

SULTANATE OF OMAN
MINISTRY OF HERITAGE & CULTURE

STATE OF CONSERVATION REPORT
JANUARY 2016
BAHLA FORT WORLD HERITAGE
SITE
SULTANATE OF OMAN (C433)





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January 2016

Bahla Fort World Heritage Site

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1. RESEARCHES AND STUDIES

In consideration to the World Heritage Committee decision number 38com 7B.4, the Ministry of Heritage & Culture of the Sultanate of Oman (MHC), as the responsible authority for the management of the site, undertook a number of actions to implement this decision.

1.1 Draft of legal instrument for the implementation of the Management Plan.

The Ministry of Heritage and Culture commissioned the International Consultant Atkins, who originally drafted the Management Plan for the site, to prepare a legal tool in format of text and plans for a possible Royal Decree and a Ministerial Decree directed to a better definition and implementation of the management of the Bahla Fort and Oasis World Heritage Site.

The proposed Decrees reflect the policies and objectives set out in 2010 Management Plan for the World Heritage Sites, in order to support the Sultanate of Oman's obligations under the UNESCO *Convention Concerning the Protection of the World Cultural and Natural Heritage*, 1972, to which it became a signatory on the 6th of October 1981. They also respond to the comments received in 2011 by ICOMOS on the 2010 Management Plan.

The development of the Decrees has been supported by consultation with a range of parties including the Bahla Municipality, the Ministry of Agriculture and Fisheries (Nizwa), the Ministry of Heritage and Culture and the Ministry of Housing (Nizwa).

1.2 Updating the Management Plan report.

The revision of the Management Plan was a part of the scope of work, which also included the possible recommendations on the Buffer Zone.

1.3 A consultancy study for the Development of Settlements Al Auqr, Al Hawiyah and Al Ghuzaily.

In April 2014, Omran – a Government owned company – in coordination with the MHC, was requested to conduct a consultancy study to develop heritage tourism in the old “Settlements”, the ruins of Bahla. This request was suggested by the growing



demand for Heritage tourist experiences worldwide, and the consequent opportunity for increasing heritage tourism in Oman.

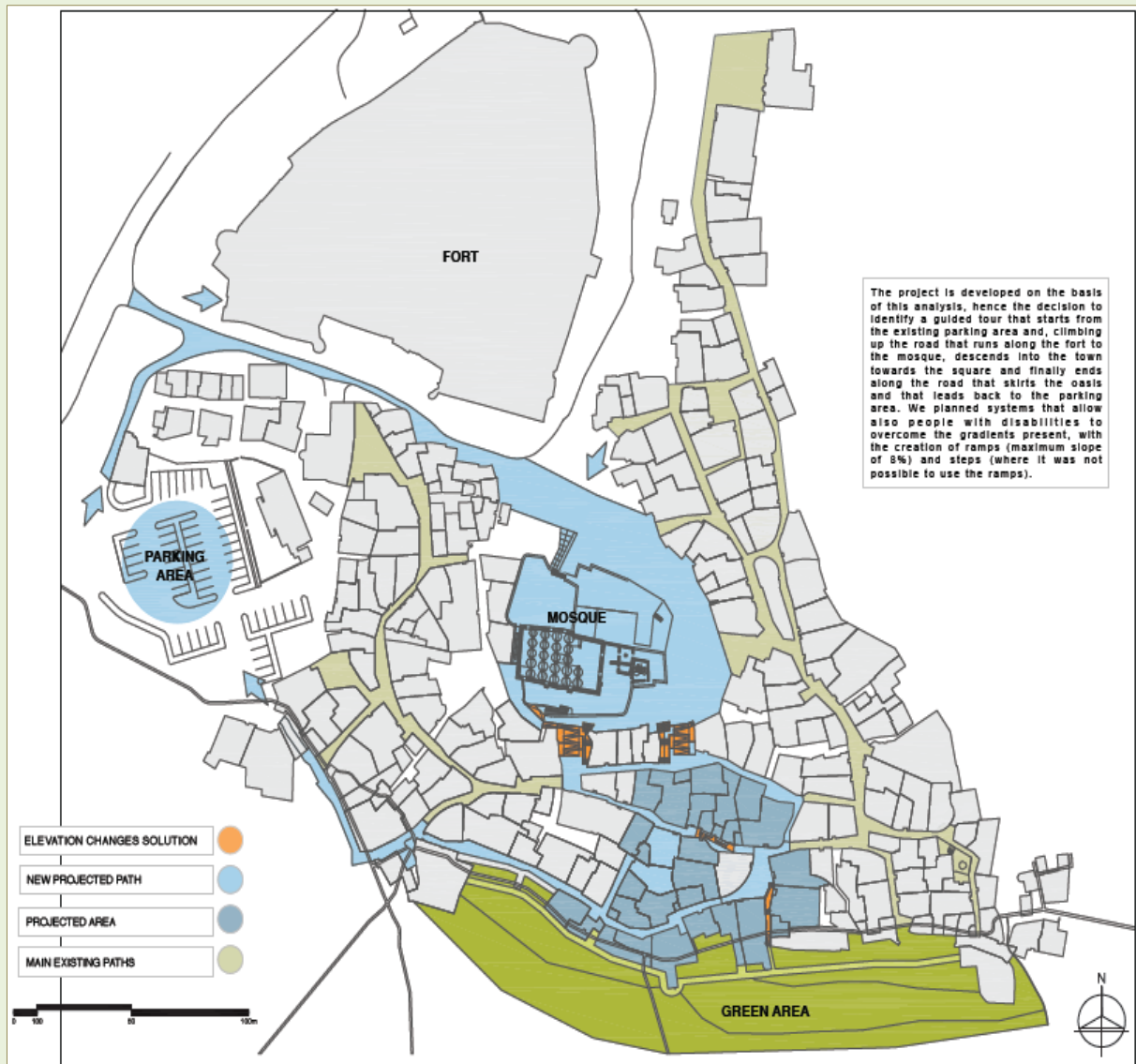
In August 2014, Omran appointed an international Heritage Consultant in order to design – in association with the local community – a project to revitalize the “Settlements” of Bahla old town by developing and capitalizing existing heritage assets.

