of charcoals and traces of ashes. Several crumbled animal bones were found in it. Near the foundation of M66, found at the elevation of 27.86 m, we recognized the presence of some broken and complete mudbricks. The pit has an amazing depth of 0.96 m. The bedrock at its bottom is at the elevation of 27.47 m.



US849

In the southern part of the sounding the situation is different. The starting level of the US22 floor here is at a higher elevation than the northern part of the sounding. Below US22 floor, that here is at an elevation of 29.41, US802 has been excavated. The layer was identified during the present campaign and it was not included in the US' sequence brought to light in SUM15A. It is an accumulation layer, which had a thickness of about 10/20 cm. It is made of brownish gray soil with ashes lenses and charcoals. The floor, reached at an elevation of 29.20 m, was made by reddish brown compact soil with a clay matrix. Few pottery sherds were collected: 6 storage vessels (1 amphora), 2 kitchen vessels. Only two objects were found: a whetstone (S2788), an oil lamp (Sh784).

US802 covered US804. It was an accumulation made of crumbled loam brownish gray in colour, with charcoals, animal bones and marine shells. Its floor consists of a level of loam medium compact in consistence and light gray in colour. US804 floor was found at an elevation of 29.05 m

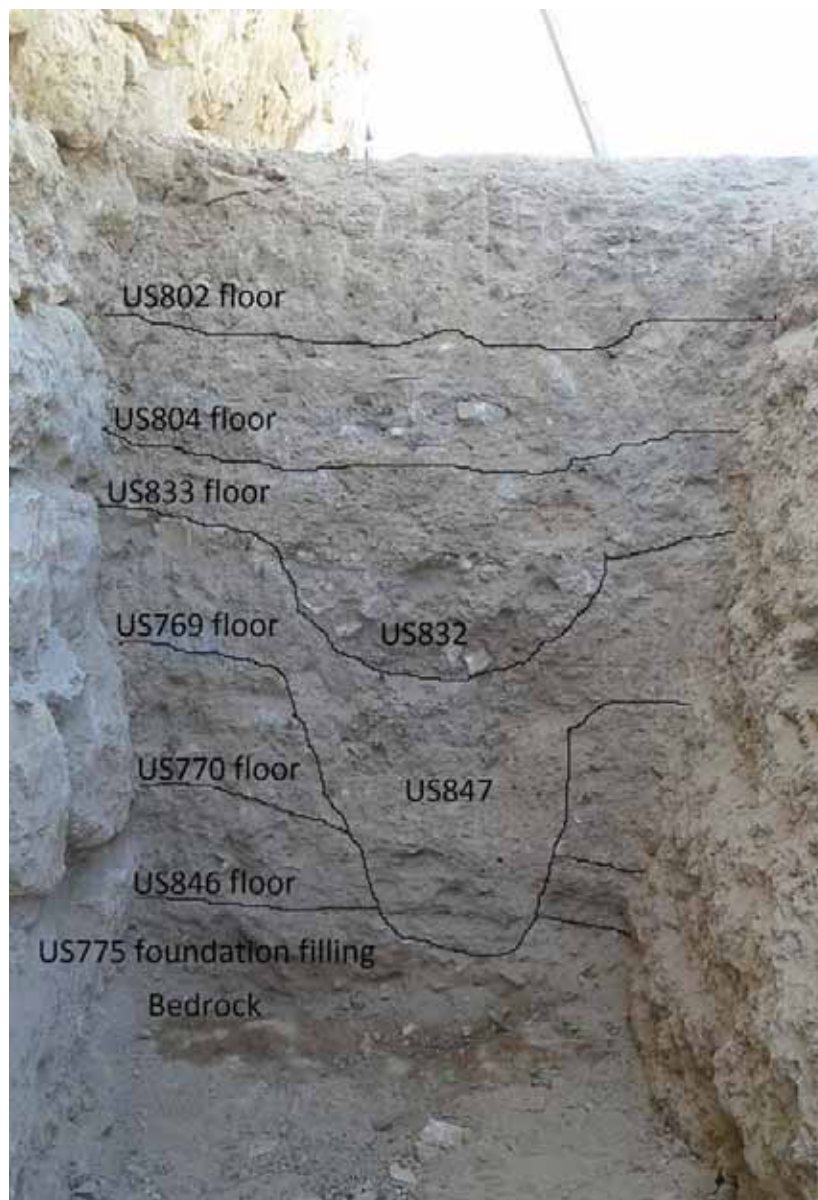
Only 4 storage vessels, including 2 amphorae, were found. Few objects were collected, a coin (Co962), a shell bead (Sh777), a bronze hook (MB921), an iron nail (MI269) a stone handmill (S2792).

Below US804 we can follow the same stratigraphy found in the northern side of the sounding:

US833
US769
US770
US846

US833 floor is cut by the drain channel US832. In the southern enlargement the drain channel is preserved for a section 0.85 m long and 0.32 m wide.

The SUM15C excavations in A75 brought to light new elements compared to the previous mission, that can be summarized with the picture below.



Deep sounding in A75 southern section



US833 floor with drain channel US832, southern enlargement

Preliminary conclusions

The excavation in the street A75 showed the existence of at least other two occupational phases between the phase of the US22 floor and the very early phase of the city, represented by the drain channel M719 oriented East-West and excavated in the bedrock. The two intermediate phases are represented by the two drain channels below the US22 floor, US832 and US847, that oriented N-S goes toward the main gate. With further investigations in the street A75 could be interesting to clarify the relationships among the two channels and the main gate. From the orientation of the two channels it is possible suppose that they belong to occupational phases in which the city walls already exist.

For the structures East of A75, after this campaign we are able to fix few points. As also confirmed by the excavation inside the BA12, this building was built over previous structures, as it can be seen by the fact that M185 (the western wall of BA12) is built over M767. It is still impossible confirm if M767 belongs to the same structures under the BA12 or it is something different. Looking at the wall M106, it is possible to suppose that also the building BA6 has been built over more ancient structures. The size of the blocks of the upper part of the wall is bigger than the size of the blocks of the lower part. The lower part of the BA6 leans on the wall M767 and probably has been built after the structures under the BA12.



M185 and M767



M106 and M106a

Excavation in Area A, Street A248 (trench supervisor: Saeed Al Amri)

The street A248, in Area A, has been subject of previous archaeological campaigns. The area has been first excavated by the American mission (AFSM) and then by IMTO during: SUM11A, SUM11C, SUM13C, SUM14A, SUM14C.

The excavation of this street during this campaign started to continue the removal of two layers US 508, US 516. These layers were located between M646 and M635. The main goals of this excavation are that to find the north-western corner of the building BB4 and reach the US516 floor in the whole area.

The US508 was the first layer I removed. The layer consisted of medium compact loam, brown in color. The excavation of this layer was preceded from the west towards the east. In the south western part of the trench we found a fireplace circular in shape. It was filled by soft soil mixed with charcoals, ashes, and a lot of shells. The northern part of the fireplace was surrounded by several mudbricks and small sandstone slabs.. During the excavation some findings were collected like some pottery, some bones, some iron slags and a lot of shells. I found the floor of this layer at the elevation of 29,65 m.



Fireplace in US508



US508 floor

Below US508 , US516 was discovered .It was found at the elevation of 29,65.It was consisted of compact and medium compact in some part, greyish brown in color. By removal this layer we were able to know the corner of the northern wall of the building BB4,M646. In this layer we found small pieces of pottery and shells, bones.



US16 floor with the corner of M646

Excavation in Area A: building BA12, rooms A192, 195 and 199 (trench supervisor: Cleto Carbonara)

The archaeological investigations of the SUM15C in the building BA12, placed in the eastern part of the Area A, started in the 10th October. The aim of this campaign is to reach the first constructional phase of the building.

A199

The excavation starts in A199. It is the north-eastern room of the building and it is delimited by the walls M550 to West, M558 to South, M555 to East and M230 to North. During the campaign SUM15A the floor US744 was reached at the elevation of 29.20 m.



US744 floor in A199 from South

It consists of an earth packed soil grayish in colour with some charcoals in it. This floor has a slight slope from NE to SW. The removal of US744 floor returned two pottery sherds (1 storage and 1 kitchen vessel) and not a large amount of animal bones and shells.

The excavation in room A199 unearthed two new walls that compared with the whole building, show a different orientation. Both walls are made of limestone blocks of different sizes and only roughly worked. M738 is oriented E-W, while M744 is oriented N-S. These walls divide the room in three parts:

- A199a: in the northern part of the room.
- A199b: in the south-western corner of the room.
- A199c: in the south-eastern corner of the room.



Discovering M738 and M744

In A199a we recognized the US803. Its superior elevation is 29.12 m. It consists of brownish loam medium compact in consistence mixed with limestone and sandstone blocks small in size. Only few stones of bigger dimensions has been found in it. The lower part of the layer shows a large amount of charcoals and ashes with a lot of burnt animal bones. US803 returned a bronze coin (Co963), a bronze ring (MB922), a fragment of a probable iron blade (MI270) and a game piece (S2787). US803 also returned a good amount of pottery sherds (10 storage, 1 table, 5 kitchen). No floors were found above the bedrock that has been found to an elevation of 28.50 m.



Bedrock in A199a

In A199b we found the US806 to an elevation of 28.96 m. This is an accumulation layer made of loam reddish in colour and loose in consistence. In it there were several charcoals and a large amount of crumbled animal bones. US806 rests on a packed level found to an elevation of 28.62 m. US806 floor is grayish in colour with traces of plaster in it. US806 returned only one stone tool, a whetstone (S2786) and only one pottery sherd of a storage vessel.



US806 floor in A199b from south.

During the SUM15C campaign the wall M558 has been removed. It was the southern wall of the room A199 and its foundation has been found during the SUM15A excavation to an elevation of 28.73 m. The western half of the wall was built on the top of the earlier wall named M745.



M558 and M745 from South

In A199c, the US807 was excavated. It is an accumulation layer placed in the south-eastern corner of the room A199. It consists of loam reddish brown in colour and loose in consistence mixed with limestone blocks small in size. A lot of crumbled animal bones has been found in it. For its features we can consider that US807 is equal to US760 excavated in SUM15A in A198. No floors were found and below US807 the bedrock is to an elevation of 28.38 m. US807 returned a shell boss decorated with a frieze of pomegranates (Sh778) and three pottery sherds (2 storage ; 1 kitchen).



A198-A199 after excavation



Decorated shell boss (Sh778)

A195

In the SUM15A campaign the excavation stopped at the elevation of 29.03 m. This is not the real floor of the US742. In SUM15C, US742 floor was found at an elevation of 28.87 m. It consists of a compact level reddish brown in colour not preserved in the whole room. US742 returned three pottery sherds of storage vessels.



US742 floor in A195

Below US742, US808 was excavated in A195. It is an accumulation layer made of clayish loam reddish brown in colour and medium compact in consistence. In it several broken mudbricks and a large amount of charcoals and a lot of crumbled animal bones and shells were found. US808 returned eight pottery sherds (4 storage; 3 table; 1 kitchen). Objects from this US are: a stone bead (S2783), a thin bronze plaquette (MB925), a bronze coin (Co965), a clay stopper (C173) and an oil lamp (Sh783). The US808 floor has a slope from north to south. It consists of an earth packed soil grayish brown in colour. Its elevation changes from 28.55 m in the northern part, to 28.47 m in the southern part.



US808 floor in A195

US809 was recognized below US808. It is an accumulation layer consisting of reddish loam very loose in consistence, mixed with some limestone and sandstone blocks small in size. Several traces of ashes and a large amount of charcoals were found along the eastern wall M555. Finds from the

US809 consisting of three pottery sherds (2 storage; 1 kitchen), a whetstone (S2795), several bronze objects (MB927; MB928; MB929) and a bronze coin (Co968). US809 rests on a compact clayish floor grayish brown in colour found to an elevation of 28.32 m.



US809 floor in A195

After the complete excavation in room A195 also the wall M556 was removed. It is the wall dividing A195 and A198. Its foundation was found at an elevation of 28.77 m and its northern face was imposed on an earlier wall named M746.



M556 before removal



A195-198-199 after SUM15C excavation

A192

The central corridor of BA12 was already object of excavation in the previous campaigns. Here the US542 was excavated. The level left in SUM11C at 29.27 m is not the real floor of this US. It was found in SUM15C at an elevation of 29.12 m. The lower part of US542 consists of light reddish brown loam medium compact in consistence, mixed with several sandstone blockssmall and medium in size. Some broken mudbricks were found particularly in the southern part of the corridor. Several charcoals and a good amount of animal bones were found near the floor. US542 returned two bronze coins (Co966-969), two handstones (S2803-2820), and a whetstone (S2819). The pottery assemblage from US542 consists of eleven pottery sherds among which there are nine fragments of storage vessels and two of kitchen vessels.



A192 before SUM15C excavation



US542 floor

Below US542 US810 was found. It is an accumulation layer made of clayish loam reddish in colour and medium compact in consistence. Loam is mixed with some limestone blocks small in size. Stones of bigger dimensions are in the southern part of the corridor. The lower part of the layer is characterized by some traces of ashes and burnt and by a greater presence of charcoals. US810 covered two new walls with an E-W orientation. M747 to north and M748 to south divide the ambient A192 in three smaller rooms:

- A192a to North.
- A192b a small central corridor between A192a and A192c.
- A192c to South.

US810 floor was found only in the first two rooms. It consists of an earth packed soil light reddish brown in colour with a slope from north to south. It was found at an elevation of 28.78 m in A192a and 28.70 m in A192b. US810 returned eighteen pottery sherds, particularly belonging to storage vessels, and several objects: a glass vessel (G239), three bronze coins (Co970, 974, 975), a handstone (S2804), two whetstones (S2805, 2806), and three bronze objects (MB930, 931, 934).



US810 floor in A192a and A192b

In A192a, below US810, we found US822. US822 starts at an elevation of 28.70 m. It is an accumulation layer made of burnt loam grayish in colour and loose in consistence with a lot of ash and a large amount of charcoals in it. US822 is also characterized by the presence of some limestone and sandstone blocks small and medium in size and a large amount of burnt animal bones. US822 returned a bronze coin (Co985) and a handstone (S2815). A total of ten pottery sherds has been found in US822, of which six belong to storage vessels and four to kitchen ones. The excavation of US822 also brought to light the western wall of the room A192a, named M752. It leans on the wall M745 to North and on the wall M748 to South. A kind of bench made of four

sandstone blocks leans to its eastern face. US822 floor, found at an elevation of 28.57 m, it is preserved only in the southern part of the room and consists in a packed soil light brown in colour. US822 floor is cut by an oval shaped fireplace (US823) that leans on the eastern wall, M550, and the southern wall, M748, of the room A192a. It is surrounded by limestone and sandstone blocks irregular shaped and different in sizes. US823 has been found to an elevation of 28.59 m. It is filled by a whitish gray burnt soil with a lot of charcoals and ashes. In it several limestone blocks and slabs very small in size and several burnt animal bones were found. Near its bottom we found an almost complete amphorae. US823 returned also a fragment of a kitchen vessel and a bronze coin (Co988). The bottom of the fireplace has been found to an elevation of 28.40 m.



US823 before excavation



Amphorae in US823



US822 floor and US823 after excavation

To understand better the relationships among M752, M748 and M748, it was decided to remove US822 floor and the fireplace US823. Below them the US825 was recognized. It consists of a very soft soil light reddish brown in colour with a lot of limestone chips. The layer has been interpreted as foundation filling to level the bedrock. US825 returned a bronze coin (Co991) and six pottery sherds (4 storage, 1 kitchen and 1 table).



