

CONSERVATION AND MAINTANANCE

A Report For Bara Katra

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Submitted to:

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“This document is a report, not a specification: it lists defects found but doesn’t give detailed instructions for remedying them. Builders shouldn’t be expected to quote for or carry out the specialized work without further guidance: they should be provided with a proper specification, or, if the work is very minor, should be asked to submit their detailed proposals for the architect to check. Even small errors in workmanship or materials can be functionally or aesthetically disastrous.”

1. INTRODUCTION:

The report is an outcome of the study for proposal of conservation of the historic artifact *Bara Katra* and its maintenance plan to keep it sustainable in the present urban context as well as to revitalize the heritage of Dhaka.

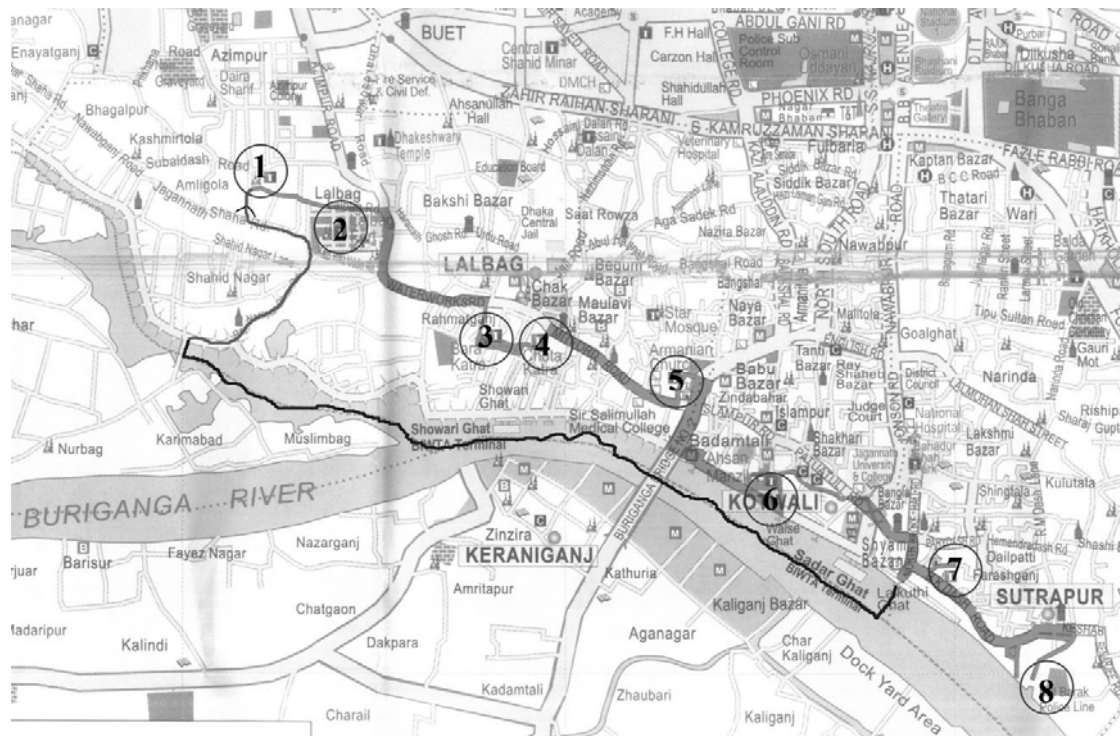


Fig.1 Route of the Heritage walk

1. Khan Mohammad Mridha's Mosque. (Mughal-1704 A.D.)
2. Lalbaghfort. (Mughal-1678 A.D.)
3. Bara Katra. (Mughal-1644 A.D.)
4. Chota Katra. (Mughal-165 A.D.)
5. Armenian Church. (British period-1819)
6. Ahsan Manjil. (British period-1872)
7. Northbrook Hall. (British period-19th century)
8. Ruplal house. (British period-19th century)