The field study carried out by the Consultant suggested to initially develop the three clusters of the “Settlements” at the foot of the Bahla fort, called respectively namely Settlements Al Aqur, Al Hawiyah and Al Ghuzaily. These three clusters were selected mainly for their close proximity to the major attractions in Bahla: the Fort (World Heritage Site), the Oasis and the Market (Souk).

The Consultant prepared a Master plan for the restoration of selected ruins within the three clusters identified and the best adaptive reuse concepts for each unit. Moreover, the comprehensive strategy for touristic development included the institution of outlets, such as bookshops, permanent and temporary handicraft exhibitions, museums, restaurants, coffee shops and accommodation facilities.

This concept would not serve as a flywheel only for the tourism sector, but it would also interest the daily activities of great part of the local community, which would be variously active in providing essential services, such as banks, utilities and service outlets.

These commercial activities will breathe life back in to the old restored ruins. The development also includes paving and illuminating walk ways and the building, allowing the locals and tourists to take a walk around the old town at night while enjoying a pleasant walk from one location to the other.



Images of prosed development of the three Settlements

1.4 Site Conservation Master plan

The initial study by the Heritage Consultant for the development of the three “Settlements” in Bahla old town suggested also that Bahla has the potential to become the major Heritage tourism destination in Oman. Therefore, based on the previous study and the conceptual adaptive reuse, Omran and MHC decided to further expand the project in order to capitalize on Bahla’s heritage wealth.

In early December 2015, Omran floated a tender for consultancy services to develop a comprehensive Conservation Masterplan for the World Heritage Site in Bahla. The proposed Masterplan encompasses the whole World Heritage Site, addressing and/or taking into consideration mainly, but not exclusively, the following points:

- Identification of the main heritage, natural and cultural attractions of Bahla;
- Definition of the most appropriate use of each identified feature and area;
- Necessity of introducing and/or upgrading basic infrastructures, such as electricity and water supply, communications and waste removal/management;

1.5 Anthropological study for the Market (Souk).

The restoration project of the Bahla Market (Souk) created the appropriate occasion to conduct an anthropological and historical study of this space, including full surveys of all its elements, such as trading and merchandises types, vocations, tools, production phases and their manufacturing techniques.

The research has focused not only on the direct material evidence for craftsmanship and trading activities, but also on the history of these operations by studying historical and administrative documents.

This study might provide suggestions for reviving the traditional crafts and commercial activities that characterized the Bahla Market (Souk) and develop them according to the nowadays needs. This operation would turn these specific aspects of the intangible heritage into tangible activities with concrete outcomes on the local community and would also revitalize and preserve skills and expertise that would have otherwise be lost and forgotten.

This study is composed of three main operations:

1. First Phase: creation of a complete inventory of all workshops and commercial activities still active in the Bahla Market (Souk) and of all types of commodities and merchandises they produced and sold, including the required resources, imports and manufacturing techniques employed. The inventory will record also all shops already closed and demolished.
2. Second Phase: study of the different social-economic aspects of the Market (Souk), represented by all productions, merchandises and imports, as well as storing, marketing and promotional activities; a special attention has been dedicated to the study of the economic, social and cultural status of the local merchants and craftsmen.
3. Third Phase: economic and marketing study describing the actual state of the Market (Souk), the reasons of its diminished economic importance and how this affected the commercial activities; the study will also provide the required information to design a strategy for reviving the Market (Souk) and expand its activities, preserving the traditional crafts and traditional marketing practices.