A192a after excavation

A192b is the narrow corridor between A192a and A192c. Here, below US810, the US818 was excavated. It consists of an accumulation layer made of loam grayish in colour and loose in consistence, mixed with some limestone and sand stone blocks small and medium in size. US818 is also characterized by the presence of a lot of charcoals and ashes mixed with several burnt animal bones. The US818 floor, to an elevation of 28.51 m, consists of a very compact level reddish brown in colour. US818 returned an unidentified bronze object (MB943) and nine pottery sherds (4 storage, 2 table and 3 kitchen).



US818 floor

In A192c, the southern room of the central corridor of BA12, US748 was excavated. It consists of an accumulation layer made of a reddish brown loam loose in consistence. A large amount of limestone and sandstone blocks small, medium and big in size was found in it. In US748 the presence of several charcoals and crumbled mudbricks was noted. The layer returned a probable iron blade (MI276), a whetstone (S2810) and a sandstone gutter (S2814). Twenty-one are the pottery sherds from US748 (18 storage, 1 table, 2 kitchen). US748 rests on a floor grayish brown in colour better preserved in the southern part of the room. In the northern part of the room the floor was partially destroyed by a collapse of limestone blocks of big dimensions. US748 floor was found to an elevation of 28.96 m.



US748 floor

Below US748, US819 was excavated. It consists of an accumulation layer made of clayish loam loose in consistence and light reddish brown in colour. In the southern part of the room there were several crumbled mudbricks. Also several limestone blocks small, medium and big in size, and sandstone blocks small in size were found. The US819 floor is an earth packed soil grayish in colour, and it was found to an elevation of 28.70 m. US819 returned a bronze coin (Co984).and eight pottery sherds (6 storage and 2 kitchen).



US819 floor

The US819 covered a new layer named US826. It consists of clayish loam medium compact in consistence and light reddish brown in colour. Limestone and sandstone blocks small and medium in size have been found in it. We also recognized the presence of few charcoals and several crumbled mudbricks immediately above the floor. US826 floor consists of a very compact earth packed soil grayish in colour. A plaster coating on the floor is preserved only in the western part of the room, along the wall M185. US826 floor was found at an elevation of 28.48 m. US826 returned a bronze plaque (MB946), a glass vessel (G242) and a whetstone (S2822). The pottery assemblage from US826 consists of a total of a nine sherds (6 storage, 1 table, 2 kitchen).



Western part of US826 floor with plaster



US826 floor



BA12 after SUM15C excavation

Preliminary remarks

The building BA12 was built on a previous building that probably belongs to the first constructional phase of the Area A. It has an orientation completely different from that of the BA12. It was partially destroyed and obliterated to build the later structures of the buildings BA12 and BA15. For this earlier building, it is possible to suppose the presence of two constructional phases. Both were

recognized in the room A192a. The first phase is characterized by the presence of the fireplace and of the wall M152 that close the room westward. In the second phase there was the US810 floor that covered the fireplace and M752. So the room was larger than in the first phase and had two entrances: one to East in M555, and the other one to North in M745. At this point of the excavations it is impossible understand more about the general layout of this earlier building because the presence of the structures of the BA12.

Excavation in Area A – Preliminary results

Vittoria Buffa

Excavation during the SUM15C campaign has unearthed supplementary information about the stratigraphy and the building sequence in terms of relative chronology in Area A. The results related to the first phases of the development of the area and the related building activities are necessarily limited by the presence of structures of later phases resting on the early ones. In particular for the first phase of occupation of the area we have only scattered remains on which later buildings have been over imposed, sometimes without demolishing completely the more ancient ones.

For the sounding in street A75 see Preliminary Report by Cleto Carbonara, Alexia Pavan, Carlotta Rizzo; for excavation in A176 see Preliminary Report by Alexia Pavan and Carlotta Rizzo. For excavation in BA12 and layers below see Preliminary Report Cleto Carbonara.

1. The earliest attestation in Area A is the channel M719, running East-West across street A75. It is dug in the bedrock and runs under all constructions unearthed in the area. It can tentatively be attributed to a first, early settlement present in Sumhuram. See also Preliminary Report SUM15A by C. Carbonara and G. Buono.

2. The channel M719 was covered by a series of walls and floors excavated in A176.

Other walls and floors were detected, and excavated only in small parts, below some rooms of building BA12 (A190, A199, A198 and partly in the central corridor A192), in one of the two rooms North of BA12 (A176) and in one room of building BA6 (A64a). The later walls (like M127, M230, M550 and M555) standing on them prevent the reconstruction of the clear plans of these spaces. For instance M520 belonging to this early phase is overlapped by M230 and M738 by M555 (see maps). In any case the spaces in question belong to small rooms whose walls stand on the bedrock. Particularly puzzling are the mud brick walls (standing on a base of limestone blocks) unearthed partially in room A176 and overlapped by later walls M127 and M230. Do they belong to some sort of industrial activity in the area?

To this early phase belong also two walls that were later used (with some renovation) for the buildings constructed above them: M767 discovered along street A75 and M126a, that later became the southern wall of building BA6. In the sounding in street A75 this phase is attested with US846floor.

We can tentatively equal this phase to the 1st constructional phase in Area A as described in Report 2.

3. Sometime later building BA6 and BA15 were constructed, assuming now the plan that remained unchanged until the end. At this time the spaces below BA12 remained in use, as attested by the raised floors. In street A75 the floor was raised, first with US770floor and then with US769floor. Also the floor in A176 was raised up.

Room A64a was isolated from building BA6, but a door connected it to street A113. The occupation levels in BA6 related to this first phase of the building are documented only in room A63 where a deep sounding unearthed the cultural sequence of this phase.

Since its construction building BA15 was connected to BA6 though a passage in the NE part, built of mud bricks that occupied all rooms A219 and A222. This passage connected the two buildings at the level of the second floor to which led the staircase in the central corridor of BA15 A212. The small space A179 was certainly also part of the passage, while in BA6 undocumented excavation by AF5M and collapses and restorations due to heavy rains during the SUM07 A campaign do not allow to reconstruct with certainty the levels related to this feature.

Rooms A176 and A177 seem to have remained isolated at this time.

The channel running South – North , reaching the Gate, excavated in past campaigns, was documented in this phase, dug from US770floor and from US769floor.

We can assume that this phase corresponds to the 2nd constructional phase in Area A (See Report 2).

4. In the next constructional phase building BA12 was built. It had a staircase leading to the first floor of the building and probably also to the rooms A176, where another staircase was now leading down to the floor of the room.

Room A64a of building BA6 was not isolated anymore, but had a door in the NW corner leading to room A56. The door to street A113 was still in use and in the street a lime kiln was in use.

In BA15 the floors of the rooms were raised, but the layout did not change.

This phase is marked by the construction of US22floor in street A75, A45 and A248 (here named US516floor).

The channel running South – North in the street, was recorded at the level of US883floor.

Later during this phase room A64a of BA6 was abandoned and underwent a series of collapses of the surrounding walls. The NW porch A51 of BA6 was abandoned and covered by the accumulation of US22.

The lime kiln in street A113 was abandoned.

This phase could correspond to the 3rd constructional phase in Area A (see Report).

5. The next constructional phase in the area in question is marked by the construction of US29floor in the streets (in street A248 named US508floor).

In building BA6 room A64a is again connected with the other rooms through a door in wall M147.

In the room a floor made of two large limestone slabs was put on top of the ruins mentioned above.

A staircase was built in the central corridor to reach rooms A65a and A64a where the floors were at a higher elevation. The room was also connected to the space to the West , now a single room A57; here the staircase was still in function. Excavation by the American AFSM mission reached down to this level in the eastern rooms, so the floors of this phase are not documented.

BA15 was in use with raised floors.

BA12 was also in use, but it was not possible to document this phase in all rooms, because of previous excavation by AFSM in its eastern part.

See 4th constructional phase in Report 2.

6. In the next phase US21floor marked the partial abandonment of the all area. Only scattered occupation is attested. Buildings BA15 and BA12 were abandoned. Also BA6 was abandoned, but in the South West part of BA6, over rooms A64a, A65a and A79, small rooms were built, the so-called “late complex”. Two phases are attested: in the first phase three rooms occupied the space: A64, A65 and A79. A structured fireplace was present at this time in street A113. In the second phase the space was divided in six small rooms: A64, A65, A66, A70, A78 and A79.

See 5th constructional phase in Report 2.

One point remains to be understood. In the South part of the sounding in street A75 and in its western extension, two floors above US833floor were detected, US804floor and US802floor, below today surface (considered until now equal to US22floor). In the North part of the trench above US833floor only US22floor has been found. The extension of the trench to the West (in order to excavate the hole width of street A75) and to the North will hopefully give an answer.

Remarks about building BA5

The sounding in street A75 revealed some preliminary information about the construction of the building.

The sounding in the street was enlarged to the West to reach wall M66, the eastern external wall of the building, for a width of 0.80 m. Here a steep drop in the bedrock is attested, from an average 28.30 m in the sounding to 27.47 m below M66. The space between the earliest floor US846 and the bedrock is filled with US849, a layer of reddish brown loam, containing some pottery fragments, some animal bones and some mud bricks. The foundation of the wall is placed at 27.86 m.

With the enlargement of the trench toward North, it will be possible to understand if US849 represents a first anthropic occupation (as it was recorded below building BA1 for instance), in which the setting of M66 has been dug (assigning eventually the building of BA5 to the 2nd constructional phase in Area A) or another explanation will be found for US849. This will be possible with the excavation of the layers in the street down to the first floor and to the bedrock.

Excavation in Area F (trench supervisors: Alexia Pavan and Carlotta Rizzo with Eleonora Serra)

Deep sounding in A20



The area of the deep sounding in square A20 before excavation

During SUM15C campaign the excavation of a deep sounding in area F was carried on. The original dimensions of the investigated area were of 1.50x2.50 m, after enlarged to reach the dimensions of 4.30x3.70. The area was delimited in the northern and western side by the walls M35 and M40, belonging to building BF3 (Temple of Sin). Aims of the deep sounding were:

- to check the stratigraphy in square A20, related to the earlier phases just partially uncovered by Alexander Sedov (See Report 2, pp. 187-190)
- to check the foundation of walls M40 and M35 and to understand when the opening in M40 was walled up.

The works in square A20 started with the removal of US54 floor, the current walking level in the square.

Notwithstanding the small dimensions of the deep sounding a not uniform situation was brought to light.

In the corner between M35 and M40, below **US54** we unearthed a compact accumulation made of soil brownish in colour. Three packed floors have been individuated, corresponding to the previously named **US55 floor**, to be interpreted as the walking layers in square A20, compacted by the frequentation of the open space (sup. el 26.49; inf.el.26.24). They have not been

distinguished and numbered because considerable as the result of a single action. Some crumbled mudbricks, animal bones and few ashes (belonging to very simple fireplaces) were collected. Few pottery sherds were found: 10 storage vessels (3 amphorae), 3 table vessels, 5 kitchen vessels. Only two objects were catalogued: a coin (Co990) and a stone vessel (S2816).

In its lower part US55 was cut by the foundation of M35 made of irregular masonry blocks in limestone of medium and small dimensions and by US840 (inf. el. 26.09 m). US840 has been interpreted as the pit dug in order to build the foundation of M35. It consists of greyish loam medium compact in consistence with several limestone chips and stones of small and medium sizes (so far the characteristic of US840 are the same of the so called foundation filling). US840 was not completely removed, because it cuts also the new layer unearthed below US55 floor, named US841 (sup. el. 26,25 m). It was made by greasy soil, brownish in colour, loose in consistence, with several charcoals and some animal bones. The floor, left *in situ*, was found at an elevation of 26.15 m. It was made by rather compact greyish loam with white inclusions. In the eastern part of the section there were ashes lenses possibly linked to a fireplace. Findings: four amphorae shards; one stone mortar, S2826.



Particular of foundation of M35



US841 floor, cut by US840



Particular of M40 with the walled up door

The sequence of US54, US55 and US841 has been individuated only in the corner between M40 and M35. The situation is different in the southern part of the deep sounding. The walls M753, M754 and M766 divided, in fact, the deep sounding in two different areas. In correspondence of these new walls, instead of US55, a new layer was found, below the removal of US54 floor. It was named **US831**, made by loam greyish in colour and very compact in consistence with several stones of different size. The appearance of US831 is similar to what was found during the previous campaigns and, in particular to the picture published in Report 2 (p. 206, pl. 4). US831 covered also the staircase M768 (two steps visible) found between M754 and M766 and leaning to them. Here the space of the deep sounding was too small to recognize certainty a sequence of layers, but, anyway, three different levels were individuated because of different colours and consistence. They have temporary named **US831 a**, **US831 b** and **US831 c**, waiting for new data coming from next excavation. Here the description of the three “sub-layers”:

US831a was found at an elevation of 26.46 and made by brownish gray soil medium compact in consistence, with few charcoals and crumbled mudbricks.

US831b (accumulation?) was observed at an elevation of 26.25. It was made by loose reddish brown loam with some stones of small dimensions.

US831c is the floor (?) below the second step of M768. It is still in situ and has a flat surface, compact in consistence and brownish yellow in colour. (inf. el. 26.11)

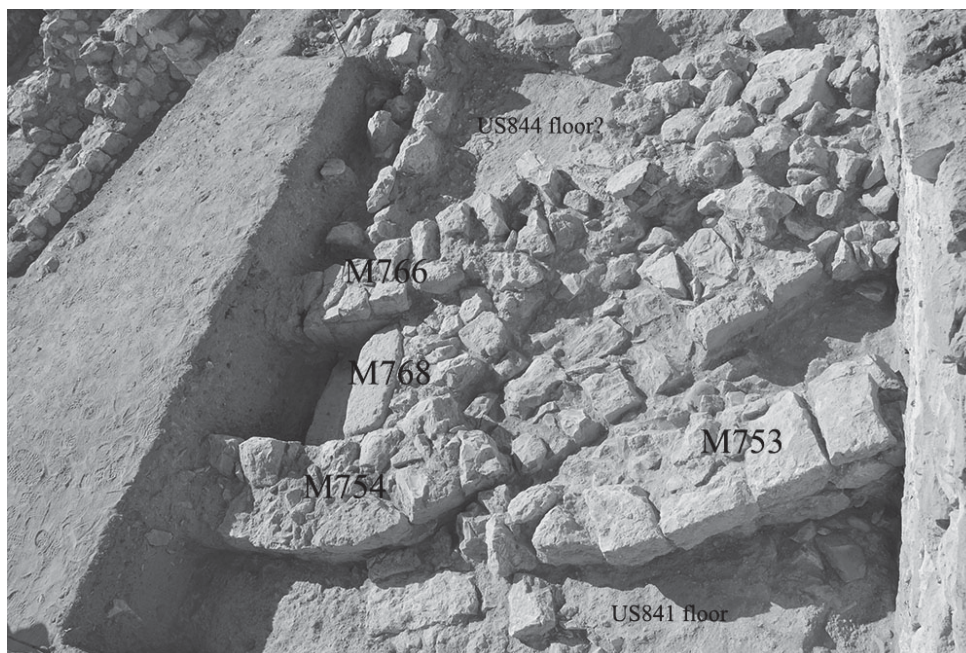
During the last days of work on field, the trench was enlarged, but there was not time to clarify the situation and to update the topographical survey. The enlargement was made with the goal of following M766 and to investigate the area below. As in the original trench, also in the enlargement, **US831** was recognized below US54 floor. But here US831 was richer in findings than in the area between M754 and M766. Two stone fragments of stone vessels (S2827, S2828) and one fragment of bronze object (MB 949) were found. Regarding the pottery shards unearthed: 57 Storage vessels (17 amphorae), 5 table vessels (3 glazed), 10 kitchen vessels; one bronze object

After the excavation of US831, **US844** was found and investigated. It was an accumulation layer made of greasy soil, brownish red in colour, with several limestone chips and stones of small size. The possible floor, related to the above mentioned accumulation, was made of loam light brown in

colour with few white inclusions, and it was reached at an elevation of 26.30 m. Few findings were unearthed: six amphorae shards and one stone bead, S2832.