Bara katra is one of the two buildings of same typology of *Mughal* structures, that served the purpose of *Caravan sari* in Bangladesh. It is situated at the southern part of *Chauk*, on the bank of the river *Buriganga*. It is a magnificent edifice of grand scale and one of the most important historic remains of *Mughal* period in old Dhaka, that is more than 400 years old. The foundation of the building was laid in 1644 by Abul Qasim, Chief Architect of the *Mughal* prince Shah Suja.¹ *Bara katra* is a pilot project within the proposed route for heritage walk that starts from "Lalbagh fort" to "Ruplal house" and runs parallel to the River. The route is proposed to permit access to different *Mughal* and British structures that are scattered along the route in the old part of the city, where poor road network doesn't permit easy public access to these historic artifacts. The historic structures are in poor condition and hidden within dense settlement. The route will permit the historic artifacts to be integrated within the urban

¹ Dani, 1962.

Fig.1 source: The Mappa Ltd.(Dhaka City Guide Map-2003)

fabric and create visual exposure for easy access from the inner city as well as from the river approach. The *Mughal* ruler located the building at a important position to be used as caravan sari to promote trade and commerce through the river with the city.² *Bara Katra* along with the *Chota Katra* (1663A.D.), that is similar to it in plan but smaller in size is placed at the key point on the proposed route to revitalize the urban heritage.

2. AIMS:

- 1) To recover the whole property for conservation.
- 2) To prevent decay and manage transformation of the existing ruin. Thereby to prolong the life of the cultural heritage lies Represented by the artifacts.
- 3) To propose restoration on the basis of authentic documents and other historic evidences.
- 4) To integrate the artifact with the urban fabric by creating proper access and visual exposure.
- 5) To keep it in use.
- 6) To set a maintenance plan for the heritage building and to make it sustainable.
- 7) To establish the property for tourist attraction.

3. GENERAL INFORMATION OF THE PROPERTY:

Designation of the property:

“BARA KATRA”- Protected as Historic Monument by the Department of archaeology, Bangladesh.

Building type: *Mughal Caravan Serai*

Area occupied by the structure: 57,8,70sft

Built in: Commissioned in 1446 A.D

And founded in 1644A.D.³

Builder: Abu Qasim, Chief Architect of the *Mughal* prince shah Suja built it as the prince ordered him.

Ownership:”WAQF” property belongs to the state.

Address: holidngno.16, 17, 18,19,31,32, 32/1, 41/2, 38, 39, 40, 40/a, 40/b, 40/c, 41, 41/a, 14, 15, 33, 34, Chauk bazaar,Dhaka

Responsible Authorities: The trustee board of Jamiatul Husainia Ashraful Ulum, Department Of Archaeology Bangladesh, RAJUK, City Corporation Dhaka,

User Group: Jamiatul Husainia Ashraful Ulum-Madrassa and Mosque(South and West wing), East wing is occupied by shops and warehouses, North wing and central enclosed space is filled with different unplanned settlements.

Population: Over 2000 people stay at the property.

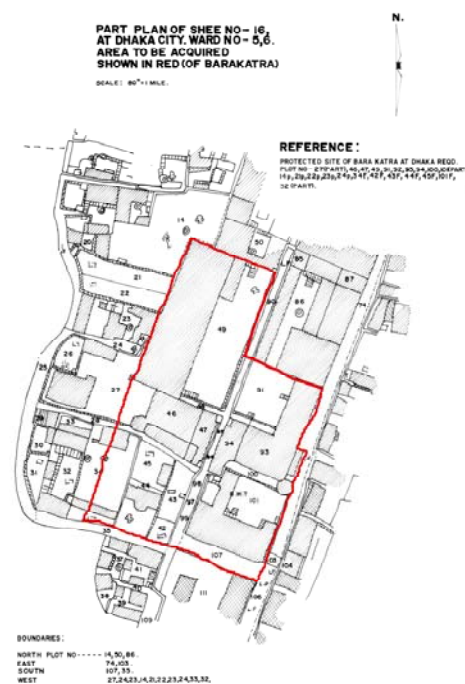


Fig. 2 Property line marked to acquire for Bara Katra,1958

² Mowla, Q.A(1990)

³ Ref: Dani, A.H.(1961)

Fig:2 Courtesy:Dept of Archaeology, Bangladesh.