1.6 Archeological study of the Market (Souk)

As per recommendations received by ICOMOS on the restoration of Bahla Market (Souk), the MHC appointed experts to conduct archaeological explorations in the Market (Souk) site.

Dating the Market (Souk)

It was not possible to precisely date the Market (Souk) from the pottery pieces that were retrieved from a number of trenches excavated on the site, mainly due to the lack of comparisons from previous studies. However, the last surveys under the shops and the common areas provided a number of coins from British India dating mainly around the middle of the 19th century AD (1830, 1833, 1835, 1857 and 1862 AD). Some of these coins were in very good condition indicating that they were likely covered shortly after they were released and used. This evidence implies that the Market (Souk) was commercially active in the middle of the 19th century and its construction might date early in that century. The majority of coins dates to 1898 AD, during the reign of Sultan Faisal bin Turki (reign, 1888-1913 AD), attesting that the Market (Souk) was flourishing at the end of the 19th century AD.

Antique archeologically discoveries

The floors of the shops were leveled using soil and gravel brought from outside the Market (Souk). Fragments of prehistoric stone tools that were found in these filling layers, testifying for the existence of most ancient archaeological sites in the area of Bahla. Independent scholars working in collaboration with the MHC, also reported the presence of tiny flakes of carnelian stone in the plastering of both the Fort and city walls, possibly attesting the presence of an ancient workshop of in this precious stone in the surrounding areas. These findings encourage the execution of additional archaeological surveys in the Oasis of Bahla in order to properly regulate the urban development plan and add important information to archaeological and historical population of the area.

Integrating historical, archaeological and anthropological elements in the restoration of the Market (Souk)

The diversified discoveries brought to light in all archaeological explorations from different kinds of coins, local pottery and imported pottery, confirms the continuity of the commercial activities and traditional industries in the Market (Souk) for ages, and encourages the development of a comprehensive program of restoration to ensure this continuity. Since the restoration project does not treat a lifeless site, but rather a living dynamic, commercial and industrial reality characterized by different heritage, historical and anthropological aspects, such program should comprise also the examinations of the remains of agricultural and industrial activities in the Market (Souk) and the old quarters.

The discovery of older foundations

The third survey has shown the remains of a structure that predated the Market (Souk) foundation, possibly dating between the 12th and the 16th centuries AD on the base of pottery comparisons.

1.7 Study for the Restoration of the Wall of Bahla (Sur)

The Wall is considered the actual boundary for the site and one of the important historical monuments in the preserve. Most probably it was constructed for defensive purposes at the times of Nabahina when Bahla became their capital in about five hundred years ago

The Wall measures around 13 km long and it crosses many valleys and surrounds many important quarters, its height varies from side to side according to the natural terrain, it measures near mountains and hills around 3 meters, and in valleys around 5 to 6 meters. The rampart's thickness also varies between the base and the top, in the base it is approximately 2 to 3 meters and descends at the top to reach at the highest point around 1.5 meters.

The Wall is traversed by several gates, the large ones allow the passage of vehicles and trucks, meanwhile the smaller ones are used by pedestrians. The most significant gates are the following:

- Sili gate situated at the north of the oasis.
- Kharzaban gate also at the north.
- Badi gate at the west of the oasis.
- Sharjiat gate also at the north.
- Sabah Salem at the south.
- Al Bataha or the mausoleum of Ibn Baraka.

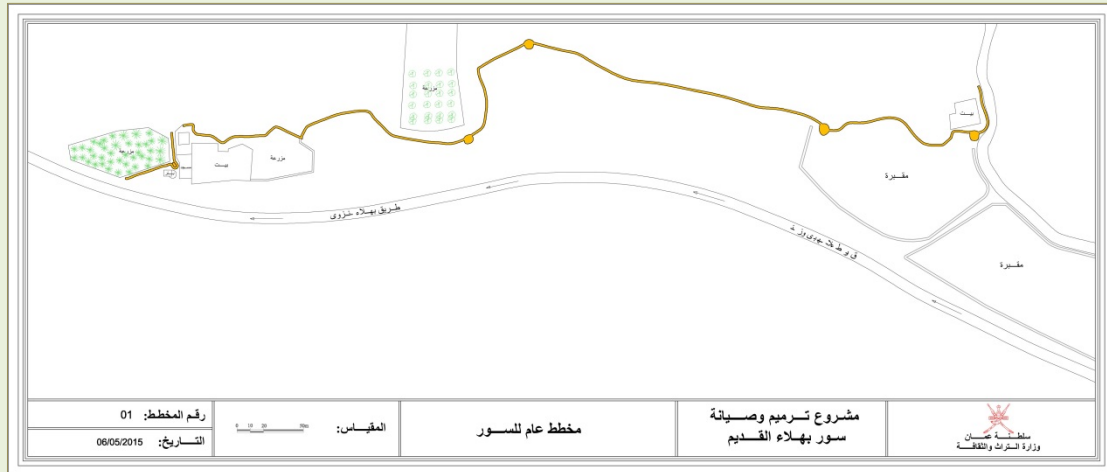
In addition many towers can be found at the edges of the Wall, as much as 36 towers count on its limits.