Possibly floor of US844 and the limestone chips



The area of the deep sounding in A20 after excavation

Deep sounding in A48

A second deep sounding was excavated in Area F, between walls M86 and M48, in order to check the foundation and the relations between them.



The area of the deep sounding in A48 before excavation

We started the excavation at an elevation of 27.04 m (elevation taken in SUM14A) which corresponds to the elevation of 26.96 in the topographic survey. The about 10 cm of difference could be explained because of the presence of a sandy layer of aeolian deposition. The trench at the beginning measured 1.50x2.50 m, but during the works it was enlarged reaching the dimensions of 1.6x3.07 m.

Once removed the aeolian deposit, we reached the new layer, **US817**. It was brownish and reddish in colour and soft in consistence with a large number of irregular stones of medium and small dimensions, blackened by fire, rather large charcoals and ashes. The US is possibly to be linked with fireplaces, the limits of which were not easily recognizable. Three amphorae shards and two hand-stone (S2811, S2812), were collected.

US817 has not a uniform thickness in all the excavated area and it is around 15cm. After the removal of US817, we discovered **US820**. The layer is very hard and compact, reddish brown in colour with crumbled mudbricks, mixed with complete ones. The upper part of the layer seemed cut by a kind of “channel”, dug on the surface.



US820 with the “channel”

US820 had a thickness of about 60 cm and a large amount of amphorae fragments have been discovered. A number of sherds are matching and they have been numbered but not glued. The interpretation of US820 is not clear.



Amphorae sherds in US820



Amphorae sherds in US820



*Archaeological complete lid cum bowl in
US820*



Limestone slab in US820

A floor, apparently related with US820, found at an elevation of 26.36-26.29 m, was made of loam, greyish in colour with white inclusions and charcoals. The stone bead (S2817) was catalogued. After the removal of US820 floor, a new layer was brought to light, named **US830**. It was made of loose brownish soil with several charcoals and ashes, burnt bones and few marine shells. In northern part of investigated area, some medium irregular limestone blocks were found. Findings unearthed: fourteen amphorae shards, one fragment of *Terra Sigillata*; the incense burner (S2823), the coin (Co992) and the shell bead (Sh794).



Deep sounding of A48 after excavation

Excavation in Area F: trench in A217 (trench supervisor: Silvia Lischi)

The goal of this trench was to understand the earlier stratigraphy, before the layer connected with the water channel (US660floor = US55floor). This was necessary to clarify the earlier phases of the city. In addition, the trench was necessary to connect the area to the north of M650 with the area to the south of the same wall (excavated during SUM15A). During the excavation to the south we stopped at an elevation of 25.84 m because the wall M650 was finished at an elevation of 26.00 m, just below it are evident three bases of column leaning on the floor (US739floor) probably used before the construction of the wall M650.



A217 trench: before excavation, east view.

The stratigraphy unearthed during the excavation is:

US815floor: was a layer composed of crumbled loam, reddish in colour. On this floor it was built the limestone staircase (M634) that probable permitted the access to the mud-brick platform. The superior elevation was 26.41 m.

US816: was a layer composed of a hard packed soil, reddish brown in colour. Inside there were some materials: pottery shards (two amphorae's fragments), bones, some objects (MB938, MB939, MB940, MI275, MB941, B103) and three coins (Co979, Co980, Co981). The connected floor was grey in colour with many charcoal fragments. The elevation of the floor was 26.28 m. The thickness of the floor was 4 cm.

US821: was a layer composed of a hard packed loam reddish in colour, without materials inside (only Co983 has been found). The floor was grey in colour with charcoal and white inclusions. The elevation of the floor was 26.20 m. The thickness of the floor was 6 cm.



A217 trench: during excavation (US821floor), east view.

US824: was a layer made by a hard packed soil reddish in colour. Inside there were limestone chips, white inclusions and some fragments of charcoal. The connected floor was reddish and very compact. The elevation of the floor was 26.01 m. The thickness of the floor was less than 1 cm.

US829: was a layer made of a hard packed loam, reddish brown in colour. Inside there are few limestone chips. The floor was reddish and very compact. The elevation of the floor was 25.90 m. The thickness of the floor was less than 1 cm.

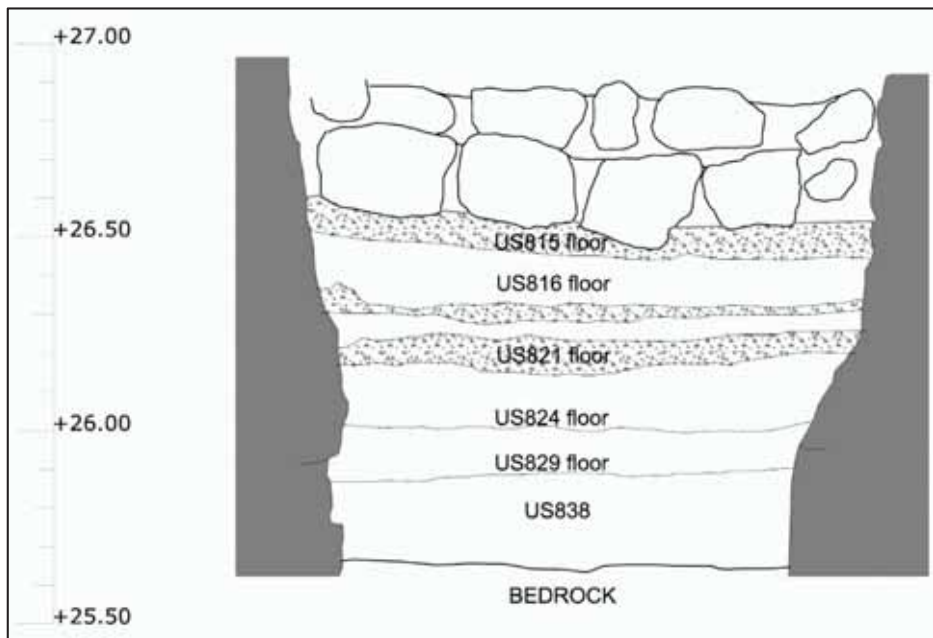
US838: was a layer of foundation filling that levelled the bedrock and it was made by virgin soil, compact in consistence and brownish in colour. Inside were found limestone chips. The bedrock was reached at an elevation of 25.67 m.



A217 trench: after excavation (bedrock), east view.

Preliminary notes

The last floor, before the foundation filling (US838), is US829 floor. This floor was reached at an elevation of 25.90 m while the north wall (M628) and the south wall (M650) of A217 were built at an respectively elevation of 25.97 and 25.93 m. The presence of 3 bases of column on US739 floor (q. 25.84 m), which then were obliterated by the wall M650 (that to the south was built from an elevation of 26.00 m), seems to indicate that initially the north area and the south area were connected.



A217 trench: eastern view of the section.

Excavation in Area F, street A43 (trench supervisors: Alexia Pavan and Carlotta Rizzo)

The main goal of this mission was to clarify and investigate the traces of gypsum, plaster and backed clay visible below M692, westward MB2.

In fact, at the end of the cleaning of SUM15A in street A43 the upper part of two pillars and the southern limit of a structure were recognized. It was supposed to be linked to a furnace.

At the beginning it was decided to individuate the external limit of the kiln, named **M771**. Following the mud brick line the southern limit was brought to light. To find the northern limit it was decided to enlarge and **US801** was excavated. It was made by brownish gray soil with several stones of medium and small sizes, traces of ashes and charcoals; few animal bones and very few pottery shards were collected.

After the filling of the kiln, named **US800**, was excavated. It was made by a reddish brown very compact soil, clay matrix. Some crumbled backed mudbricks, burned bones, fragment of burned wood, gypsum, ashes and charcoals, a fragment of obsidian, a fragment of flint, clay lumps, bronze fragments and iron fragments were found inside the level and catalogued as samples. Few shards of pottery were found (only one with traces of vitrification, US800,3). During the removal of the accumulation four pillars, two bigger and two smaller, made of mudbricks and covered by plaster, and a central corridor made of mudbricks were brought to light. After the removal of the accumulation, the works stopped at an elevation of 25,57 m. The bedrock was found at an elevation of 25.67 m.

With the proposal to unearth the external side of the kiln, **US834** was excavated. It was made of soil gray in colour and loose in consistence, with several charcoals, ashes and animal bones. Some mudbricks were found in the layer, with one side covered by plaster (sample n. 71). So is possible to suppose that they are pertinent to the external side of the kiln. A kind of floor compact in consistence and gray in color with some charcoals was found, along the southern side of the furnace, at an elevation of 25,84 m. Some pottery shards were collected: 6 storage vessels (2 amphorae); 4 table vessels, 2 kitchen vessels.

Excavation and removal of the M708 (buttress) in A43

The buttress M708 is located below M715, M111 and M92. It was partially investigated during SUM15A campaign when **US776** was found.

It was a soil deposit, argillaceous matrix, brownish gray in colour, loose in consistence mixed with fragments of plaster and gypsum.

It can be noted that in the lower part the US was more compact in consistence and brownish grey in colour with few white inclusions. At the same level, in the north-eastern part, in the corner below M110 and M715, the soil was more loose and dark brown in colour. But the material and the composition was the same. Several pottery shards (115 fragments, some of which with post depositional incrustation) and animal bones (1 fragment of turtle's bone) were collected.

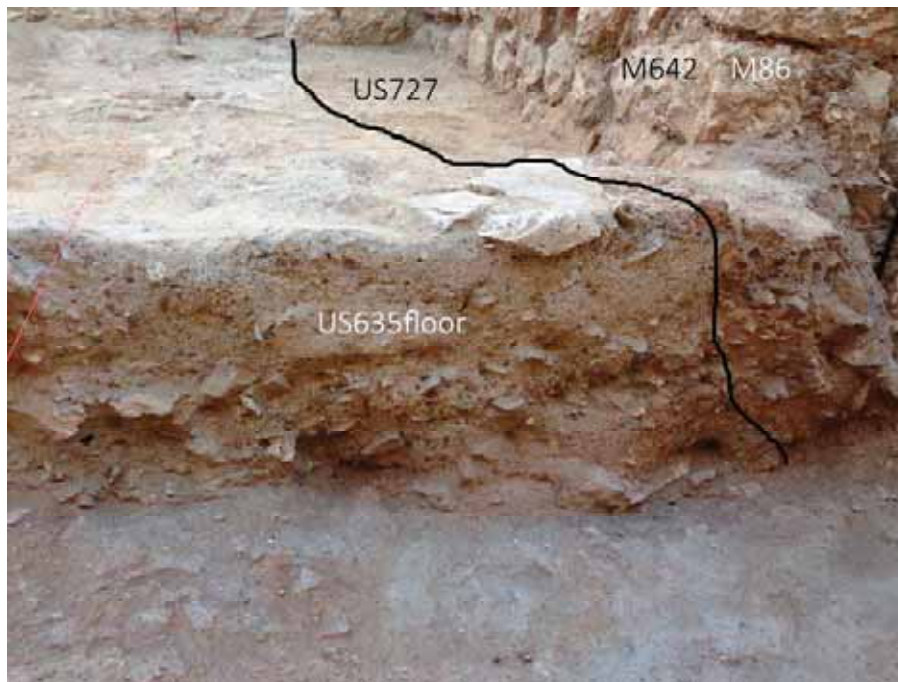


US776 after excavation

Excavation in Area F: trench in A43 street, to the west of MB2 (trench supervisor: Silvia Lischi and Divina Centore)

The goal of this trench was to reach the foundation of M117 (city wall), M642 (*intra-muros* temple) and M92 (Monumental Building 2) with the aim to clarify the relationship and unearth the most ancient layers of the city.

This area was already object of archaeological investigation during the campaigns SUM14A, SUM14C and SUM15A.



A43 trench: east view before excavation.

The first layer that we found was **US635floor**, this floor was compact in consistence and greyish in colour with gypsum and charcoal inclusions and many mud-bricks. Inside we found few materials, the most part were bones and marine shells, few pottery shards (four amphorae's fragments), one coin (Co994) and few objects (MB950, MI282). The layer shows differences in colour and consistence near the wall M642. This difference was already noted during the last campaign SUM15A and this layer was called US727.



A43 trench: east view after remove US727 from the pit.



A43 trench: top view of the trench after remove US727 from the pit.

The **US727** clearly followed the wall M642 to the south and M86 to the west. This layer was reddish brown in colour, compact and with a lot of pieces of mud-bricks and several small stones. Very few animal bones and marine shells have been recovered. This layer finished at an elevation of 25.66 m, under this layer there was a new layer, called **US837**, that follow the limits of the upper layer US727. This layer was reddish grey and medium compact, with inside some charcoals, gypsum fragments, limestone chips and some fragments of mud-bricks. Inside this layer we were found some materials: pottery shards (ten amphorae's fragments), animal bones and marine shells, one object (MB951) and three coins (Co1000, Co1001, Co1002). This layer was stopped at an elevation of 25.30 m, directly on the foundation filling layer (US842).

While in the southern part of the trench, below the **US635floor**, we discovered the upper part of the wall M761. This wall is build in limestone masonry blocks and seems go below the wall M685, but for the moment it is impossible understand its function because the trench not includes all its thickness.



A43 trench: east view during excavation

Below the US635 floor there was **US652** accumulation. This accumulation was compact and reddish in colour, inside there were many fragments of mud-bricks and very few materials: an object (MI283) and two coins (Co995, Co996). The floor, already reached during SUM14A campaign at an elevation of 25.60 m, was characterized by greyish colour and medium compact consistence. The thickness of the floor was not regular and in the eastern part, already excavated, was stopped at the lower part of the layer. The upper surface of the layer we found at an elevation of 25.77 m.



A43 trench: east view and north view of the top of US842 (foundation filling).

Under this floor we were found another reddish layer, called **US839**, with inside charcoal and gypsum inclusions. There were inside few materials: some pottery shards (three amphorae's fragments), three coins (Co997, Co998, Co999) and two objects (S2825, G244). Below this reddish layer we were found a greyish floor (**US839 floor**). Under this floor we found the upper part of the wall (M765). This wall leaning on M92 and probably on M86, but the last western masonry stone is lost because removed during the digging of the pit, filled by US837. The thickness of the US839 floor is not regular, in the eastern part of the trench became very thin, but the upper part of the floor was found at an elevation of 25.56.



A43 trench: south view after excavation.

Below this last floor we have been found the foundation filling, called **US842**, composed by a reddish brown soil with several limestone chips and without materials inside. After there is a bedrock at an elevation of 25.03 – 25.22 m.



A43 trench: top view after excavation.