4. VALUES

4.1 Emotional values:

4.1.1 Identity: This is one of the significant remain of the typical *Mughal* style buildings of Mughal period (1608-1764A.D) in Dhaka. The artifact is a landmark for Dhaka city when approached from the river

4.1.2 Respect and veneration: The civic society of the city has got great respect for the historic structures and pay importance to trace of *Mughal* ruler here.

4.2 Cultural Values:

4.2.1 Documentary values: The building is a *Mughal* monument of *Katra* typology that is considered as bigger and older of the two structures that served as *caravan sari* in Bangladesh. It has got significant documentary value to enrich the history of architecture in Bangladesh.

4.2.2 Historic value: The structure is a historic evidence of the *Mughal* ruler in the city. Two written inscription of 1644A.D is found in the building .The inscription declares the rule of *Mughal* prince Shah Suja in Dhaka and also the purpose of the building.

4.2.3 Archaeological and age value: The building is more than 350 years old and it is valuable from archaeological point of view. So the department of Archaeology, Bangladesh has already declared the structure as protected historic monument.

4.2.4 Architectural value: The building was planned on grand scale following the traditional pattern of the *caravan serai* of Central Asia and it was embellished with all the features of *Imperial Mughal style*. Harmonization of various elements through repetitions testifies the skill of the architect who succeeded in producing a magnificent sense of composition from this simple plan of *Caravan sari*. Selection of materials and application of decoration with color and texture reflects the majestic aesthetic sense.

4.2.5 Urbanscape: The artifact is significant as it represent an important structure of the historic *Mughal* city development process here. The structure has got profound relation with other important structures, urban spaces and road network developed during the *Mughal* and the colonial period.⁴

4.3 Use values:

4.3.1 Functional values: The building is still in use. Though the building used to serve as *caravan serai* and 22 rooms of it as shops but now it is used as mosque and *madrasa* and the ground floor is occupied as shops. So the structure is still important as a functional one.

4.3.2 Social value: The social structure of the area is highly related to the historic development of the city. So the building has immense impact on the local society.



Fig. 3 Walkway through the existing entrance hall

⁴ Mowla,Q.A(1990)

Infact the grand structure is now a matter of pride for the local people as it is a historic evidence of the area.

4.3.3 Economic value: The building can drag huge number of tourists and can earn currencies as it can play a vital role to raise the area as a tourist spot as there are other historic buildings around it.

4.3.4 Educational value: The artifact is important for research and study on the history, architecture, politics, archaeology, and urban design of the city.

5. HISTORY:

5.1 The site: *Bara Katra* is located on the southern side of the “Chauk”, close to the river *Buriganga*, that formerly washed its feet. Originally the approach was from the riverside and hence the riverfront is most dominant part of the building. According to Charles D’oyly(1822) Murshid Kuli khan built the *Chauk* in 1114A.H (1702A.D) and in 1809 he described *Chauk* as ancient market place .About 200yards east of *Bara katra* a similar but smaller structure known as *Chota Katra* was built in 1963A.D.many other important structures were erected around the site in *Mughal* period.⁵