The study that the Ministry is undertaking aims in the first place to make a full diagnosis of the actual physical state, and to examine the current problems, in order to define the endangered parts, so that the restoration works can commence in a timely manner.

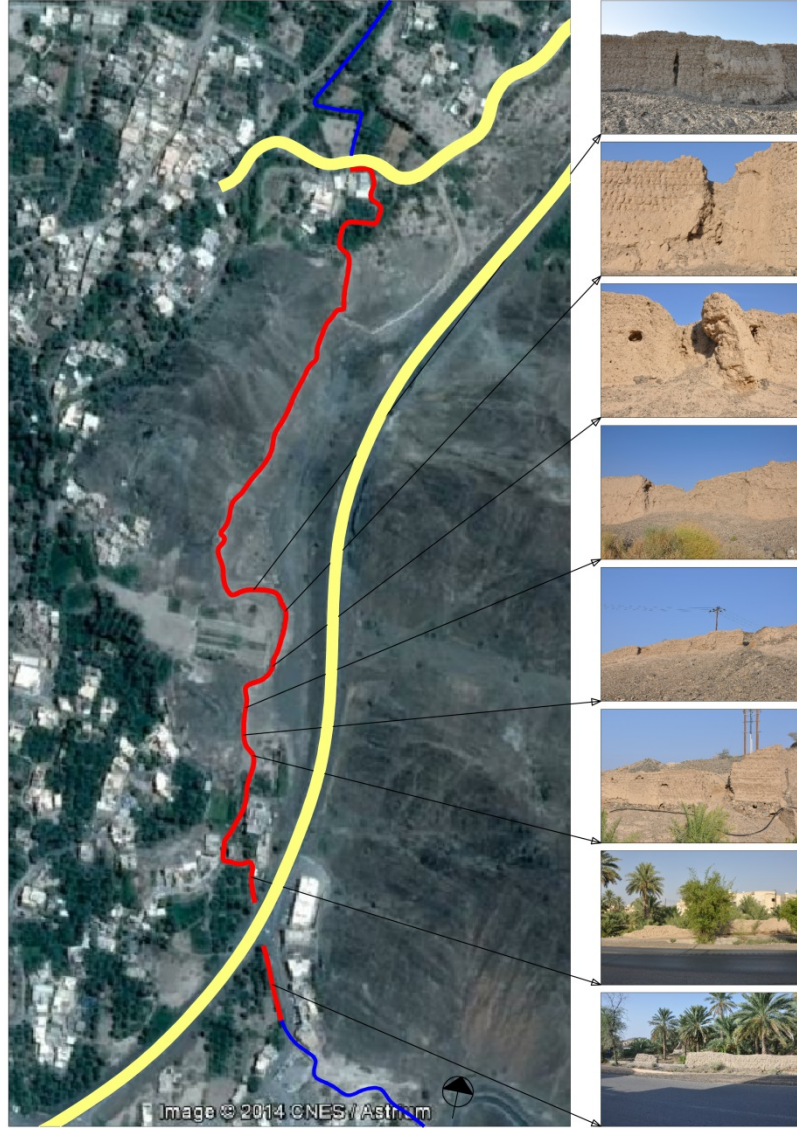
After the initial diagnosis the problems can be listed as follows:

- Major and important deterioration in certain parts.
- Cracking in the adobe walls.
- Destruction in some of the top parts.
- Completely demolished parts.
- Corrosion of mud plastering.
- Demolition of some of the Masonry bricks.
- Destruction and loss of some of the adobe bricks.