Preliminary remarks

The excavation carried out allowed us to achieve some important results. The foundation level of M92 (Monumental Building 2) and M117 (city wall) is almost the same. This allows us to state that the so-called "Monumental Building 2" cannot be built after the city wall. The possibilities are reduced to two: the city walls were built together to MB2 or, more probably seen the characteristics of the structure (see Report SUM14C for more information on the structure), was built before MB2 and then the city wall. In addition, the pit that runs around M642 and M86 suggests that the structure was not built just after the city wall, but it was added later. This would explain the need to make a foundation pit with the intention of looking for a compact and stable surface as a base to start the building. To say that the whole structure was built in the same time we will have to verify the presence of the foundation pit along the perimeter of the structure, if it is missing we may think of a partial reconstruction.

We will expect for the next campaign, the excavation of US635 floor, US652 accumulation + floor, US839 accumulation + floor and US842 in the entire area to the south of the trench and to the north of the pottery kiln discovered during this archaeological campaign. This could allow us to understand the function of the wall just discovered (M765) and, probably, the collection of some materials related to the early phases of the city. Also, excavating an extensive portion of so-called "foundation filling" we could better investigate this layer that could represent, in some cases, the

cultural deposit of the "early settlement" (see also Report SUM15C, A. Sedov, Preliminary Conclusions).

Excavation in Area F: southern area of MB2 (trench supervisor: Silvia Lischi)

The goal of this campaign was to clarify the urbanization of the southern area of the so-called "Monumental Building 2" and the path of the water channel discovered during the last campaigns (SUM15A and SUM15B).

We have widened the area already partially investigated to the south, south-east and south-west leaving a space near the city wall to allow the passage of the wheelbarrows for the discharge of the soil outside the city wall.



South of MB2: the planning area to investigate, before the excavation.

In the whole area was initially removed the surface level, US700, which is characterized of sandy matrix and light brown soil with pottery fragments, animal bones and sea shells. There are many iron slags inside. This layer had already been excavated during the campaigns (SUM14B, SUM14C, SUM15A, SUM15B). The eastern area of the trench is characterized by a several small stones mixed with the soil. Below the accumulation layer we found the US700 floor, this floor was compact and light brown in colour. In the eastern part of the trench we found three big fireplace directly on the floor.

The removal of US700 has permitted to identify the rooms A255 and A256, the perimetral walls are M762, M733, M749, M734 and M750.

Below, to the east of A255 and A256, was excavated US701, this layer is characterized by a very compact and brown earth. Inside were found pottery shards, animal bones, marine shells, iron slags and some objects. This layer had already been excavated during the campaigns (SUM14B,

SUM14C, SUM15B). Under the accumulation layer, US701 floor was found. This floor is very compact and light brown in colour.

With the removing of US701 accumulation we have reached the same level throughout the area. The area occupied by the rooms A255 and A256 has not been excavated, it was dug only to outline the perimeter. The current level is US700 floor.

The area to the south-west of the trench was dug following the stratigraphy found in A43 street.

South-east area of MB2

In this area, already partially excavated during the previous campaign (SUM15B), we started from US701 floor. This floor was composed by a very compact and light brown loam. The elevation of the floor was at 27.90 m.

Below this layer we found US795, this was an accumulation layer composed by compact brown loam. Inside there are two coins (Co977 and Co978), three stone objects (S2799, S2801, S2802) and one shell (Sh787). This layer covers the whole area to the south of A50 (see Report SUM15B).



East view of US795 floor.

The elevation of **US795 floor** was at 27.51 m. This floor was composed by a very compact loam mixed with fragments of mud-bricks, the colour was reddish grey.



North view of the area with US795 floor and US701 floor.

Under this layer there was **US794**, reddish in colour and crumble with few fragments of mud-bricks and plaster. Inside there are some objects (Sh790, S2807, MI277, MB944, B104, MI279, S2821). The elevation of **US794 floor** was at 27,05 m. This floor was plain, compact and greyish in colour with inside some fragments of mud-bricks, gypsum and charcoals.



East view of US827 floor and water channel.

Under this floor there was **US827** accumulation. This layer was reddish brown soft loam with fragments of charcoal and plaster. There are very few materials inside (MI280 and Sh793). The **US827 floor** is dark brown loam on the west side while on the east is brown and more compact, there are many

fragments of mud-bricks inside. The elevation of US827 floor was at 26.94 m. After the removing of US827 accumulation we found the entrance to the channel (q. 26.90 m), this is composed by a lateral side of a stone basin in the lower part with strong plaster around that connect the structure with the floor (US827 floor). The wall M724 probably, was used like a dam.



East view: entrance of the water channel.

The characteristics of the floor contemporary with the water channel suggests that the east part of A259, until to the door in M725 was used as a street, while the last part of A259 (west part) was with closed fund and wasn't used as a street. The floor here was composed by a soft loam. Probably this part of A259 was used as a dam for the water, this water was discharged outside the city wall.



The door in the wall M725, before and after excavation.

South-west area of MB2



South of A43: after remove US700 accumulation.

In this area, after the excavation of the surface layer US700, we saw some difference between the northern area and the southern area. In the southern area it has been intercepted a trench made by the Americans (see F.P. Albright, *The American Archaeological Expedition in Dhofar, Oman*, pl. 4 and pp. 36-37) to verify the path of the city wall. The pit was filled during the first excavation campaigns by the IMTO. As proof of this was found a blister of medicine at the actual elevation, where we stopped.

The filling of the pit was called US828, inside the layer there were very few materials (S2818 and Sh792). The materials collected are obviously decontextualized, therefore we have not been studied.



South of A43: the highlighted area is the one affected by the Americans trench.

In the area affected by the AFSM trench, they were found some perimetral walls. We found some of this walls with collapsed parts, probably, after excavation but before the filling by the IMTO. Comparing the AFSM's plan with the IMTO's plan, we able to recognize some of the rooms described by them. Only some of the walls that we found have a direct comparison with those in the American's plan.



AFSM plan: map drawn by the Americans in which there are the rooms discovered in the trench, in red the walls that we found during the current excavation.

The northern area, however, is characterized by a stratigraphic sequence completely similar to that found during the last archaeological campaign (see Report SUM15B) in the south of A43, contiguous to the current one.



South of A43: during excavation (US782).

Below the US700, we found the **US782** that is characterized by a very compact and brown earth and near the perimetral walls of A250 with many masonry limestone blocks. Inside were found pottery shards, animal bones, marine shells, iron slags and some objects (G237, G238, MB923, Sh779,

Sh781, S2790, S2793) and one coin (Co964). This layer is equal to US701 found in the whole eastern area of M762, M724, M722. Under we found **US790** accumulation, this was an accumulation layer composed by greyish loam mixed with fragments of gypsum. Inside there were many animal bones, marine shells, few pottery shards and some objects (S2791, S2797, S2798, MB924, MB926, Sh780) and one coin (Co967). Under the accumulation layer there was **US790floor**, composed by compact grey loam slanting from east to west.

Below there was **US791** accumulation, this layer was characterized by a crumbly brown loam. Inside there were few materials: animal bones, marine shells, pottery shards and objects (Sh785, Sh786, S2796, MI273, MB933). The related floor, called **US791floor**, was medium compact and reddish grey in colour, some fragments of charcoal and plaster were found inside.

Below this floor we found **US792** accumulation, this layer was composed by compact soil, reddish brown in colour. Inside we found some materials: pottery shards, animal bones, marine shells and objects (MB935, Sh788, Sh789, S2800). Below the accumulation there was the **US792floor**, this floor was very compact and greyish in colour.



South of A43: during excavation (US792floor).

The last layer that we excavated was **US793** accumulation. This layer was characterized by medium compact greyish loam, inside we found some pottery shards, animal bones, marine shells and objects. The **US793floor**, level where we stopped, is connected with the water channel that we discovered during the previous campaigns (see Report SUM15A and SUM15B). The floor, such as the **water channel** and the previous floors, were voluntarily slanted from east to west. This for reach the necessary slant for discard the water outside the city.



South of A43: after excavation (US793 floor and water channel).

The water channel made by stone slabs and plaster seems to leaning on M724.



South of A43: water channel and wall M724.

Soundings outside the western city-wall (trench supervisor: A. Sedov)

During the short SUM15C season (17.11.2015 – 26.11.2015) excavations outside the western city-wall of ancient Sumhuram were carried out. The main goal of investigations was to verify the presence of the so-called “early cultural deposits”, i.e. remains of a settlement existed in Sumhuram before the construction of its city-walls: remains of an amorphous wall parallel to the western city-wall of Sumhuram were recorded in 10-12 m of it during previous seasons. These remains could be traced on a distance of about 40 m running roughly in S-N direction. Upper rows of this masonry are visible above the present surface. Remains of another wall running in E-W direction were recorded also north of the city-wall of Sumhuram, close to the isolated defence tower. It seems likely that both parts consisted a single fence once surrounded the so-called “early settlement”.

Trench 1.

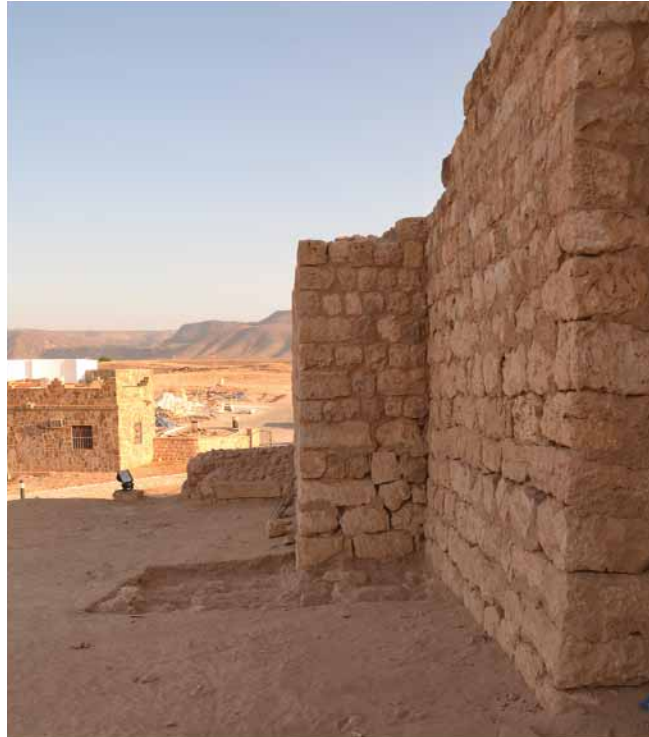
The trench, 2x4 m in size, was dug at the foot of the city-wall, along its outer face near one of the offsets. Immediately below 5 to 10 cm of very soft accumulation of soil, the bed-rock was reached on the entire space of the trench, showing that this part of the city-wall was constructed directly above it. The soft layer of soil above the bed-rock was sterile. The level of the bed-rock is fixed on the point 24.88.



Trench 1: north view and west view of the trench.

Trench 2.

The trench, L-shaped and 2-4x3 m in size, was dug further north at the foot of the same city-wall, also along its outer face and near one of the offsets. Like in the trench 1, the bed-rock was reached on the entire space of the trench below 5 to 10 cm of very soft accumulation of almost sterile soil, greyish in colour, contained small stones and several fragments of animal bones (US843). Few fragments of body-shards of pottery vessels and a rim of imitation of Indian *rouletted ware* were found in US843. It seems quite probable that US843 was accumulated after the construction of the city-wall directly on the bed-rock, but it might be also that the above-mentioned body-shards belonged to the cultural layers of the so-called “early settlement” and were accidentally kept here during the erection of the city-wall. The level of the bed-rock is fixed on the point 24.49.



Trench 2: southern view.

Trench 3.

The trench, 3x3 m in size, is located in *c.* 10 m west of the city-wall of Sumhuran. A central part of the amorphous wall, denoted as M756, was cleaned. It was constructed in dry technique from wild undressed stones of medium and small size. The wall is 0,75-0,8 m wide (two rows of stones), and *c.* 1,0 m high (3-4 rows of stones). Its excavated length is 3.0 m. The wall was constructed partially directly on the bed-rock, fixed here at the point 23.63, and partially on sterile compact accumulation above the bed-rock consisting of very compact brown soil mixed with small stones (gravel). The outer (western) face of the wall M756 has more regular masonry than its inner (eastern) face.



Trench 3: north view before excavation of the wall M756.

The cultural deposits accumulated around the wall consisted of very loose greyish soil mixed with small stones, fragments of animal bones, pottery fragments, flecks of charcoal. No horizontal surfaces, i.e. floors, or layers were traced in the deposits, but the lower part of accumulation is a bit

more compact than its upper part. Stratum to the west of M756 was denoted as US835, while stratum to the east of it – as US836, but morphologically they are identical. In the collection of pottery shards from US836 a fragment of Italian (?) *terra sigillata* was recorded.



Trench 3: west view and east view of the wall M756.

Preliminary conclusions

It is for sure that both US835 and US836 were accumulated after the construction of M756, but it is not clear do they represent the cultural deposits of the so-called “early settlement” or do they represent the debris accumulated outside the city after the city-wall was built. In any case there are some grounds to suppose that M756 was part of the fence once surrounded structures or settlement existing in Sumhuram prior construction of its city-walls. As was stated above, other parts of this fence were recorded also north of Sumhuram. Unfortunately, no structures of this “early settlement” occurred in our trenches. It seems that later, after the abandonment of Sumhuram, three (?) boat-shaped late mediaeval (?) graves were set up above the southern part of the fence. Similar graves were reported already by AFSM mission to the east of the city and even one grave at the foot of the elevation with ancient city was excavated (Albright 1982, p. 40).


A few words about the possible existence of the so-called “early settlement” in Sumhuram. Till now we didn’t find during our excavations any intact layers, which could be correlated with period prior the construction of the city-walls. In all cases we studied, the city-wall was set up above the bed-rock with no accumulation of “early” cultural deposits under its foundation. Slightly different picture is with foundation of early buildings inside the city, especially in its western part: practically in all cases the walls of these early buildings like BF3, BF6, BF8, Monumental Building 2 (BF5) were set up not on the bed-rock directly but on the so-called “foundation filling”, which contained, in addition to soil and stone chips, remains of cultural activity such as fragments of pottery, coins, animal bones, flecks of charcoal, etc. We cannot exclude the possibility that at least in some cases this “foundation filling” in fact represents the cultural deposits of the “early settlement”. In the future we have to excavate this layer more carefully trying to separate its material from the initial living surfaces inside and outside city structures.

The deep sounding in A43 between city-wall M117/M460 and western wall M92 of the Monumental Building 2 (BF5) showed similar picture: the city-wall was set up above the bed-rock, while the western wall M92 of the Monumental Building 2 (BF5) was set up on the “foundation filling”. But we may suppose that for the very important structure such as city-wall the foundation was specially prepared and cleaned, while the Monumental Building 2 (BF5) was constructed not at the initial dates of existence of the “early settlement” but a bit later, above already existed cultural deposits.


The other possibility could be the follows: the “early settlement” in Sumhuram was not compact but dispersed, and consisted of several structures, which remains we recorded outside Sumhuram. These structures are temple *extra muros*, remains of the so-called “farmstead” near Sumhuram Gallery (SUME), remains of square and rectangular structures recorded north of the Sumhuram Gate Complex. It might be also that construction of several buildings inside Sumhuram such as BF8 and Monumental Building 2 (BF5) as well as remains of “old” fence outside city-wall west and north of city, should be correlated with the “early settlement”. At least, from the architectural point of view it is absolutely clear that initially the Monumental Building 2 (BF5) stood separately and was used as shelter for inhabitants in case of emergency. Only later, after the construction of the city-wall, it was incorporated into defence system of ancient town.