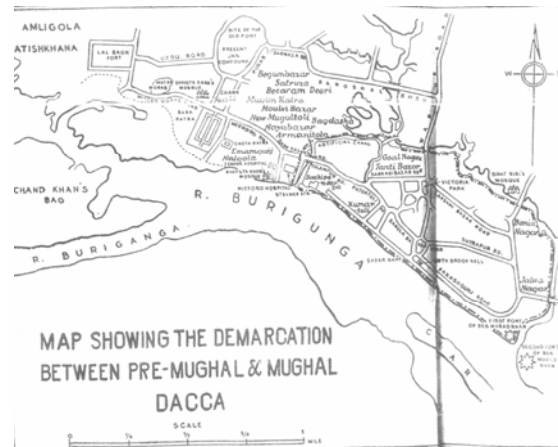


Fig. 4 Map showing the Demarcation between Pre-Mughal & Mughal,Dacca

5.2 The building: The *Mughal* prince Shah Suja appointed his chief architect Abul Qasim to build the structure and its foundation was laid in 1644A.D (Dani, 1962). One of the two written inscription found in the building, one declares that the foundation was laid by its builder Abul Qasim in 1053 A.H (1644 A.D). *Bara Katra* was built in 1053A.H as the residence of Prince Shah Suja but the prince made a endowment (WAQF) in 1055A.H (1646A.D)⁶ of the property for the comfort of the way farers to the city and the 22 rooms of the buildings were declared for shops to meet the maintenance expenses of the property with income from those shops.⁷

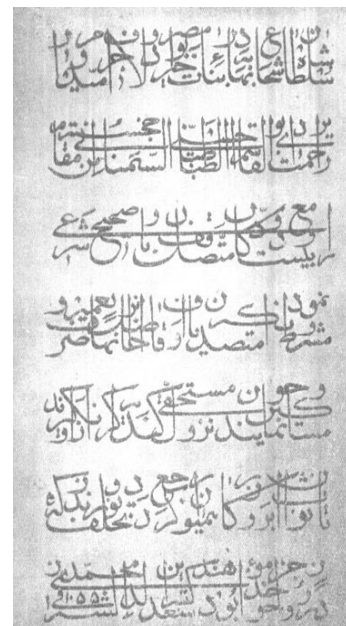


Fig. 5 Inscriptions on the Northern gateway of Bara Katra(now lost)

⁵ Ref: Dani,A.H.(1962)

⁶ Taifoor,S.M.(1956).

⁷ Ref: Dani,A.H.(1962)

Fig. 3 source: Dani,A.H.(1962)

Fig. 4 source: Taifoor,S.M.(1956),Glimpses of Old Dhaka.

5. 3 Historic description of the building:

According to Rennel's Map (1779) "Bara Katra " seems to have a quadrangular courtyard enclosed by structures at its four sides. There were two gateways at the north and the south. The southern part was 223' long along the bank of river. At the Middle of the riverfront, there was a three storied entrance and series of two storied structures at both of its sides, ended with two octagonal turrets. D'oyele(1822) described the building as magnificent and in good shape.⁸ In 1765 Nayab –e Nazim of Dhaka used the building as his residence. In 1822 Charles D'oyele mentioned that local poor people had occupied the building.

Dani (1962) and Taifoor (1956) described the structure widely. The following descriptions can be drawn from these authors.

The southern wing of the building is planned in a grand scale and is embellished with all the features of the *imperial Mughal style*. It consists of a strong built three- storied gateway in the middle of the arm, the remaining portion being two storied and bounded by prominently projected octagonal turret. A tall alcove rising up to the second story reduces the mass of this projection. Its underside is decorated with plastered network. At the angle can be seen slender tall minarets and the wall surface in between is relieved with plastered panels showing a variety of forms including four-centered, cusped, horse-shoe and flat arches. Above the apex of the alcove open the windows of the third storey. Under the alcove opens the main arched doorway which leads into the guardroom, and further we pass through two successive archways into an octagonal domed hall, the ceiling of which is neatly plastered and bears various net-pattern and foliage designs.

