



AGA KHAN CULTURAL SERVICES - AFGHANISTAN

FINAL NARRATIVE REPORT



STABILIZATION OF THE SUBHAN QOLI MADRASSA GATE, KHWAJA PARSA, BALKH



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1. SELECTED HISTORICAL BACKGROUND

The Subhan Qoli madrassa gate is believed to date back to the 17th century Uzbek era and commissioned by Sayyid Subhan Qoli, a son of Nazr Muhammad who ruled Balkh from 1651 – 1681 during which time his brother served as Khan of Bukhara. Revenues from the silk route trade allowed Subhan Qoli to commission the construction of the madrassa and accompanying gate, an action supported by the Sufi community in the area with which Qoli had a positive relationship. Subhan Qoli is believed to have ceremoniously given bricks to the local religious leaders in the area in order to lay a portion of the madrassa's foundation, displaying the community's support and mutual ownership of the madrassa. The madrassa represents a period of expanding academic and religious scholarship in Balkh during the Uzbek period. The impressive gate leading to the madrassa is ornamented with the delicate tile work of the Timurid style, and was photographed and documented by a number of travelers and scholars including Robert Machesney and Josephine Powell, who photographed the ruins of the gate in the late 20th century.

The madrassa was a significant structure in the area, with the wafiya noting that "it comprises lofty arches and vaulted niches, a majestic portal, a central courtyard and two large domed rooms, one of which is intended as a lecture hell...The madrasa also has 150



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hojras (living chambers) on two floors.” Tile work was extensively designed in the banna’l technique. The madrassa itself is believed to be paired with the mazar of Khwaja Abu Nasra Shrine, a common technique in the Uzbek and Timurid time periods that intended for one structure to mirror and eclipse another.



Originally the main gate (iwan) of a expansive madrasa, one of the largest religious structures in Timurid Balkh (with two floors, extensive living chambers and 24 salaries positions), the remains of the structure are in a dilapidated state and require urgent conservation. The damaged facades retain only a fraction of the glazed tiles that once decorated the whole structure. The consolidation of this gate structure will ensure that another of the few remaining historic structures (above ground) in the centre of Balkh is consolidated and incorporated into the wider conservation initiative. Located at the eastern perimeter of the Park, directly opposite the Khwaja Parsa shrine on the western edge, following its conservation the gate of the madrasa could potentially be used as the main public access into the garden. In order for this to occur, the structure and the valuable glazed tiles would have to be protected, ensuring that falling debris does not injure pedestrians.



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2. PROJECT OBJECTIVES

The objective of the project was to undertake essential repair and restoration works on an important historic monument in Balkh, employing local craftsman and daily labourers ensuring that the trained personnel can assist with future maintenance of the site. This project will also provide a platform for continued development of Afghan professional capacity and training for skilled craftsmen. Any work undertaken would enjoy their support and that of local authorities and the various departments of the Ministry of Information and Culture. Furthermore, the project aimed at increasing public awareness towards the importance of preserving Afghanistan's built heritage. Specifically the objectives of this project will be to;

- **Undertake essential consolidation** of the remains of an historic monument at the centre of Balkh and ensure its incorporation into the larger historic public garden site,
- **Support further development of capacity** of Afghan professionals, craftsmen and gardeners,
- **Increase public awareness** towards the importance of Afghanistan's built heritage.

3. PROJECT ACTIVITIES





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3.1 ENABLING WORKS

3.1.1 *Fencing:*

In the context of on-going rehabilitation works in the adjacent Khwaja Parsa Shrine and surrounding park, the initial project measure required the securing of the conservation site which is located in a heavily populated and though fare zone. In order to ensure public safety, more than 103 linear meters of galvanized metal fence was erected at a height of two meters around the site. The fencing also enabled the storage of project supplies and equipment at the site of the project.

3.1.2 *Scaffolding:*

As urgent stabilization measures were required at the top of the building where loosened construction materials were at risk of further damage, a 22 meter high (800 square meter) scaffold structure was erected around the remains of the madrassa gate enabling the conservation team direct access for consolidation works.

3.1.3 *Clearance Works:*

Occupied permanently by white doves and feral pigeons that had settled in the cavities where glazed tiles had fallen off, the first order of works required the cleaning and removal of more than 8 cubic meters of pigeon droppings and waste. An additional 32 cubic meters of accumulated earth and waste was collected and removed from within the gate structure and from surrounding areas.