To prove or disprove the above-mentioned conclusions during the next season we have to continue: (1) digging in A43 opening larger space along the bed-rock in order to get more material from the so-called “foundation filling”; (2) excavating on the square in front of the BF3 trying to join the present trench with excavation in A43 on the south and with A227 and A228 (BF8) on the west.

Object Index Card

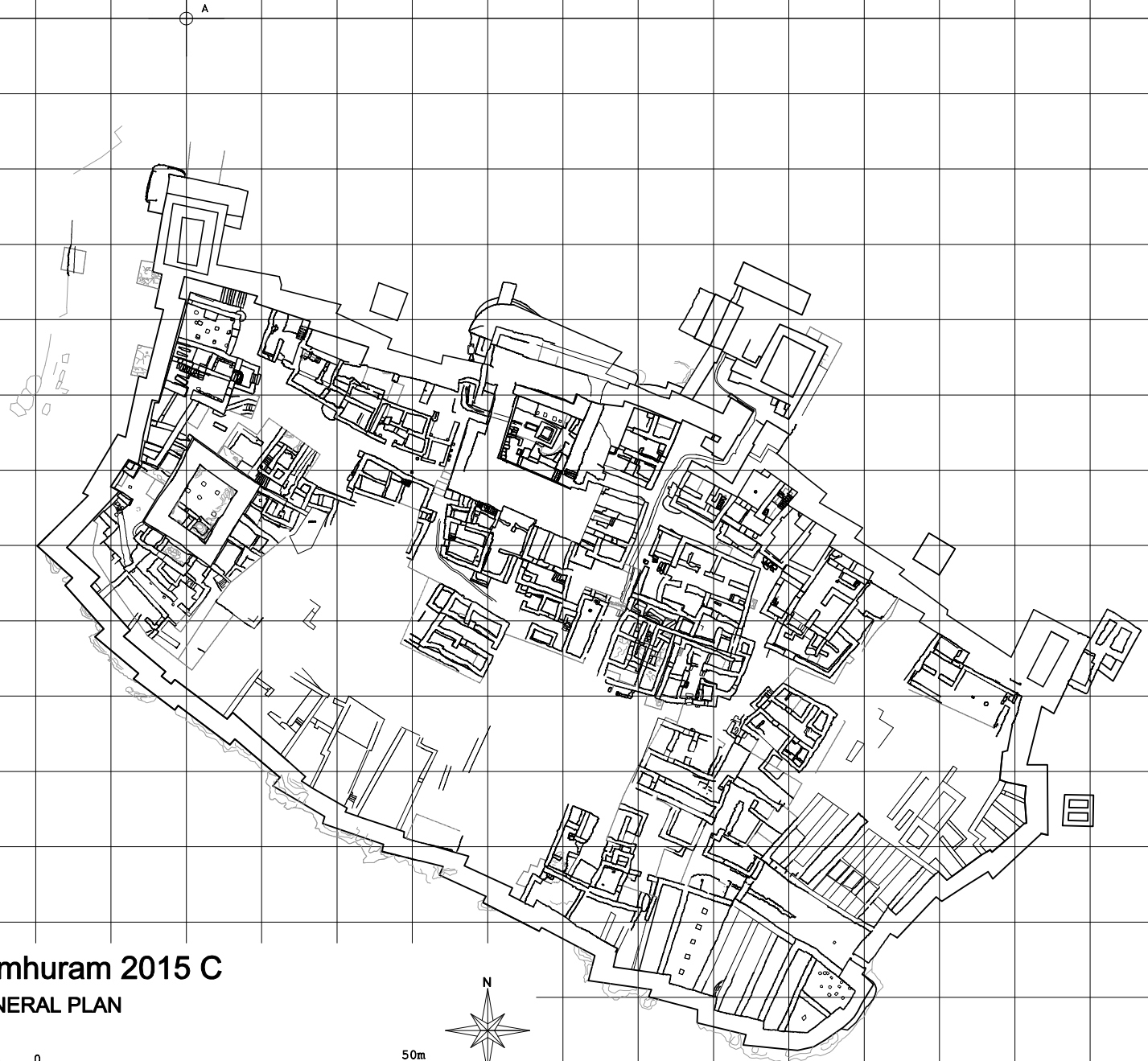
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Provenance Area A, BA12, A199c			
Drawing code Nr.			
Definition Decorated boss	State of preservation Good	Measures l. 5.4 w. 3.3 h. th. 0.4 diam.	Shape circular
Material Shell	Preserved part Fragmentary		Section convex
Description <p>Fragment of decorated convex boss. The surface and external edge are slightly wavy, as the natural shape of the shell. Internal and external surfaces well smoothed. The incised and champ-levé decoration consists in 3 concentric stripes with different and continuous motifs.</p> <p>From the external edge: first stripe a row of triangles or saw-tooth motif realized in champ-levé; second stripe a zig-zag line in champ-levé; third stripe a “pomegranate-flower” motif realized in champ-levé.</p>			
Responsible Silvia Lischi		Date 15/10/15	

Object Index Card

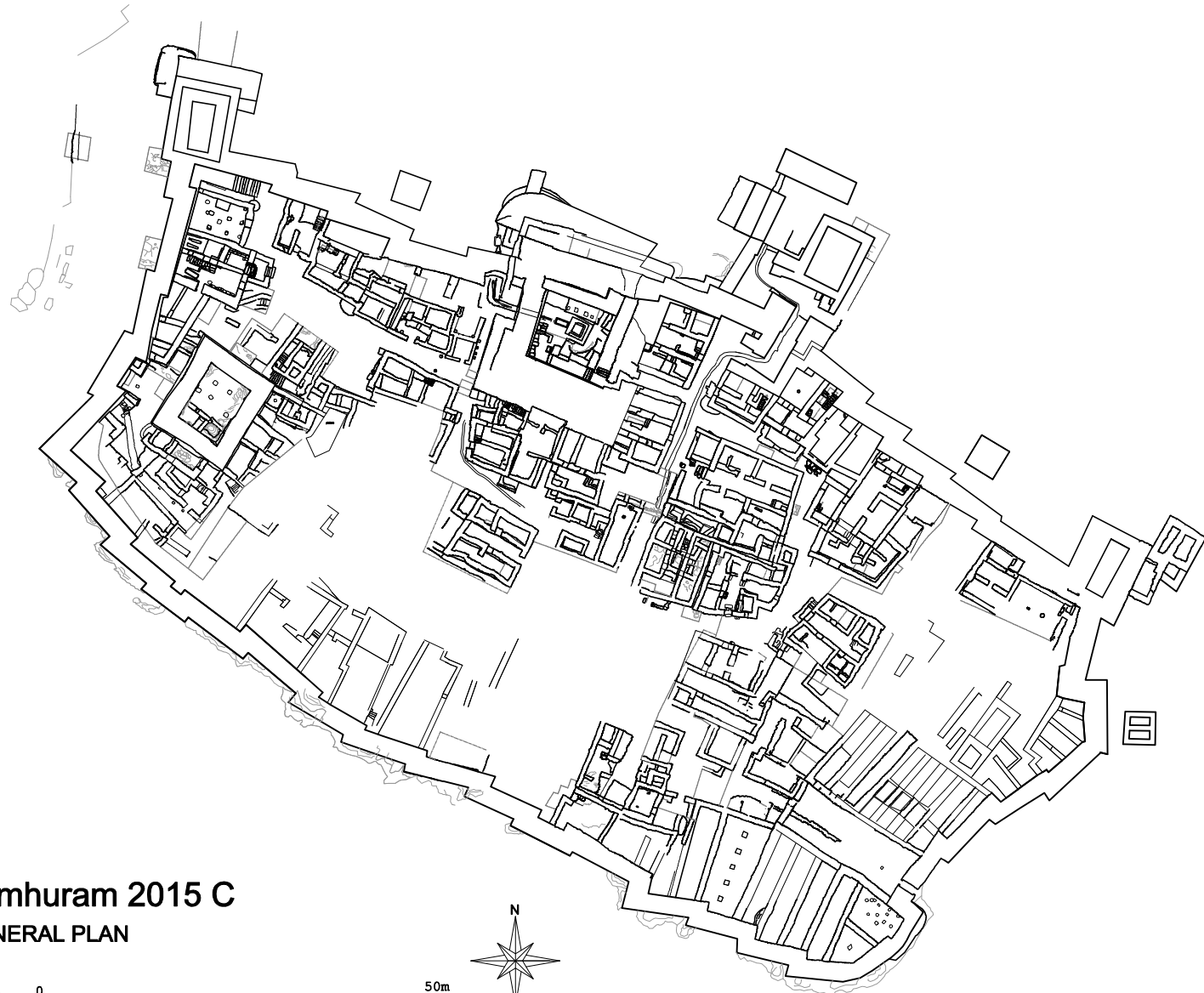
Registration Nr. SUM15C, US795, 13 S2799			
Provenance Area F			
Drawing code Nr.			
Definition Pipe bowl (?)	State of preservation Good	Measures l. w.	Shape Truncated-cone
Material Sandstone	Preserved part Complete	h. 2.7 th. diam. 2.3	Section Circular
Description Small sandstone object truncated-cone shaped. On the top there is a circular depression with a diameter of 1.2 cm. A similar object has been defined in the catalogue of The Museum of the Frankincense Land as pipe bowls. For comparison see also Cleveland 1965, <i>An ancient South Arabian necropolis: objects from the second campaign (1951) in the Timna cemetery</i> , Publication of the American Foundation for the Study of Man 4, Baltimore, pp. 112, pl. 88, cat. TC2023.			
Responsible C.C.		Date 01/11/15	

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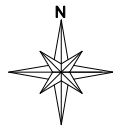
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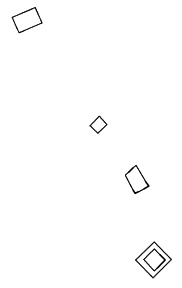
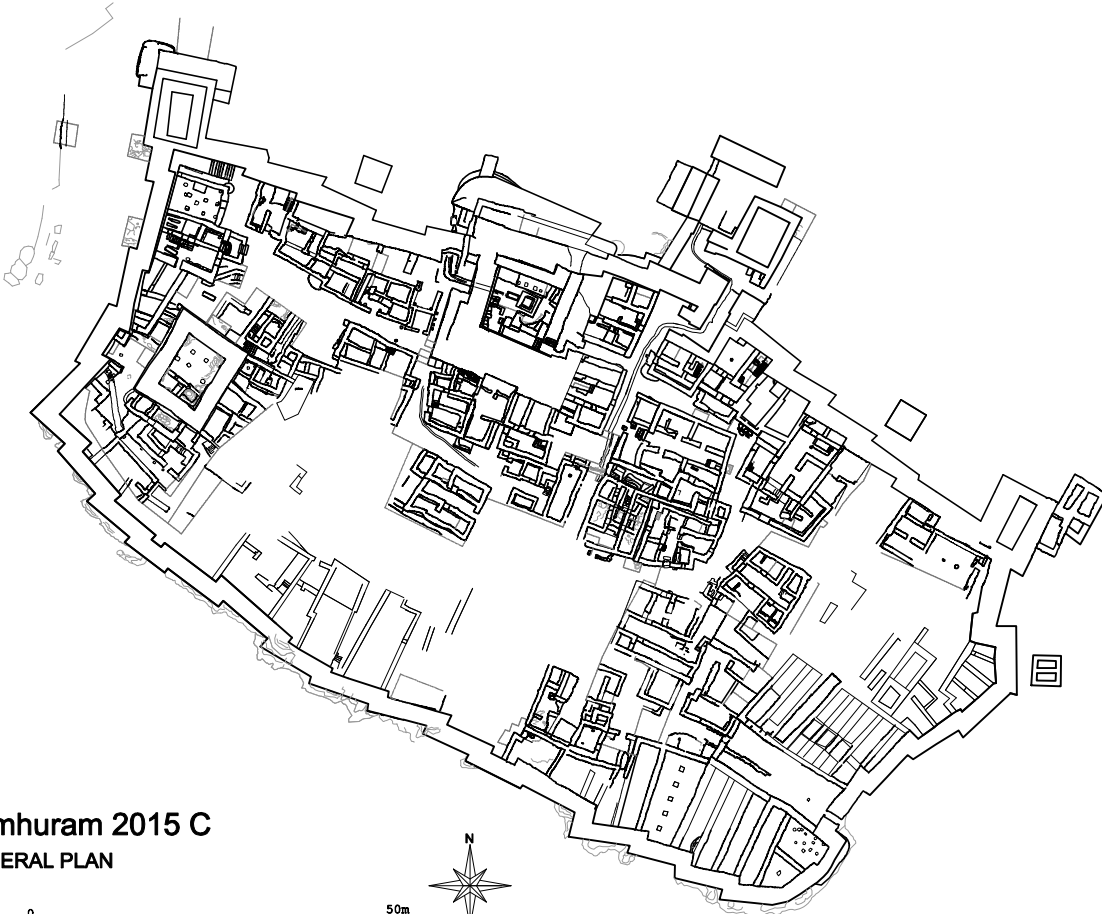
Sumhuram 2015 C
GENERAL PLAN