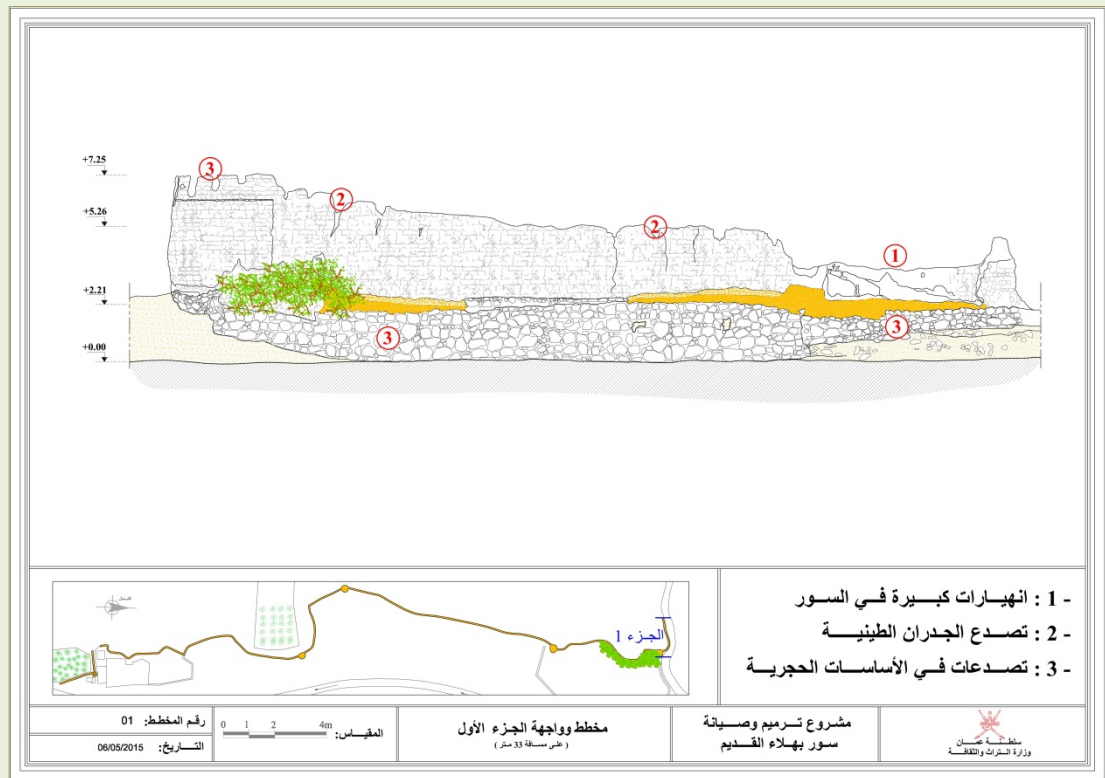
Upon this diagnosis a restoration scheme is understudy at the moment, it will decide the parts that need urgent intervention to receive the priority.



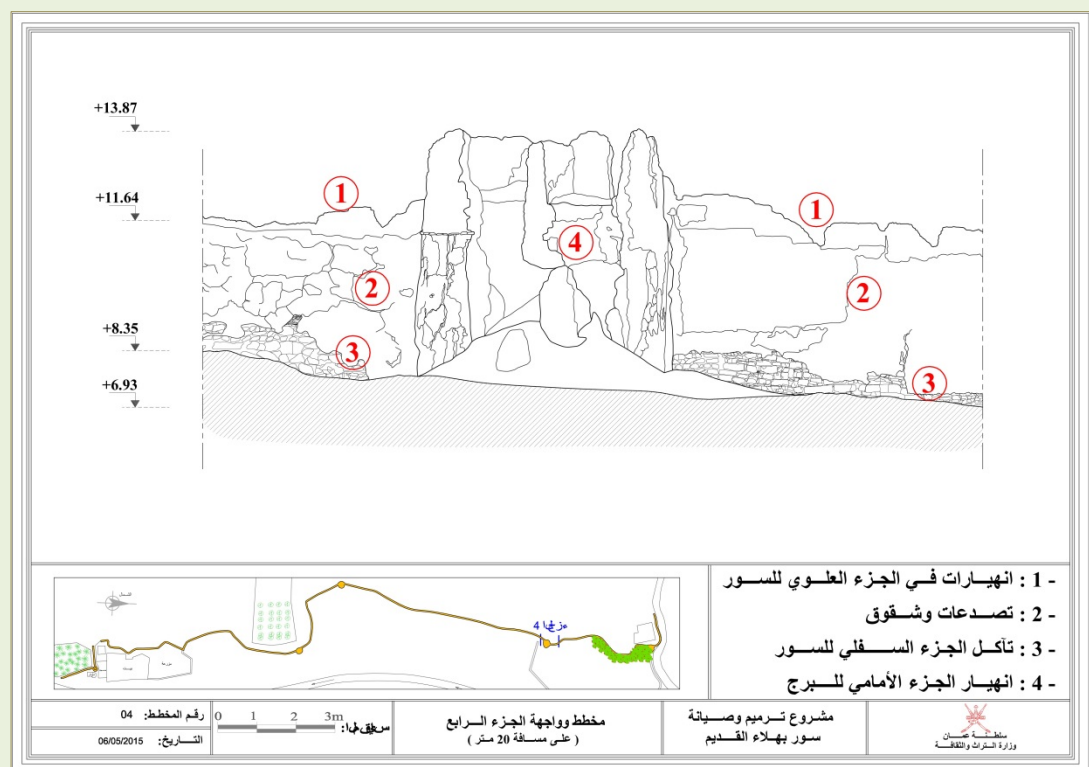
General plan of the wall



رقم الوثيقة: 04	المقياس: 0 10 20 30 40 50 100m	الحالة الراهنة لمكونات السور	مشروع ترميم وصيانة سور بهلاء القديم	سلطنة عمان وزارة التراث والثقافة
التاريخ: 28/09/2014				



