

# PICTURE WALL COMES ALIVE

## CONSERVATION OF LAHORE FORT PICTURE WALL

TEXT | WAJAHAT ALI & ZEINA NASEER BUTT

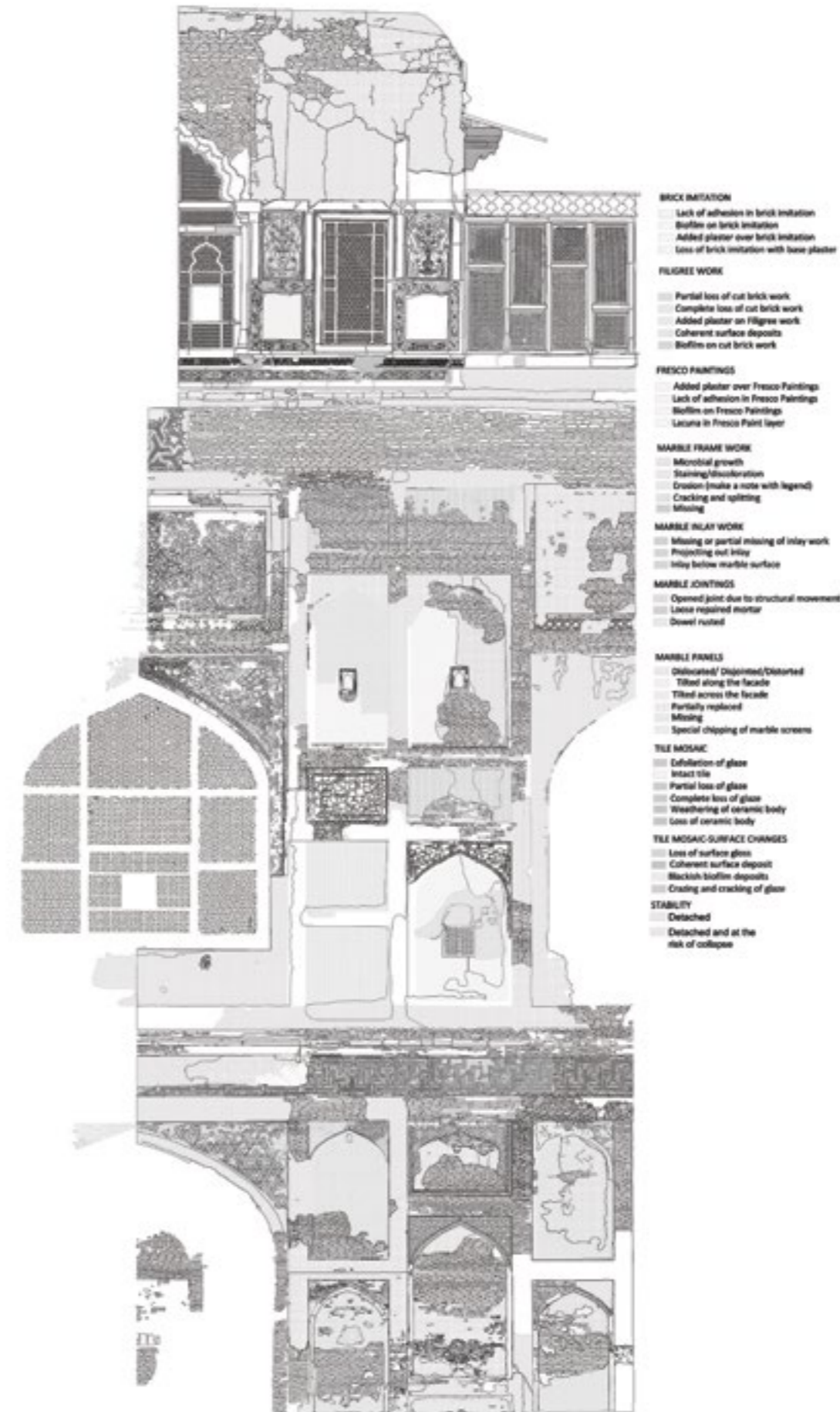
The Picture Wall (PW) is one of the principal features of the Lahore Fort, a UNESCO World Heritage Site. It is 1,510 feet long with an average height of 50 feet and forms the northwestern façade of the Lahore Fort. Built circa 400 years ago during the Mughal era, the Wall stands out as an example of the highest standard of craftsmanship. Together with the Shah Burj Gate (Hathi Pol), the PW forms the original private entrance to the Fort. It is one of the largest murals in the world embellished in cut glazed tile mosaic work, filigree work, fresco, painted lime plaster and cut brickwork. The wall is exquisitely decorated with imagery of hunting, battle scenes, angels and demons, human figures, animals, birds, as well as geometric and floral patterns. It is mainly responsible for the Lahore Fort's World Heritage status. The conservation of the PW was initiated by the Aga Khan Trust for Culture (AKTC), and its country affiliate, the Aga Khan Cultural Service-Pakistan (AKCS-P). A 11m wide and 17m high segment of the western part of the wall was selected for the prototype conservation. This resulted in an international workshop in January 2018. The outcome of this prototyping and the conclusions of the workshop set restoration principles and standards for the conservation of the entire