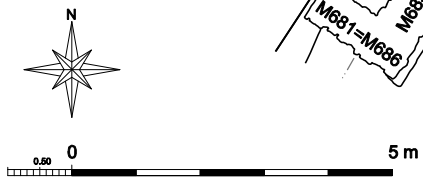
Sumhuram 2015 C
GENERAL PLAN



Sumhuram 2015 C
GENERAL PLAN

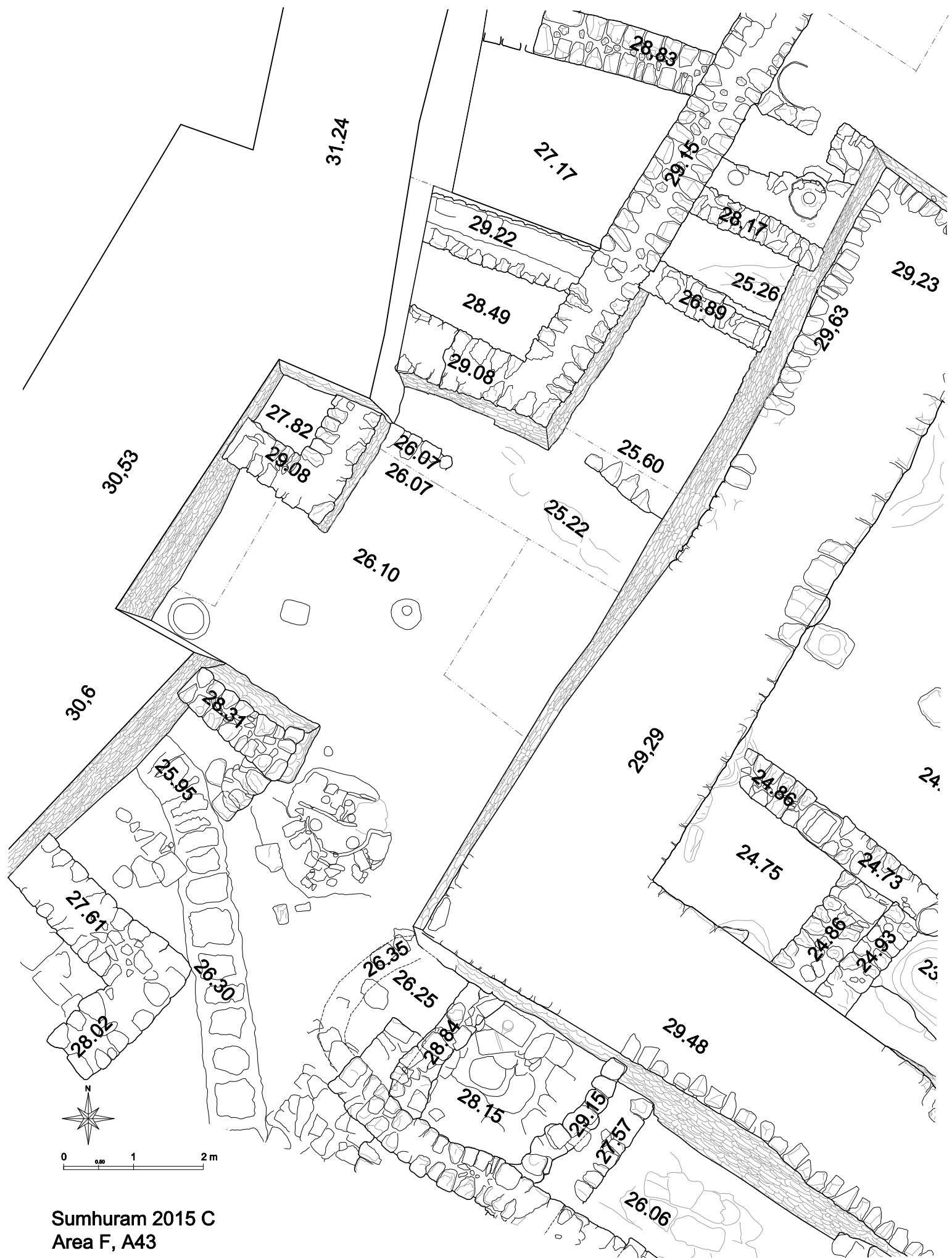




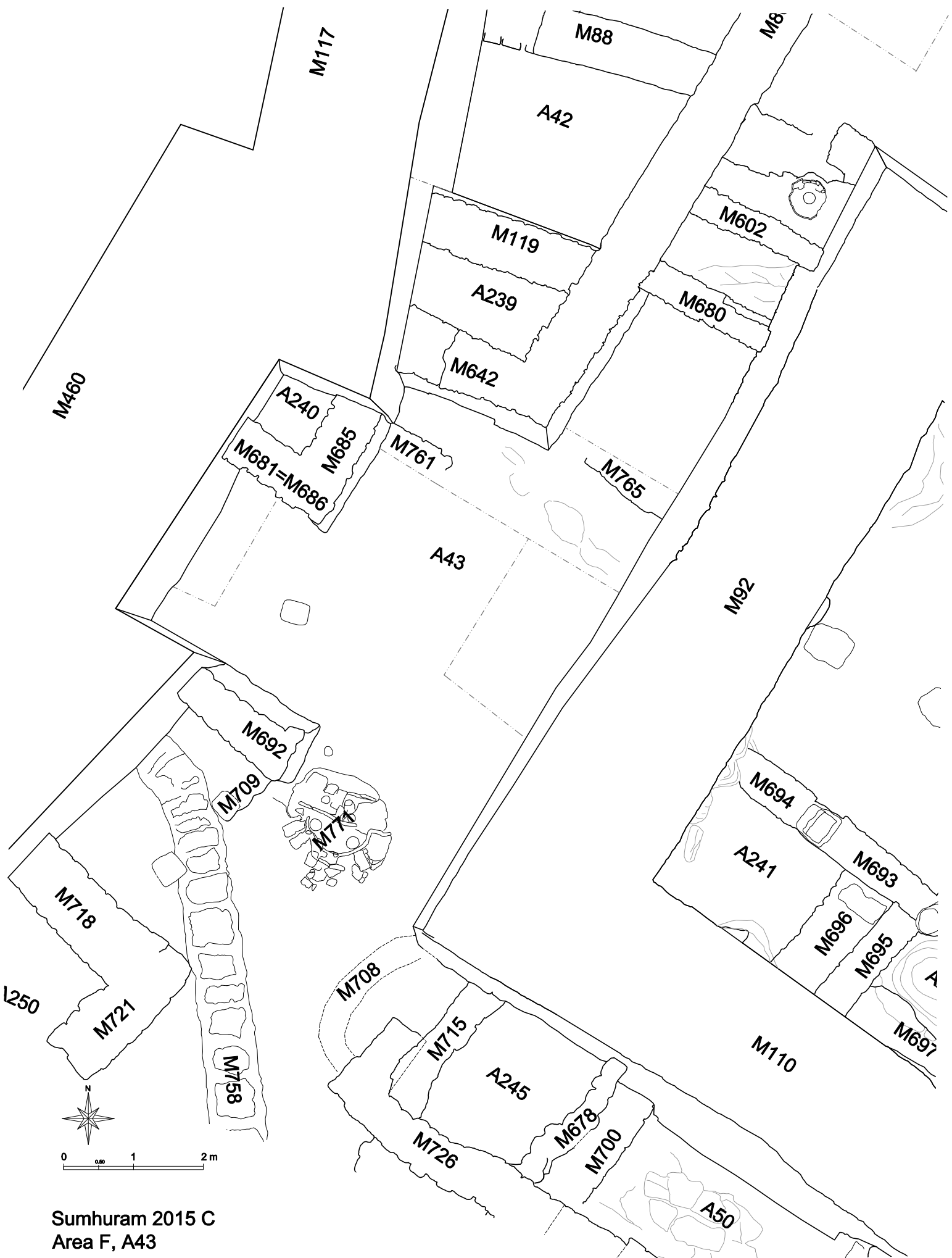


Sumhuram 2015 C
Area F, A20, A48, A217

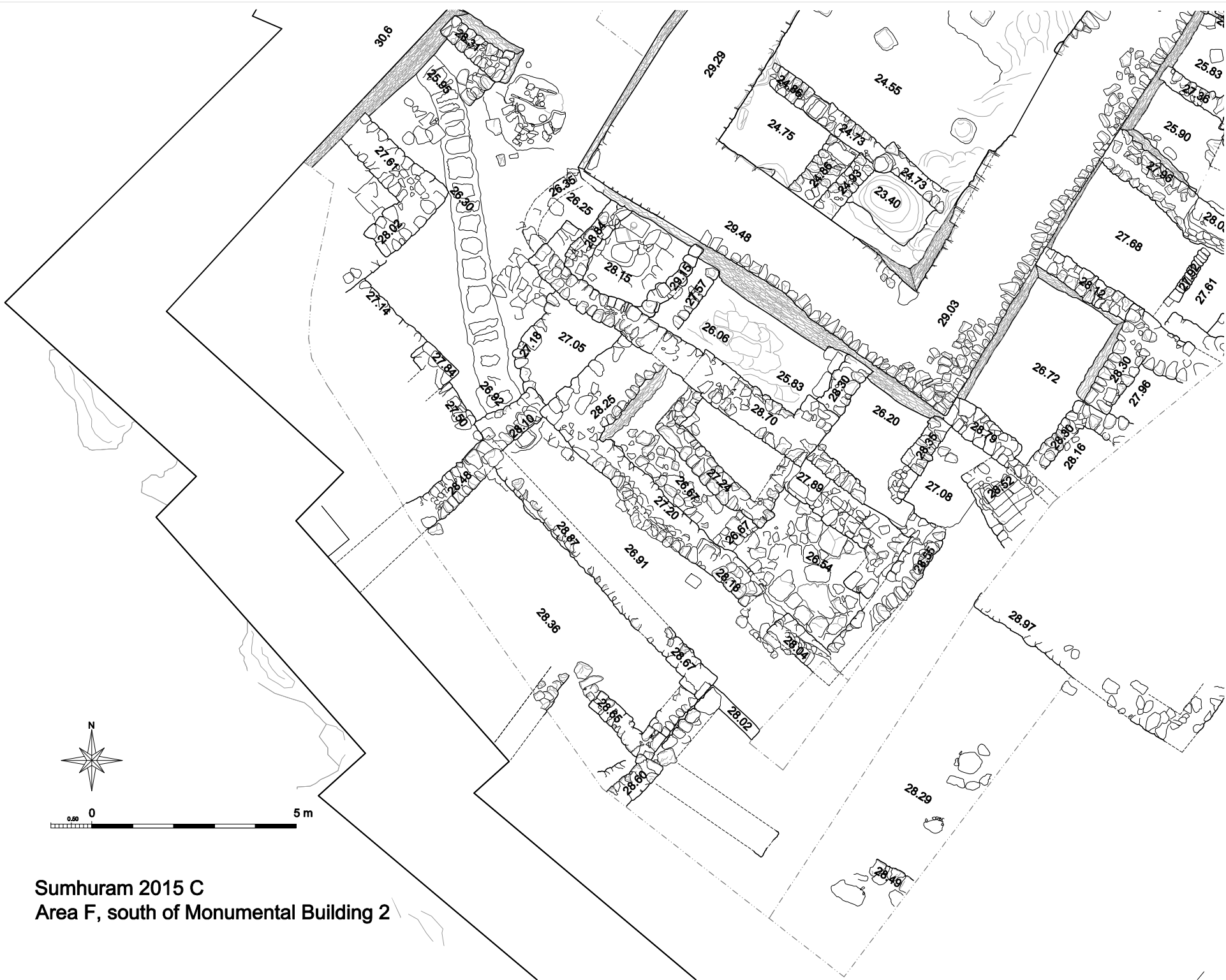


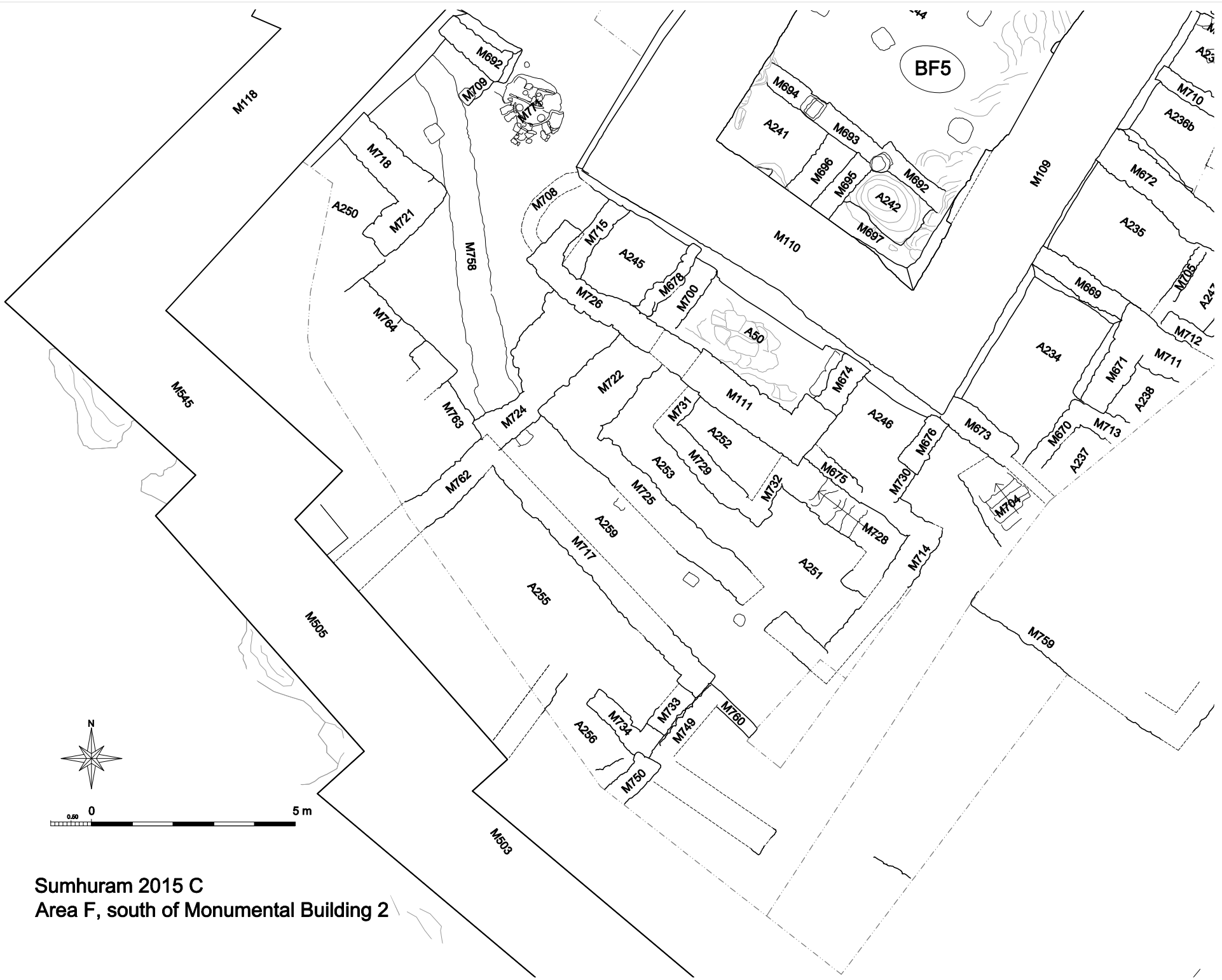


Sumhram 2015 C
Area F, A43

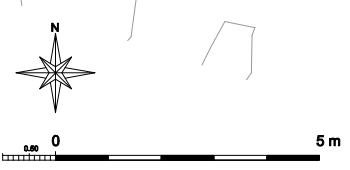
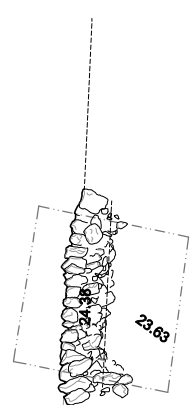
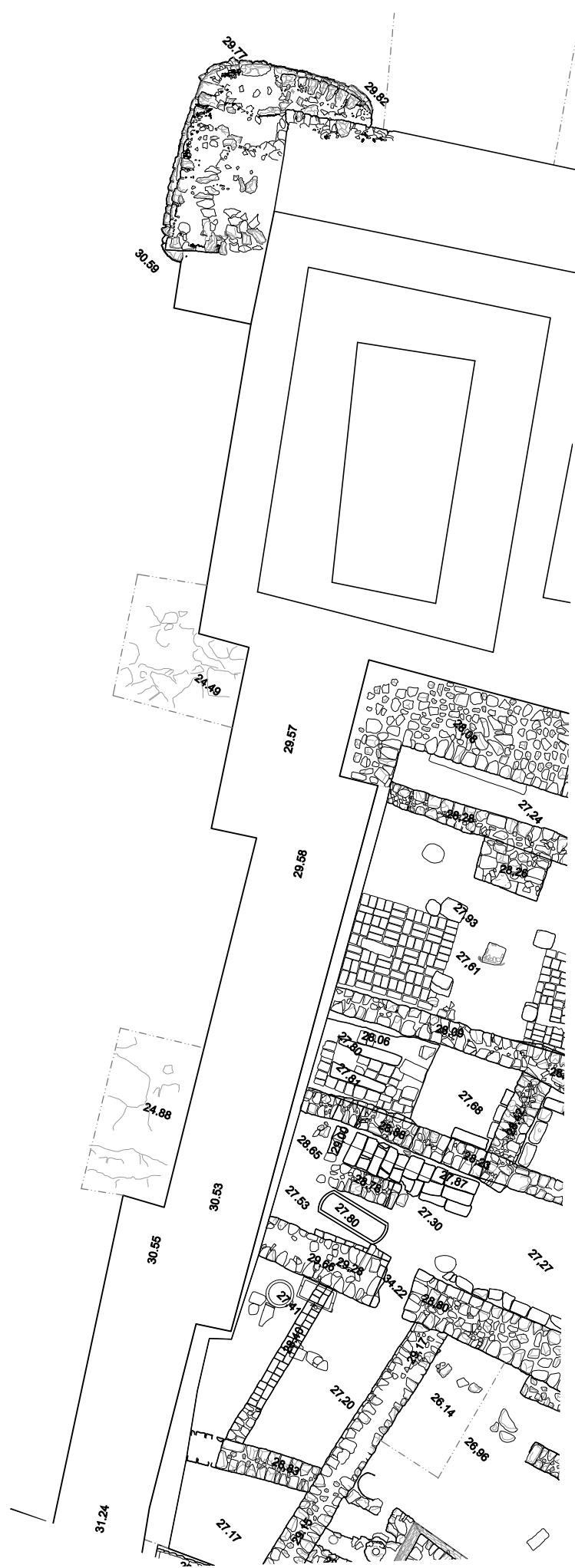