Part 1 of the wall (1- Major and important deterioration.
2- Cracking in the adobe walls. 3- Cracks in masonry foundations)



Part 4 of the wall (1- Demolition in the top parts. 2- Cracks and fissures. 3- Crossion of the lower parts. 4- Destruction of the front parts of the tower)



Photos for parts of the wall



Sections of different parts of the Wall

2. CONSERVATION AND RESTORATION WORKS

The old fort, the Market (Souk) , the ancient wall and quarters represent the historical and cultural heritage of Bahla. This historical complex testify to the outstanding values worth of being considered as one of the most prominent heritage assets in close connections and continued interactions with all relevant components of the natural environment that allowed for creating the Bahla oasis.

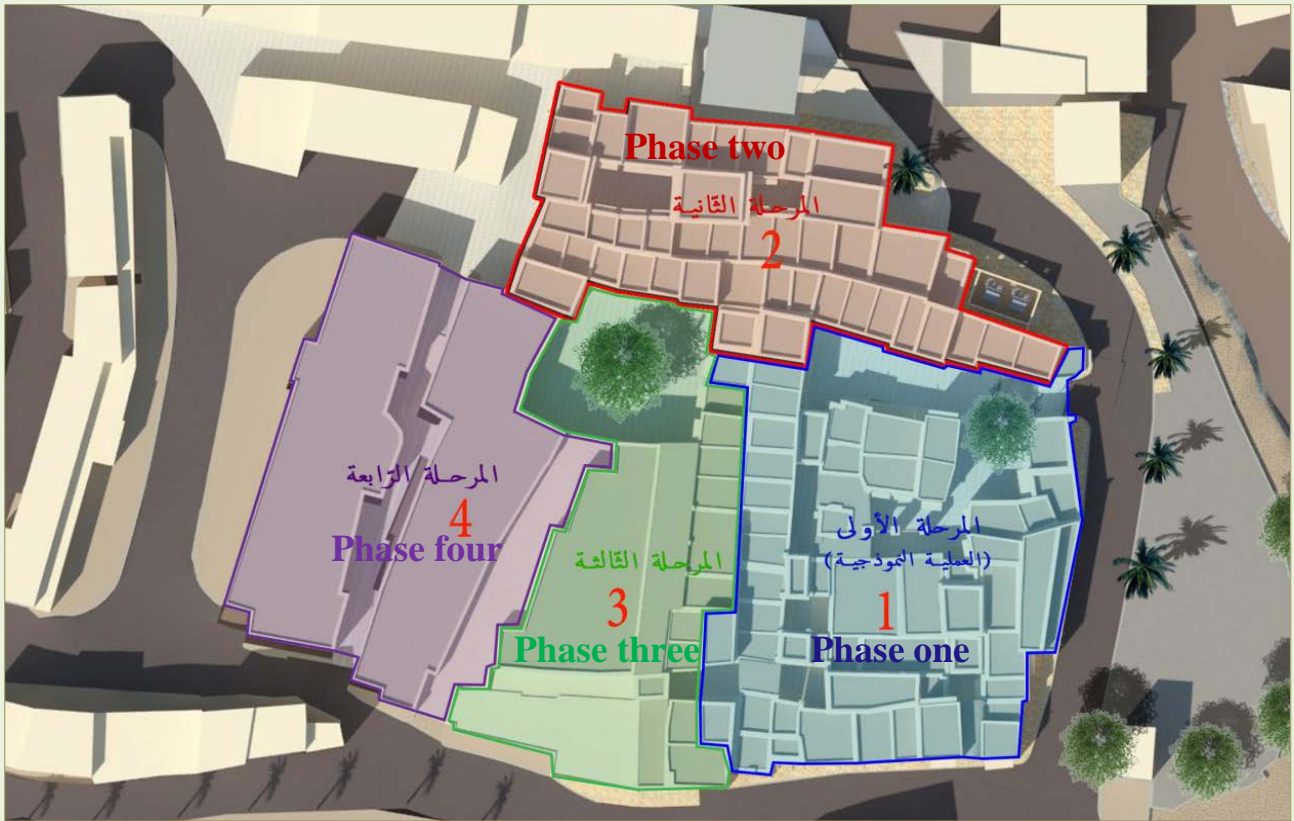
The conservation and restoration works necessary for the historical monuments and sites within the considered area of development are detailed in the General Conservation Plan adopted by the MHC following the Masterplan. The General Conservation Plan aims at conserving the historical monuments of Bahla and removing all disfigurations added in the different periods to eventually restore the structures coherently. Moreover, the traditional social and economic activities will also be revitalized and incentivized to achieve the objectives of the development and conservation plans.