3.1.4 *Excavations:*

In order to assess the condition of the foundations of the gate, a large trench was dug around the perimeter of the building. The stepped brick foundations were found to be in good working order. The trench was refilled and work focused on the the brick masonry structure above ground level.





3.2 CONSOLIDATION WORKS:

3.2.1 *Dismantling of previous works and reconstruction of buttresses:*

During previous building works undertaken in 2006, two large buttresses were constructed on either side of the main *Iwan* structure of the madrassa gate. Upon further investigation, it was discovered that what seemed to be a well-built buttress structure had in fact been built using large quantities of earth & rubble infill deposited behind a thin wall (30cm thickness) that spanned more than 4 meters in height. Assessed to be dangerous and undermining the structural integrity of the monument, the inappropriate intervention was dismantled and a suitable buttress was reconstructed using baked brick masonry applied with lime mortar.



3.2.2 *Structural Consolidation:*

Historic Tiles: Originally covered completely with glazed colour tiles, the few remaining areas of the tiled decoration are the only remaining reference to the magnificent madrassa that had once occupied this site. Suffering from centuries of neglect and exposed to the elements, what remained of the tiled decoration were in an extreme state of disrepair. As part of the consolidation project, the remaining areas of tiled decoration in the upper areas of the gate was carefully cleaned and consolidated in place using gypsum grout. In total, more than 45 square meters of



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historic tiles were consolidated and conserved. Where the brick masonry backing structure of the decoration require repair, teams carefully consolidated the masonry by using lime mortar. In areas where the decoration had fallen off and there was high risk that water would flow into the cavities and result in the collapse of additional tiles, the voids were filled using masonry and the surface was finished using more than 75 square meters high-quality gypsum plaster. In addition to this, more than 6 square meters of new turquoise colour glazed tiles were produce and applied to the surface in areas where the “framing” of existing designs, including arches and flat surfaces of tile-work, improved the durability and visual impact of the historic tile work. The incorporation of new tiles in the consolidation works was based strictly on clear evidence that the area had historically contained similar tile-work and intended to ensure the safeguarding of historic tiles.



Reconstruction of destroyed arches: Three arches that were originally located within the semi-octagonal opening of the main *iwān* had collapsed in the 20th century were reconstructed in order to stabilize the main arch of the gate. In order to reconstruct the arches, forms were built using baked bricks stacked on top of metal scaffolding and finished with a layer of mud-gypsum plaster. Once constructed, the arches provided a regular base for the assembling of a large timber roof intended to protect the internal cover space of the *iwān*. Based on evidence gather from remaining areas of the original arches, the proportions and construction techniques used for the reconstruction were based as close as possible on original forms. This included the discovery of a small area of the external edge of the arches that had been decorated by using alternating patters of unglazed and colour glazed tiles.



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Consolidation and repair of masonry walls: Masonry walls located behind the main *iwān*, which had once been connected to the rest of the destroyed madrasa building remained in a state of disrepair. These walls had been exposed to weathering and the penetration of water, resulting in erosion of the masonry and severe cracking as a result of the “frosting cycle”. These areas were consolidated and preserved using a mixture of measures, including the application of large quantities of new baked brick masonry using lime mortar and the re-pointing of all exposed surfaces. The stepped and jagged form of this area behind the main *iwān* was retained as a clear indication that the remaining gate structure had once been connected to a much larger building.



The mass of the remaining walls had originally been connected to the small arches and the main *iwān* arch of the gate through the use of a network of wooden poles built within the masonry construction. Left untreated and exposed to water and damp, these poles had disintegrated due to dry rot. As part of structural works, the long empty cylindrical, where the wooden poles had once existed, were cleaned and new treated ash timber poles were refitted into the voids.