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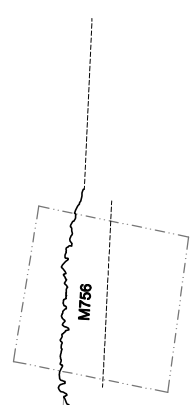
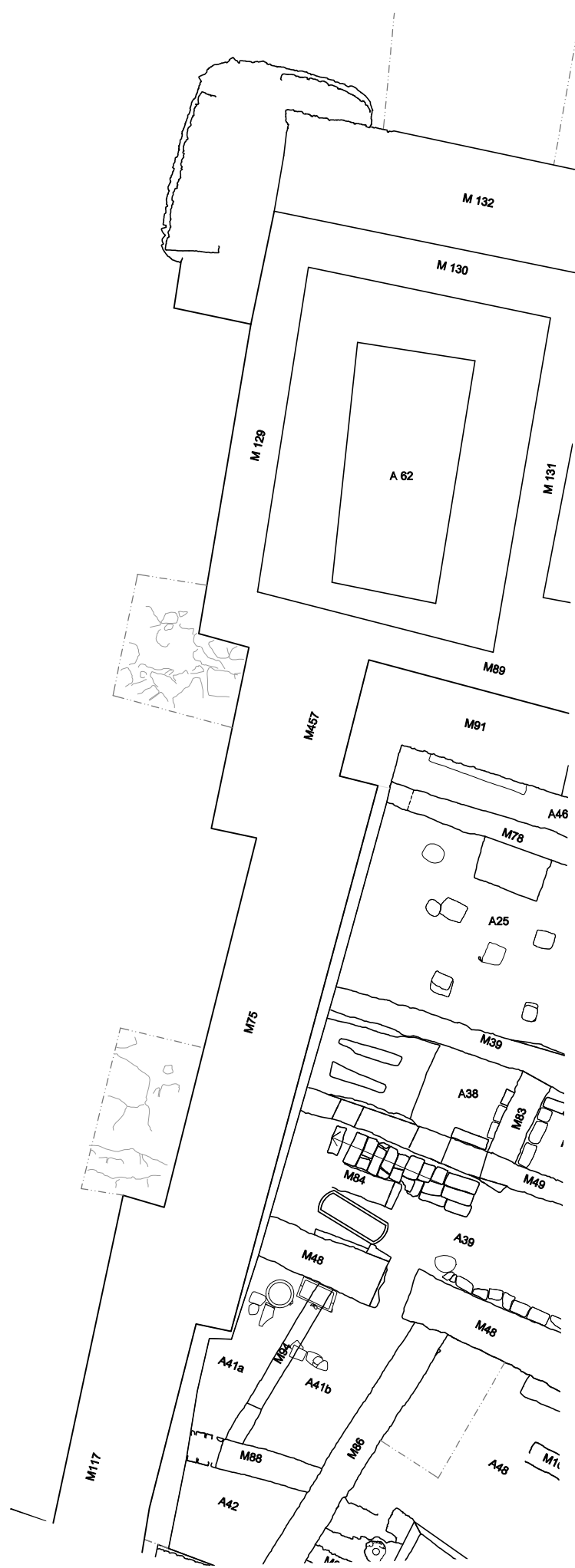




Sumhuram 2015 C
 Area F, south of Monumental Building 2



Sumhram 2015 C
West wall



Sumhuram 2015 C
West wall

Technical Report

A pottery kiln at Sumhram, preliminary notes by Alexia Pavan and Carlotta Rizzo

During the beginning of SUM15C campaign a pottery kiln has been excavated by IMTO in street A43, west from the so-called Monumental Building 2.

The kiln was already individuated during the previous campaign (SUM15A) when the upper part of two pillars and the southern limit of the structure were recognized although not excavated (fig. 1).



Fig.1: The kiln (M771) before excavation, from East

The connection of the structure with industrial activities was already clear during the last campaign when a pit full of vitrified clay lumps (US779) was excavated (fig.2) and a number of wasters were unearthed (see below).



Fig.2: Clay lumps from US779 (sample 85)

The kiln (figs.3,4) was originally made of two chambers (the upper one not preserved), and it belongs to a type which has remained in use until today. The shape of this oven already existed in Mesopotamia in late Prehistory but it varied through time and from region to region (Delcroix and Huot 1972).



Fig.3: The kiln (M771) after excavation, from East



Fig.4: The kiln after excavation, from North

The kiln consists of two parts: a lower chamber for combustion and an upper chamber for the pottery to be fired (not preserved). The floor between the two chambers is supposed to be perforated with holes placed at regular distances to let the flames and the heat pass upward. It was lifted up by a series of small pillars (four preserved) with an average height of 35 cm, made of clay melted into hard yellowish grey material because of the combustion heat.

The lower part of the kiln was made digging a circular pit for the combustion chamber and its entrance (the pit cuts US635 floor), and it was reinforced with normal mudbricks, joined together

with plaster and clay which due to the intense heat became green. In this way, besides reinforcing the structure, the bricks and the mud served as isolation and prevented the loss of heat.

The kiln is circular in shape with an average diameter of 140 cm. The northern part is not preserved but the overall shape is recognizable from the cutting in the floor. The combustion chamber had an opening large 22 cm which was placed in the eastern side. It served to bring in fuel before firing. Possibly a second opening was placed in the western side where the kiln is not preserved and where wall M692 stands. It might be used to clean out the ashes after the firing.

The combustion chamber was built below the ground level, being US635 floor and US767 floor the walking floors used contemporary to the kiln. The lower chamber was excavated cutting the floors and it was not used in the first constructional phase (above the bedrock) but in a second/third phase of use of street A43 according to the sequence of floors. The combustion chamber was divided in three parts: two lateral hemi-circles and a central "corridor" measuring 83 cm delimited by a series of mudbricks baked by the heat of the kiln. The kiln, at the moment of the discovery, was covered by a deposit of crumbled mudbricks and clay which probably belonged to the covering of the installation (US800). It is probable, considered also the overall dimensions of the kiln, that at least the upper part of the furnace was temporary and the dome (?) covering could be destroyed after every production. The kiln is a clear evidence for the local manufacture of ceramics at Sumhuram. Further studies which will include the analysis of the vitrified pottery and the wasters and slags discovered nearby could help in understanding the different and multiple uses of the kiln.

The most interesting open question is which kind of pottery was fired inside the kiln. The vitrified fragments are characterized by a large amount of vegetal temper -presumably straw- (figs. below) which fit well with the common ASA production. However the small dimensions of the furnace let to relate the kiln with vessels of small and medium size. We do not think that the large ASA jars standing on ring base could be fired inside the kiln because of the dimensions and because they do not need the high temperatures reached in the kilns.

The following materials have been discovered inside the kiln: charcoals (SUM15C: sample 9), ash (SUM15C: sample 8), bronze fragments (SUM15C: sample 5), obsidian flake (SUM15C: sample 4), mudbricks (SUM15C: sample 3, 15) and iron and bronze slags (SUM15C: sample 13, 17), clay lumps (SUM15C: sample 6). Few pottery (not vitrified) has been found as well inside the kiln. Noteworthy, a fragment of wavy rim bowl and a fragment of ESA A or B dated by Roberta Tomber to the time span 200 BC/ 10 AD.

SAMPLES OF SUM15A



Fig. 4: Bronze slag (sample 67)



Fig.5: Iron slag (sample 88)



Fig.6: Sulfur (sample 64)



Fig. 7: Bitumen (sample 68)



Fig.8: Fragment of ring base of straw temper vessel with traces of vitrification and iron slag(?)

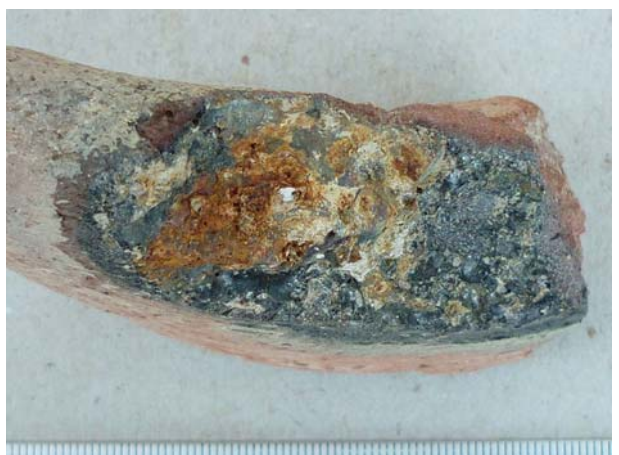


Fig. 9: particular of sample 72 (?)

SAMPLES OF SUM15A



Fig.10a: Fragment of wall of storage vessel with traces of vitrification (sample 89 a)



Fig.10b: Fragment of wall of storage vessel with traces of vitrification (sample 89 a)



Fig.11a: Fragment of wall of straw temper vessel with traces of vitrification and iron slag (?) (sample 89 b)



Fragment of wall of straw temper vessel with traces of vitrification and iron slag (?) (sample 89 b)



Fig. 12a: Fragments of pottery walls with traces of vitrification and iron slags (?) (sample 89c)



Fig. 12a: Fragments of pottery walls with traces of vitrification and iron slags (?) (sample 89c)

SAMPLES SUM15A



Fig.13a: Fragment of storage vessel with traces of vitrification (sample 115 b)



Fig.13b: Particular of vitrification on the internal surface (sample 115 b)



Fig. 14a: Fragment of amphora with traces of vitrification (sample 92)



Fig. 14a: Fragment of amphora with traces of vitrification (sample 92)

SAMPLES OF SUM15C



Fig.15a: Fragment of pottery wall completely vitrified on the external surface (sample 91)



Fig.15b: Fragment of pottery wall completely vitrified on the external surface (sample 91)

SAMPLES SUM15C



Fig. 16 Fragment of obsidian (sample 4)



Fig. 17 Fragment of iron (sample 17)



Fig. 17 Fragment of flint (sample 68)

Preliminary hypothesis of constructional phases of the city wall of Sumhuram (Silvia Lischi - Valter Filatondi)

The need to understand the evolutionary phases of the city wall and of the most important buildings inside the city is due to the will to identify, and differentiate, the evolutionary phases of the city. They have, probably, different pulses. From the beginning will it takes over a necessity of defence that has gone to strengthen over time, as evidenced by the addition of towers in different periods and in different areas of the city walls.

This detailed analysis allowed us to identify the areas that seem to testify the presence of a dwellings previous the installation of a complex city. Probably this settlement lacked a city wall, and most of the dwellings were concentrated in the north-west of the city, between the water well (MB1) and the so called "Monumental Building 2".

The characteristics of this building (in detail see Report SUM14C, pp. 33 - 42) suggest that was multifunctional, flanking defensive needs, warehousing, cultural and of subsistence. From this analysis and from the results of the last archaeological campaign (see Report SUM15C, pp. 53 - 57), it seems likely that this building was pre-existing to the city wall and were part of the settlement previous of the city.

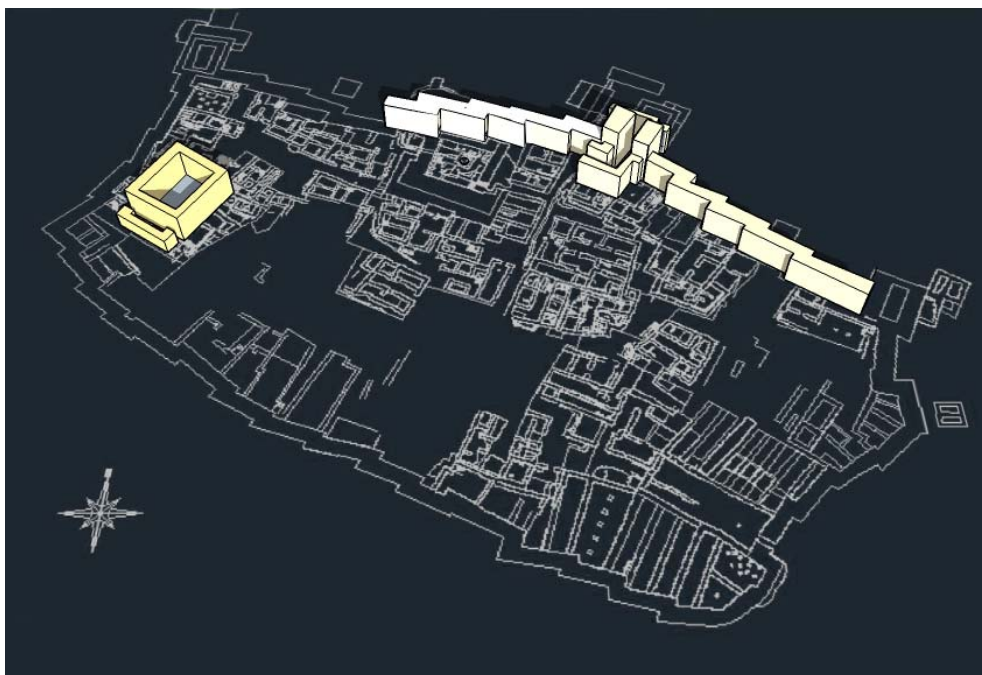
Hereby the five phases pointed out.

Phase 0: settlement before the installation of the city. There was already the water well, used at ground level, the Monumental Building 2 with probable access from south and dwellings of which, at the moment, we have not found clear traces.



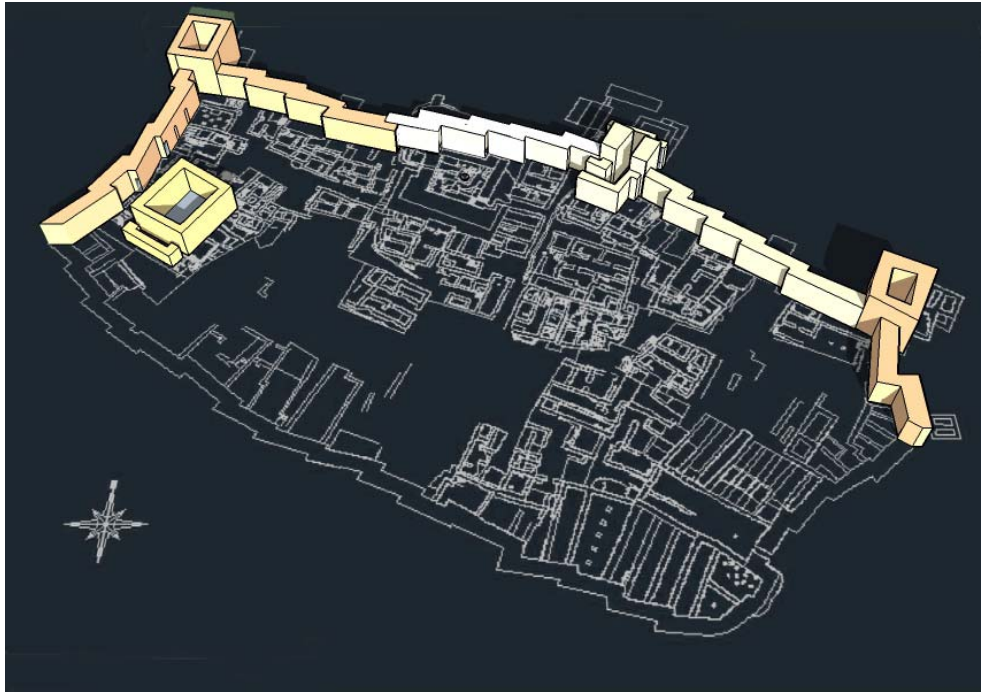
Phase 0

Phase 1: the first monumental phase. The city becomes important, the incense trade is increased and this induces the central power to the monumentalising of this peripheral center. Probably, based on a unitary project it begins the construction of the entrance complex and the 5 symmetrical partition of the wall to its sides. The Kingdom of Hadramawt is not new to this kind of constructions, for example, we found comparison in the walls of al Binā'.