In its first phases, the General Conservation Plan will interest all monumental sites and buildings within the preserve. The active involvement of the local community is considered an essential tool for the success of the conservation plan and the future positive accomplishment of the entire project.

As a World Heritage Site, the Bahla preserve has all the essential prospects and potentials to be conserved, restored and activated as a living historical city, with the restored sites and activities provided with a re-established social and economic role, respecting their historical significance and meaning.

2.1. The Restoration of the Bahla Market (Souk)

In order to restore the authentic commercial activities to this important monument and revive it as a vigorous space, the MHC designed a pilot project for the beginning of the restoration works, which first focused in the eastern areas. In total, 1365 m² and 65 shops (on a total of 142 in the entire Market (Souk)) were subject by various activities and levels of restoration.



Main areas of the Bahla Market (Souk): 1) Pilot project area; 2-4) Next areas

This area of the Market (Souk) was selected for the pilot project of the in the conservation plan due to the severe and extensive damages to walls and roofs caused by the flooding occurred in the Eighties.

Once the pilot project will be successfully concluded, restoration works will be simultaneously extended also to the remaining three parts of the Market (Souk), which cover approximately 3128 m² and count 80 shops.

When the restoration and reconstruction works within the limits of the pilot project reached their final stages, they will represent a fine and credible example to what the whole Market (Souk) will look like at the end of the project. The following works in the pilot project area have been already accomplished:

- Treatment and consolidation of the foundations according to the requirements of specific conditions.
- Reconstruction and reinforcement of fully demolished or cracked walls with special adobe bricks.

- Roofing of the shops with destructured roofs and restoration of partially deteriorated roofs using traditional materials (Palm trunks, Kandal wood and Daoun).
- Roofing of passageways between the shops using traditional materials and techniques.
- Restoration of traditional original doors and windows, as well as fabrication of new traditional doors and windows to replace the fully damaged ones.
- Beginning of electrical wiring works to facilitate the traditional plaster works.
- Traditional plastering of the exterior and interior walls with Sarooj after completion of electrical works.
- Paving and restoration of water drainage system works after completion of electrical works.







2.2. The Restoration of Sabah Salem Gate

Sabah Salem Gate is one of the most important gates on the rampart of Bahla, because of its location that connects Bahla to the main road and to the valley behind the rampart, which permits to oversee the significance of the rampart stretching for 13 km.

The gate appeared cracked from both the right and left sides with total destruction of the roof. Restoration works aimed at restoring it to its original state. After completion of the restoration works the gate returned to its original state and function and people is now able to access the World Heritage Site preserve passing through it.





2.3. The Restoration of Mausoleum of Shaikh Bin Baraka and Alkhair mosque

The mosque and the mausoleum were largely deteriorated and their conservation state endangered the safety of both the visitors and worshipers.

The MHC provided the required budget to save these important monuments by realizing urgent interventions to treat the serious cracking and re-establish their original functionalities.

The restoration works started with the reconstruction of the demolished and badly deteriorated walls. Moreover, the demolished mausoleum dome roof was fully restored its original form reading and analyzing the remains of the original dome.

The accomplished restoration works are summarized as follows:

- Reconstruction of the mausoleum's demolished walls, using traditional materials and traditional techniques, in addition of applying special treatments to the severely damaged walls risking collapse.
- Treatment of the deteriorated parts of the Alkhair mosque walls, with specific focus on the parts directly connected to the rampart, which were about to be fully destroyed.
- Reconstruction of the mausoleum dome with traditional materials, restoring its authentic form following analysis of the remains of the old dome.
- Applying internal and external plaster to both monuments with traditional local materials (Sarooj).
- Prefabricating of the mosque's doors and windows with traditional Teak wood.
- Roofing of the mosque using traditional materials and techniques (Kandal wood and Daoun).
- Installation of electrical wiring in both monuments and installation of external and internal lighting elements.
- Furnishing of the mosque with carpets to allow prayers to be held again, and visitors are able to visit the again mausoleum.







3. CULTURAL AND SCIENTIFIC ACTIVITIES

Bahla as a World Heritage Site was presented in a number of Conferences and Seminars, while the Fort as the most iconic elements of the site hosted some activities as well:

3.1 A paper on Bahla Fort site was presented to the “International Conference on Archeological Parks and Site” organized by ICOMOS in the city of Salalah, Sultanate of Oman. Many experts and executives from the UNESCO, ICCROM, and other scientific institutions and organizations participated in this Conference, which aimed to exchange international experiences and examples in managing and conserving world heritage sites.