wall. The first section completed is the 240 feet long western facade. This was done in collaboration with the Walled City of Lahore Authority from July 2018 to March 2019, with generous funding from the Royal Norwegian Embassy, the Government of Punjab, the Federal Republic of Germany, and the Aga Khan Trust for Culture.

The most valuable impact of PW project was the raised awareness among young conservators who were trained in the project as pioneer heritage conservators in Pakistan. Conservation in this part of the world has traditionally involved the reconstruction and replacement of decayed or displaced sections of the original work. However given that the project is inherently a museological monument meant for an observational experience, it was conserved in a manner that does justice to the impact of the original exquisite craftwork. Thus, the material authenticity of the PW, archaeological approach based on the concept of 'minimal intervention' was adopted. The focus was largely on preservation where techniques and methodologies were experimented with in order to establish the most conducive way of 'freezing the existing condition' and enhancing its aesthetic beauty. Considering the need for reviving the traditional crafts,

### CONDITION SURVEY

#### Proto-Type Area, Picture Wall Lahore Fort



reconstruction was also done for some parts but only with very particular guidelines such as where there was sufficient evidence particularly for the geometrical patterns such as filigree. The decay of the decorated surfaces is too advanced to justify major reconstruction since evidence was lacking. It was also only considered where the original decoration was totally lost and was implemented only where there was a clear aesthetic benefit.

Conservation of PW followed a systematic and sequential order. The foremost part was to conduct a detailed digital documentation, condition survey and analysis of the physical and chemical problems relating to the artwork. This was followed by two phases: preservation/conservation and presentation. Implementation of the previously finalized conservation solutions still required numerous experimentation and analysis since the extended area of the wall presented still unique and unforeseen circumstances. This required additional testing and analysis and also called for the involvement of international as well as local experts. All the applied techniques and procedures were thoroughly evaluated through physical and scientific tests. For the presentation phase an innovative methodology for the re-integration of the tile mosaic was successfully executed using artificially made imitation tiles with the purpose of bringing out the lost pictures of the PW. Reintegration of fresco and brick imitation was also done. Stabilization and consolidation of decorative panels was the first step. Lime based mortars were injected into the detachments behind the panels to increase their adhesion to the wall. Both imported and local materials like lime putty, kankar lime and brick dust was injected where the detachments were relatively larger.

During colonial rule, major repair of the wall was conducted and this also includes covering



Tile mosaic panels from Picture Wall- Source AKCSP



Tile mosaic decorated panel from Picture Wall- Source AKCSP



many deteriorated areas with plaster. These colonial (British) plaster was analyzed and later it was removed manually from the wall since it was concealing some of the original panels. The wall was also covered with dense bacterial growth which was tested to identify the specific types. The biofilm was removed manually with brushes and a biocide solution.

In the project, the most critical issue to be tackled was the loss of glaze in the tile mosaic work due to its exposure to extreme weather conditions. The glaze was stabilized using a silica binder to increase the binding of the glaze to the tile bodies. Micro-holes in the glazes with weak adhesion were made using hand-drills and the solution was injected into these holes till maximum absorption. The same binder was also applied on the tile mosaic panels to increase the mechanical strength of the tile bodies and to reduce their porosity. Additionally, filling of micro holes with a silica based mortar was also done to seal the surface of the mosaic panels. This mortar was not used on the proto-type because of unsatisfying results. However, continued research allowed for its development and use on the remaining part of the western facade. This methodology of preserving the tile mosaic is an innovative one since there were no previous examples to set a guideline for these treatments.