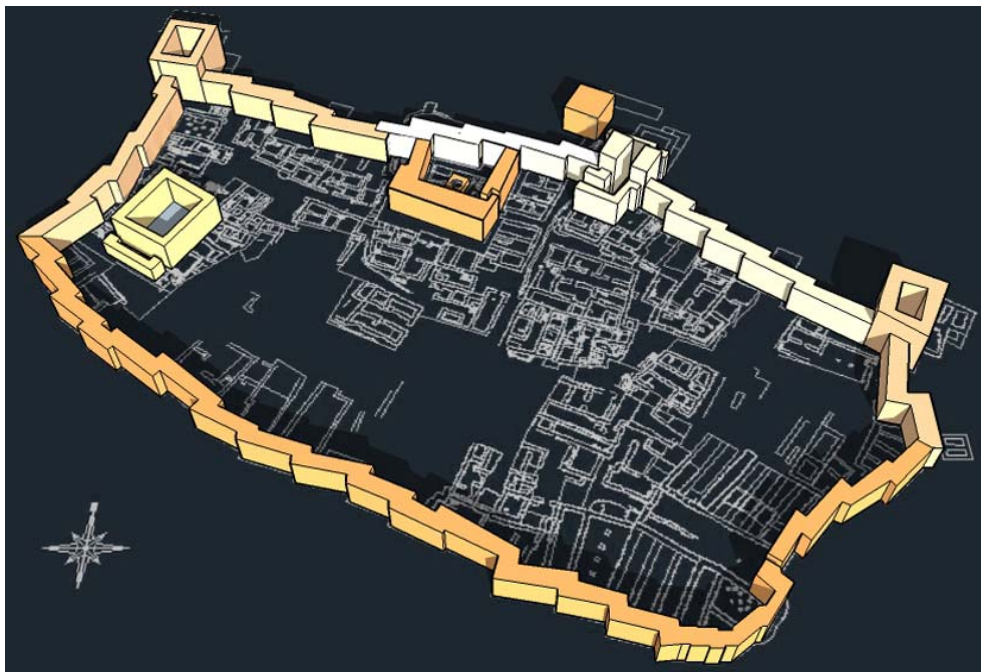
Phase 1.1

With the acquisition of importance and majesty grew up, probably, the need of security and the need of limit the space dedicated to the city. For this reason added the corner towers to the north-west and east. The southern area remain open because the natural slope of the hill made the south access improbable.



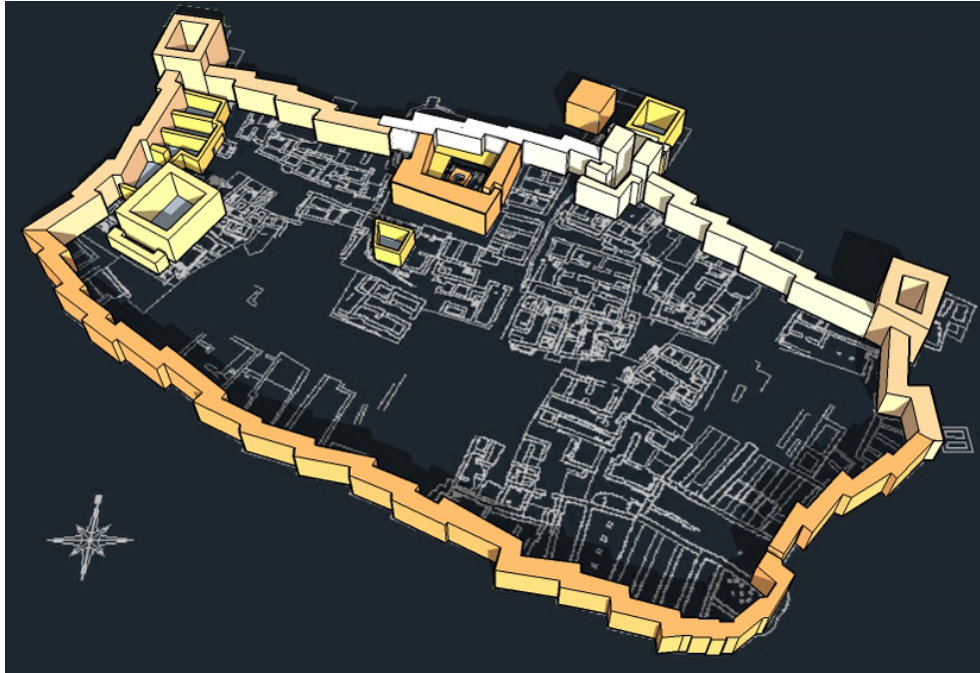
Phase 1.2

The last step of this long phase includes the closure at south of the circuit wall, the fortification of the water well and the addition of a tower near the entrance. A urban development surely started inside the city wall by the means of precise streets which will be followed during the entire life of the city.



Phase 1.3

Phase 2: during this phase the city acquires stability, inside the city wall were erected the shrine on the south west of the well, which itself undergoes internal work, and the temple *intra-muros*. This building, probably built on an existing building does not have already the final plant (to know the constructional phases of the temple see Report 2: pp. 183 - 213). Furthermore, the entrance becomes more articulated with addition of a tower.



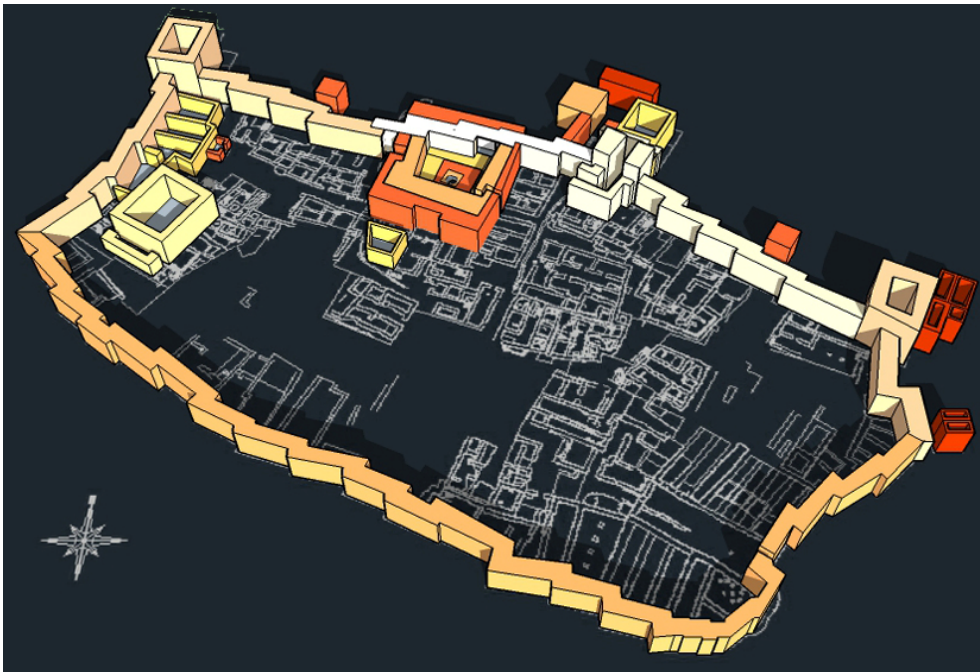
Phase 2

Phase 3: the second monumental phase. The building to the protection of the well (MB1) undergoes a thickening of the walls, in the centre of the septa are created niches which seem to give the impression that the structure consist of corner towers. In addition there is probably an increase of the elevation that makes it even more impressive the structure. The temple *intra-muros* undergoes a remodelling, and is probably due to this time the addition of the entrance jutting in the square A20. There are additions to the front door of the city and were insert two towers on the northern side of the city wall.



Phase 3

Phase 4: at this moment the city has a stable plan, internal rearrangements occur. The exterior remains largely unchanged. At the main gate a new wall was added, making even more complex entrance to the city, and towers are added on the east side.



Phase 4

Restoration Report

**RESTORATION WORKS AT SUMHURAM
(ARCHAEOLOGICAL PARK OF KHOR RORI)
(Sultanate of Oman)
CAMPAIGN from October to December 2015**

IMTO

Italian Mission To Oman



Technical Report

03rd October – 03rd December 2015

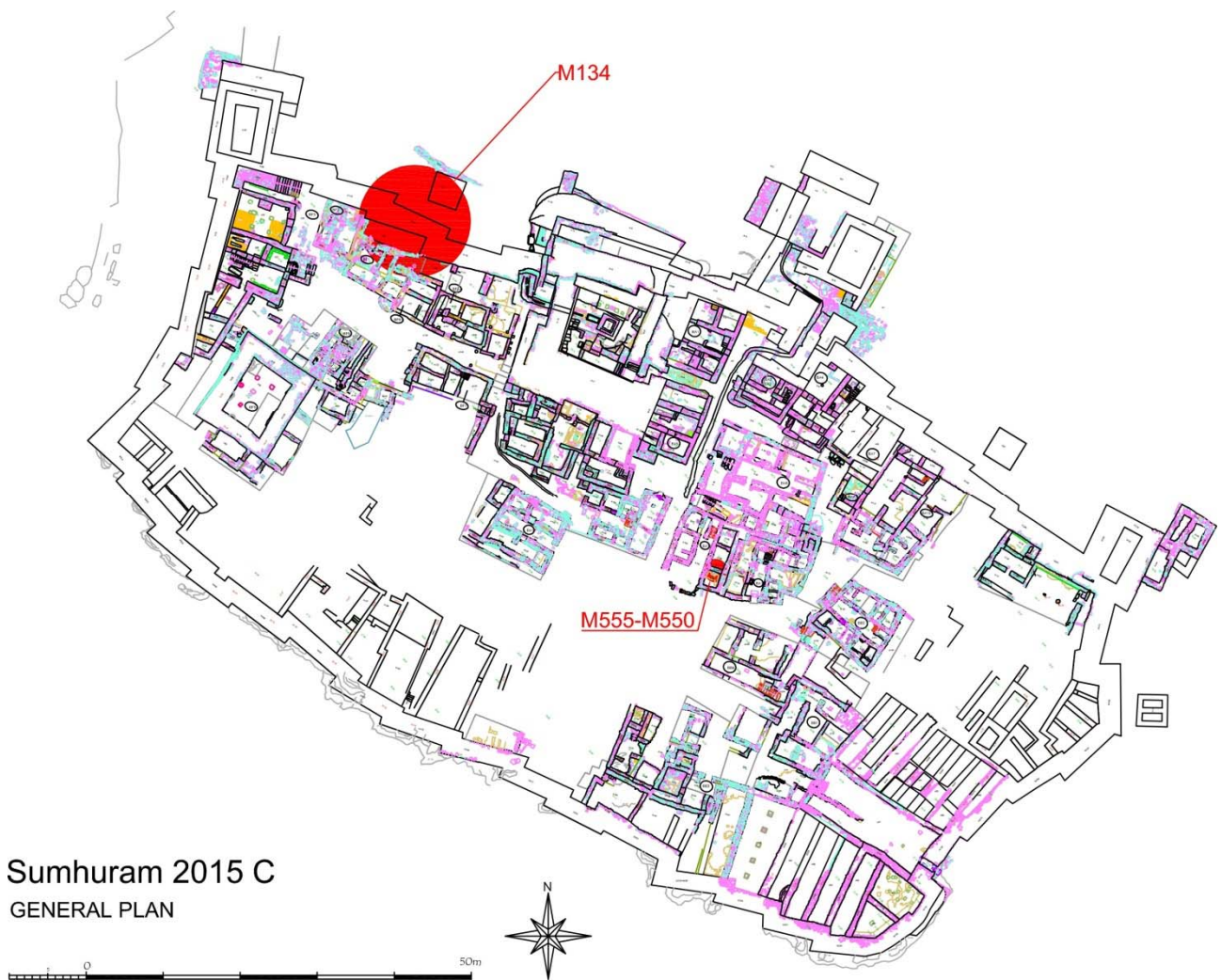
Valter Filatondi

Introduction

The restoration activities, during the campaign, regards the restoration of the following walls:

- The restoration of the walls M555-M550 located at the North-East side inside the city walls;
- The restoration of the wall M134 located at the North-West side of the city walls;
- Other small works inside the city as reported below.

The following map shows all the locations:



Worker Teams

Two teams of workers have engaged to work out all the needed operations to complete the restoration of the above-mentioned areas. One team of six people was engaged to prepare the mortar and the second one of nine people has engaged for the restoration of the walls.

Working progress status

In order to check the advancement of the works, we daily took a significant number of pictures of the areas. The number of the pictures and the point of viewing from which they are taken from, are those considered necessary for a good comprehension about the working progress status.

Mortar preparation

The mortar we used for the connection between the stones is the same used during the previous campaigns:

- **80** grams of brown colour with **200** grams of yellow colour.
The oxide colours, mentioned above, plus 4 buckets of sand composes the mix of the mortar with eight scoops (**600grams**) of lime powder.

The percentage of lime on sand is 1:6, and then we have two different kinds of mortar:

- **Stone mortar**, used for the external leaves of stones, obtained by the mix of sieved sand, hydrated lime, brown and yellow oxides for the chromatic tone.
- **Filling mortar**, used for the back filling of the structure, made with the same components, except the use of raw sand instead of sieved sand without any brown and yellow oxides.

Restoration of the walls M134

On 03rd October 2015 the situation of the wall was as shown on the picture below.



The wall was statically unsafe and, as you can see on the left side of the east corner, the masonry was loose and swells. The wall was under the risk of collapse and therefore we decided to dismantling the upper part of the wall up to the third course of leaves stones.

Due to the current situation, the dismantling has been done, course by course, by the mean of picks and shovels with particular attention to the front tower avoiding its touching.

On 18th October 2015, the dismantling was finished as you can see on the following picture.



On 19th October 2015, we started the reconstruction of the wall as shown below.



On 04th November 2015, the wall was still under reconstruction as shown on the following picture.



On 17th November 2015, the wall was still under reconstruction as shown below.



On 28th November 2015, the wall was as shown below.



On 02nd December 2015, the wall restoration was finished.



Restoration of the wall M555

Beside this main work, we took care of the restoration of the wall M555 and M550. Hereby we show the wall before and after the restoration.



M 555 before restoration



M555 after restoration

Restoration of the wall M550



M 550 before restoration



M550 after restoration