Structural stitching and retrofitting of metal tie-rods: The main arch of the *iwān* was constructed in two distinct periods. The first arch had suffered extensive damage due



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to the thickness of the arch which was insufficiently design to carry the loads above the structure. When the settlement and cracking of the arch was discovered, probably shortly after the building was built in the 17th century, a second stronger arch was built immediately below the original structure. With the passage of time and the collapse of much of the madrassa gate, the original arch had become exposed to rain water and the “frost cycle”. At the time of consolidation works carried out under this project, the deformation of the original arch had reached to more than 15cm off axis of the center of gravity on both sides. With the bricks of original arch beginning to rotate at more than 4 degrees from the vertical axis, it became apparent that the sides of the original arch required structural “stitching” using stainless steel elements. Five horizontal holes were drilled to a depth of 2.5 meters through the width of the masonry at the apex of the arch using a special low-vibration diamond tipped core drilling unit. As commercially produced drill-bits could not be located, the conservation team designed and produced the 2.5 meter drill bit using locally available materials. 24mm stainless steel treaded rods were inserted in the holes and connected to a stainless steel tension plate on the external elevation and a steel I-beam on the internal face of the arch. The rods were put in tension by the use of nuts which were fastened to the treaded ends. Once the tied rods had been installed, the backs of the brickwork above the arch were cleaned and a gypsum grout was injected into the masonry in order to fill cracks within the arch. The exposed apex of the arch was covered with 23 cm thick baked brick paving on edge. Beneath the *iwan* and adjacent to the main arch, small sections remained of the masonry half-dome that had collapsed. These important remains of the original half-dome were consolidated in place using tie-rods inserted with a special lime mortar compound into holes drilled into the bricks.





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As the intent of the consolidation works was to protect the remains of the madrassa gate for the foreseeable future, the decision was made to construct a light-weight wooden structure in place of the brick masonry half-dome masonry that had collapsed. In order to proceed with this work, a five sided steel base for the light-weight wooden structure was anchored into the masonry work above the smaller arches of the *iwan* walls. Together with the large steel I-beam that had been installed vertically along the internal face of the main *iwan* arch, the foundations (springing and landing) of the wooden rafter construction had been put in place.





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3.2.3 Construction of timber cover:

With the completion of consolidation works involving the application of brick masonry and steel works, the focus of the last part of the project became the construction of a lightweight laminated wood rafter roof above the internal space of the main *iwan*. When completed the structure would ensure that most of the tiled elevations together with remaining sections of historic plasterwork would be kept safe from direct exposure to rain and ice. In order to complete the roofing structure, 15 eight meter long pine wood laminate beams were constructed with a cross-section of 15cm (w) by 20cm (h). The rafters were installed using metal U-channel plates at the base of the walls and locked in place at the apex of the arch, where all the rafters converge, using a specially designed five-sided metal structure.

Once installed, the long triangular spaces between the rafters were covered using more than 80 square meters of 2 cm thick wooden planks. Three wind passages in the shape of windows were constructed in the wooden half-dome structure in order to reduce wind load. The external base of the wooden half-dome was sealed using reinforced Isogam tar insulation and finished with a layer of baked brick paving. The final external finish of the dome was applied using more than 95 square meters of galvanized steel sheeting. Water has been diverted away from the structure with the construction and installation of 4 drainage spouts.



3.2.4 External Finishes:

All exposed and internal brick masonry surfaces were sealed through the application of more than 500 square meters of pointing using lime mortar. Together with the rendering of more than 80 square meters of lime plaster finished on the internal walls, the remains of the 350 year Subhan Qoli madrassa gate has been



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consolidated to a high standard. A 2-meter high metal fence with two metal gates has been constructed around the perimeter of the gate in order to prevent unauthorized access to the building during off-hours.

Lastly, in order to prevent future damage by nesting doves and feral pigeons all openings in the masonry structure have been blocked and surfaces more than 10cm in width have been sloped to appropriate falls.

The ground surface within the main *iwan* and the external perimeter of the gate, up to seven meters on all sides that open towards the Khwaja Parsa Park, has been finished using more than 525 square meters of durable baked brick paving laid on edge. Several cenotaphs that had been relocated within the main *iwan* have been left standing within the structure, protected from the elements.



4. PROJECT DATA

Total man/days of employment generated: 5150

Total man/days of skilled employment: 1650

Total man/days of unskilled employment: 3500

Total personnel trained as masons and carpenters: 6

Total number of local architects, draftsmen and surveyors: 3



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5. ANNEXES TO THIS REPORT:

Annex 1: AKTC Project Panel

Annex 2: Project Photographs

Annex 3: Project Drawings and Surveys