For the presentation of the tile mosaic work, reconstructed tiles were also added in fragments to panels where the mosaic decoration was totally lost. More importantly, many tile panels had a lot of existing historical work but the glaze layer was deteriorated. Owing to this, the illustrations of the Picture Wall were lost. Following the international conservation policies, no original work was removed or tampered with. Instead, a silica based mortar and pigment was applied on top of the original surface where color was needed to complete the forms of lost pictures. This technique used an innovative mortar and pigment recipe which was developed after extensive research and sampling. Both the mortar and pigment together create a kind of imitation tiles with similar composition and properties as the original tiles.



Decorated panels from Picture Wall- Source AKCSP



Close up of decorative features of restored western section of Picture Wall

The fresco and brick imitation plaster has lost adhesion in many areas. It was therefore sealed using lime mortar. A technique known as aqua sporca was used to make the plaster look aged as it did prior to cleaning. This method involves the preparation of a much diluted mixture of pigments which give the color of brownish muddy water. The islands of the paint have been reintegrated using light, fast and alkaline resistant pigments in order to give a suggestion original piece.

New plaster has been applied on all exposed brick masonry. The same lime plaster resembling the original one in color and texture was applied on the exposed brick work on fresco panels and brick imitation frames. Uniform joints were marked both horizontally and vertically where the new plaster merges with the original. Large gaps between the original plaster and the wall were also filled with lime plaster. Similarly, exposed bricks on missing tile mosaic panels were covered with lime plaster that resembles the color and texture of the original tile bodies. Two horizontal friezes of filigree work run throughout the wall with self-replicating geometric patterns. The intervention bricks were removed and the missing filigree sections have been restored to the original design. After dressing of the surface, the brick tiles were



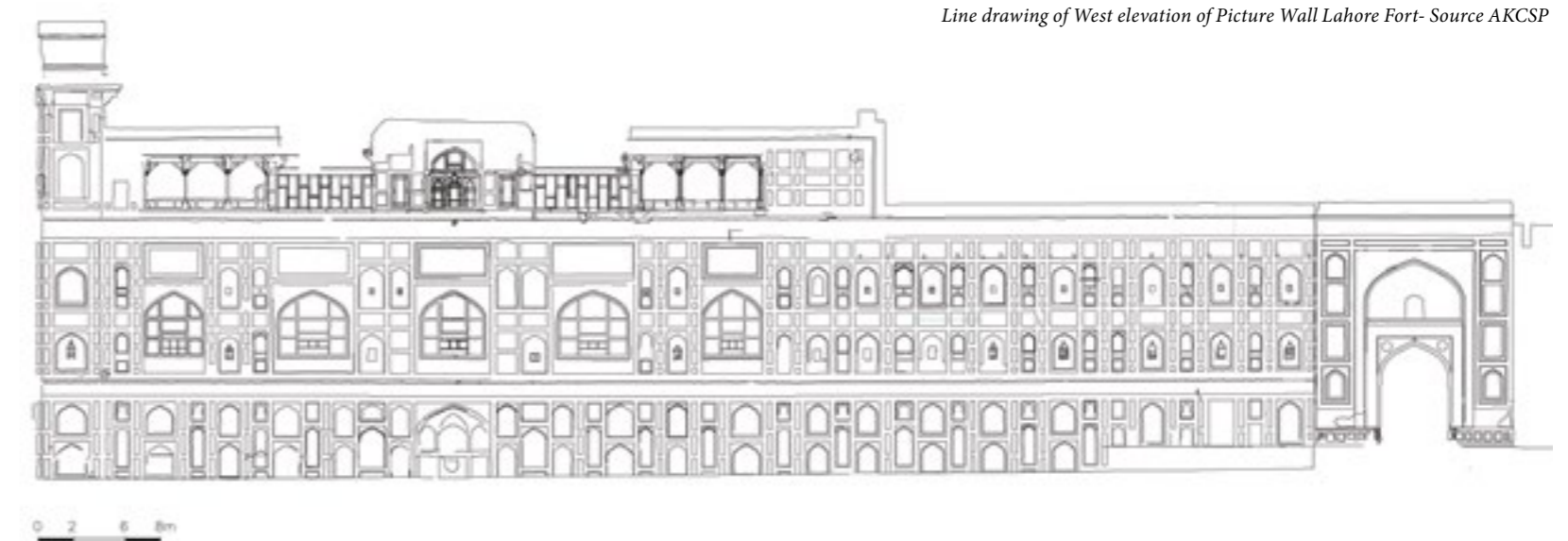
Restored western facade of Picture Wall in the context of Lahore Fort



Decorative features of Picture Wall and exposed archaeological ruins (below).