3.2. Workshop in Bahla Fort under the title “Features from history and civilization”.

3.3. Hosting the literature forum “Readings in the thought of Shikha Aishaa Al-Riami” 20-30 October 2015.

3.4. Hosting seminar on the Historical and Cultural Omani role 20 November 2014.

3.5. World Heritage Day celebration 18 April 2015.

Additional information provided by the State Party on 1 March 2016

Adobe Bricks and Earthen Architecture at Bahla Fort

Introduction

Considered as an essential element and component in the characteristics of the local and traditional adobe architecture in the Bahla Fort site, the Ministry of Heritage and Culture along with all the responsible stakeholders took serious measures to enable the availability of these materials produced using local known traditional techniques and methods .

Since the starting of restoration scheme of Bahla Fort site two decades ago, such materials and techniques were intensively adopted in all conservation works, and applied not only for the Fort as the main iconic element of the site , but been used in all restoration and maintenance works on other elements of the site.

The Ministry where involved closely and directly in the details of the production quality of these materials, to assure the right and proper use of the traditional techniques that preserve the historical values and authenticity nature of all monuments of the site .

The adobe bricks production methods were adopted after consultations with local well-known skilled artisans and workmen, information were collected on the mixing formula of the components , for example to produce a local known plastering called material called Alsrooj , all production process are carried out under direct supervision of site engineers and architects.

In the light of all the previous measures the Ministry established a specialized workshop with 25 workers for the production of Adobe bricks on 2500 m²land , it was arranged to comprise all necessary activities from storing, drying mixing and molding



Workshop site



The Workshop was located next to the rampart.

Adobe bricks workshop

The workshop has made it possible to monitor the production quality and to improve the characteristics and provide the required quantity with the best possible quality .

This workshop has been producing adobe bricks for the benefit of many conservation projects in the site among them is the first phase of the souk of Bahla restoration, which concentrated on the most deteriorated part in the souk, therefore efforts made on providing the traditional adobe bricks in a timely manner to meet the real needs.

Consequently the process of improving further quality in the production of these bricks will enhance with the ongoing restoration works of the remaining parts of the souk using any outputs for the adopted methods of the first phase that can provide a comprehensive database to support the restoration works of the rest of the souk and other historical monuments in the site with the best tested quality of adobe bricks.

For best overall analysis of the impact, we have conducted our evaluation by examining the use of these materials in the actual context and monitoring their interaction with the natural environment, allowing for a subsequent comparison with the case for the original adobe bricks.



Soaking Kandal wood for treatment



Workshop space and soaking tubs

Adobe brick fabrication

The fabrication method was the inspiration of the skilled and well-practised craftsmen and artisans who learned these techniques by inheritance from their antecedents and who have finely honed the sequential stages of the process. Guided by these experts, we were able to draw up and document the fabrication stages as they were originally pursued:

- 1- Choice of the most appropriate soil by source: it was found that soil from oases and adjacent areas had the adequate moisture content, along with a tracing of weed that helped in the mixing of adobe, while areas of high salinity soil were to be avoided, as the salinity turned up in the form of white layers during the fermentation stage.
- 2- Soil fermentation, a long process that takes a month or more to complete, involves watering the soil and then leaving it to ferment until the soil develops characteristics that facilitate its mixing at a later stage.
- 3- Following fermentation, the soil is transported close to the drying site, where it is mixed in adequate quantities with hay and water to reach an appropriate viscosity. To accomplish this, each trolley of soil is mixed bucket by bucket until it is fully and evenly incorporated.
- 4- After the mix has been prepared, the moulding begins, in sizes specific to demand, for example 15X15X35 cm and 15X15X40 cm. The mix is placed in moulds and compacted manually to remove all air and thus preempt the development of cracks.
- 5- The bricks are subsequently removed from the moulds to be air dried, and turned over regularly to ensure the drying of all sides equally. The drying period varies depending on the season and other factors. It takes approximately a week in summer and more than two weeks in winter.

Cracking in the bricks may occur if the mixing of soil and hay is inadequate, allowing air bubbles to form in the mix, or if the quantity of hay in the mix is short. Mixing and compacting are of crucial importance in the fabrication process.



Piling the hay to mix with soil



Soil and water are mixed and allowed to ferment



Mixing hay and soil



Preparing moulds



Filling the moulds



Compacting the mixture



Removing the mould



Air drying the adobe bricks



Using the adobe bricks in the reconstruction of parts of the rampart

Outcome: the adobe bricks prepared by the workshop and constructed in the first phase of Bahla Souk project area have shown no deterioration or degradation since their installation, despite exposure to extremes of nature. The same results can be observed in the intact original structures which have not suffered from demolition. In contrast, some of the original brickwork in roofless structures has experienced some cracking and deterioration as a consequence of exposure to heavy rains.