Picture Wall Western Facade- As found state 2016



Line drawing of West elevation of Picture Wall Lahore Fort- Source AKCSP



Picture Wall Western Facade- Conserved 2019



Reconstruction of Filigree Work - Source AKCSP



Experts reviewing the prototype area - Source AKCSP



Conservators are consolidating Tile Mosaic Panel in prototype area Picture Wall- Source AKCSP



Consolidation of tile mosaic work by international experts - Source AKCSP



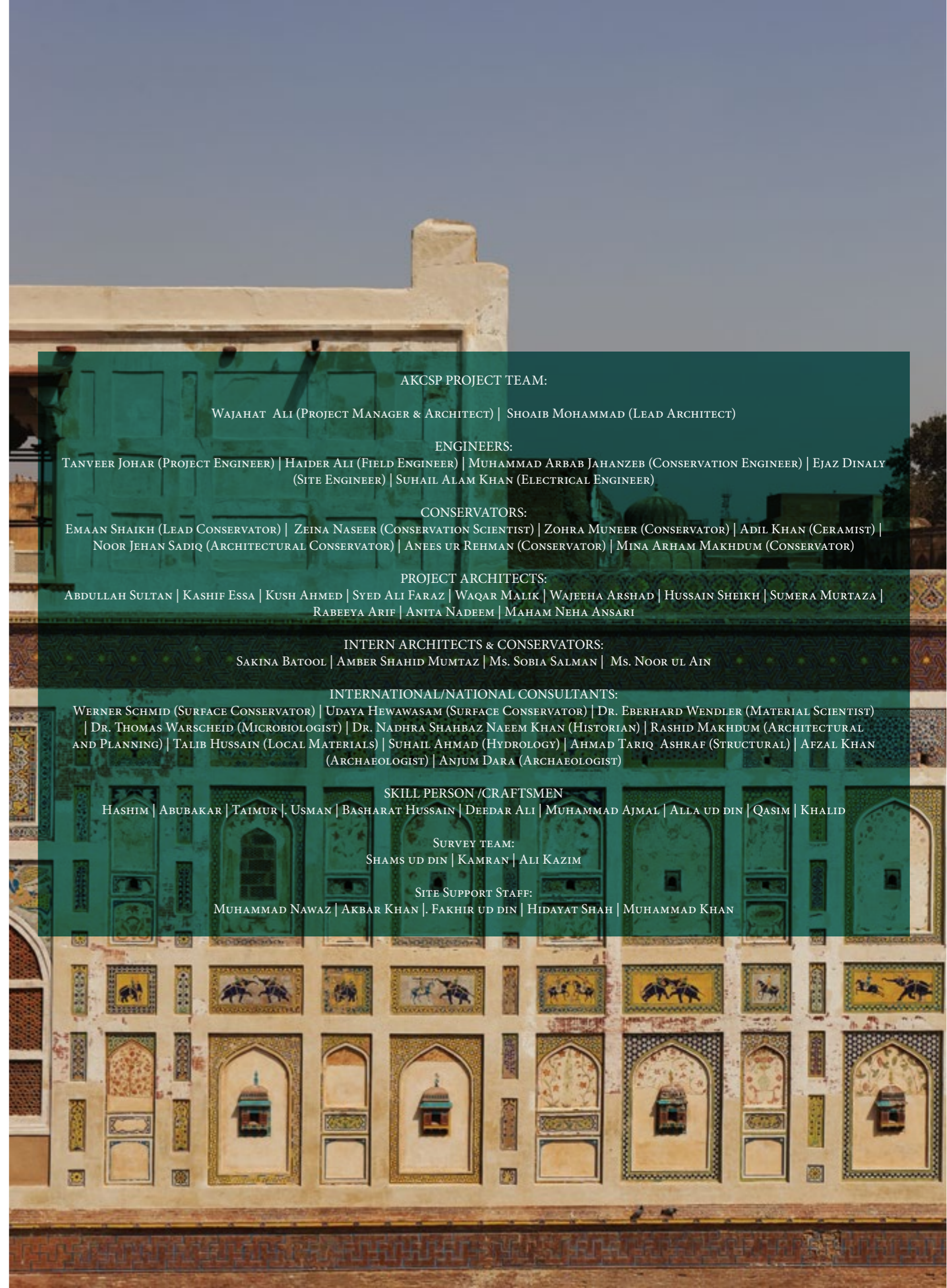
Removal of later layers of plaster from project area - Source AKCSP

carved according to the design. The terracotta pieces were laid accordingly after which the design is filled with tile mosaics.

Pigeon houses that were completely or partially ruined were reconstructed. The same material and design has been used as the original pigeon house. The fragile brick were replaced with new cut brick tiles. The traditional method of cut and dressed brickwork was followed. Filling of all gaps and stabilization has also been done so that a surface could be prepared for a final finish.

During the documentation process, studies revealed that the original floor level is 2.1 meters below the current ground level. The conclusion of these studies was to remove the latterly added fill to expose the original proportions used in the Mughal era and to reduce the percolation of water which was compromising the structural strength of the wall. New soakage wells were constructed with the purpose of draining out the water that collects in the excavated area below the wall. The excavation work also exposed buried structures from the Sikh and British era. These newly discovered structures are now part of the exhibit made for the visitors.

And the work continues.



**AKCSP PROJECT TEAM:**  
 WAJAHAT ALI (PROJECT MANAGER & ARCHITECT) | SHOAB MOHAMMAD (LEAD ARCHITECT)

**ENGINEERS:**  
 TANVEER JOHAR (PROJECT ENGINEER) | HAIDER ALI (FIELD ENGINEER) | MUHAMMAD ARBAB JAHANZEB (CONSERVATION ENGINEER) | EJAZ DINALY (SITE ENGINEER) | SUHAIL ALAM KHAN (ELECTRICAL ENGINEER)

**CONSERVATORS:**  
 EMAAN SHAIKH (LEAD CONSERVATOR) | ZEINA NASEER (CONSERVATION SCIENTIST) | ZOHRA MUNEER (CONSERVATOR) | ADIL KHAN (CERAMIST) | NOOR JEHAN SADIQ (ARCHITECTURAL CONSERVATOR) | ANEES UR REHMAN (CONSERVATOR) | MINA ARHAM MAKHDUM (CONSERVATOR)

**PROJECT ARCHITECTS:**  
 ABDULLAH SULTAN | KASHIF ESSA | KUSH AHMED | SYED ALI FARAZ | WAQAR MALIK | WAJEEHA ARSHAD | HUSSAIN SHEIKH | SUMERA MURTAZA | RABEYYA ARIF | ANITA NADEEM | MAHAM NEHA ANSARI

**INTERN ARCHITECTS & CONSERVATORS:**  
 SAKINA BATOOL | AMBER SHAHID MUMTAZ | Ms. SOBIA SALMAN | Ms. NOOR UL AIN

**INTERNATIONAL/NATIONAL CONSULTANTS:**  
 WERNER SCHMID (SURFACE CONSERVATOR) | UDAYA HEWAWASAM (SURFACE CONSERVATOR) | DR. EBERHARD WENDLER (MATERIAL SCIENTIST) | DR. THOMAS WARSCHIED (MICROBIOLOGIST) | DR. NADHRA SHAHBAZ NAEEM KHAN (HISTORIAN) | RASHID MAKHDUM (ARCHITECTURAL AND PLANNING) | TALIB HUSSAIN (LOCAL MATERIALS) | SUHAIL AHMAD (HYDROLOGY) | AHMAD TARIQ ASHRAF (STRUCTURAL) | AFZAL KHAN (ARCHAEOLOGIST) | ANJUM DARA (ARCHAEOLOGIST)

**SKILL PERSON /CRAFTSMEN**  
 HASHIM | ABUBAKAR | TAIMUR | USMAN | BASHARAT HUSSAIN | DEEDAR ALI | MUHAMMAD AJMAL | ALLA UD DIN | QASIM | KHALID

**SURVEY TEAM:**  
 SHAMS UD DIN | KAMRAN | ALI KAZIM

**SITE SUPPORT STAFF:**  
 MUHAMMAD NAWAZ | AKBAR KHAN | FAKHIR UD DIN | HIDAYAT SHAH | MUHAMMAD KHAN