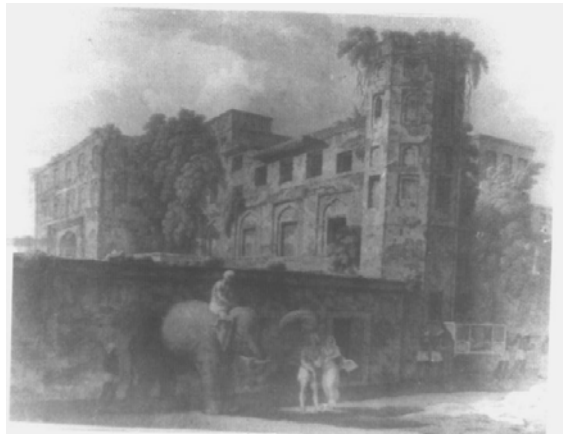


Fig. 6 Painting of D'oyly(1822)

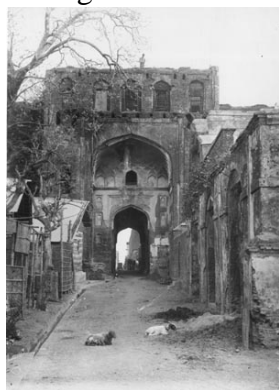


Fig. 7 Entrance, south wing from approach road ,1950



Fig. 8 South wing,1950

⁸ D'oyly, Sir.C (1822)

Fig. 5 Courtesy: Dept of Archaeology, Bangladesh.



Fig.9 Entrance, south wing from the courtyard.1950



Fig.10 1964-Bara Katra



Fig.11 Entrance, south wing,1964



Fig.12 1969-Bara Katra

Beyond this hall the archways repeat themselves and we are brought to the inner side of the *Katra*. On this inner side steps are provided that lead to the second storey. The two storied structure resolves, on either side of the gate, into a row of five barrel vaulted room in the ground floor and the living rooms with a continuous verandah on the upper. Similarly the upper floors of the gateways are furnished with living rooms. The different storeys are demarcated by blind merlons carved in plaster. The corner turret is in three stages. They are hollow and can be approached from the subsidiary structures. The space within the turret is quite sufficient to accommodate a person.⁹

6. PRESENT STATUS:

6.1 Form of submission: Different part of the property is now in different form of submission. The south and west wing is a *waqf* property and the rest of the part is possessed and controlled by different parties for different use (shops, residences and warehouse). So the whole property is a synthesis of different form of submission.

Waqf (endowment): In this dispersed form of submission three parties share the property

Owners: The property is devoted to God and belongs to the state.

⁹ Ref: Dani,A.H.(1961)

Fig.8,9,10,11 Courtesy: Dept of Archaeology, Bangladesh.

User: Jamiatul Husainia Ashraful Ulum Madrasa (institute for Islamic studies) and mosque.

Responsible Authorities for controll:

”The trustee board”,an appointed body by the department for *Waqf* estates, Bangladesh looks after the property.

Department of Archaeology:The building is already declared as a protected historic monument and some survey drawing are prepared .

RAJUK: This Government organization dealing with the planning of Dhaka in its report “Dhaka Metropolitan Development Plan (D.M.D.P) 1995-2015 mentioned the lack of maintenance as a cause of deterioration of the building and in its proposed action plan *Bara Katra* is considered as a opportunity for tourism development through its conservation and preservation as heritage site.

City Corporation: Responsible to provide municipal services.

6.2 Present condition of the site: The dense settlements around the artifact have resulted in visual obstacle. Inadequate space around the structure restricts proper lighting and ventilation. The narrow road network doesn’t permit vehicular access. Due to unplanned development and high land value proper urban space for public gathering couldn’t be provided. The narrow street known as “*Bara Katra Lane*” has run through the gateway, created by the remaining ruins. The open to sky space enclosed by the structure is almost occupied by newly built structures that are mostly used as residence, shops and warehouses. The riverbank has now moved away from the structure that once uses to touch the river water. More over land filling in the area has set the ground level above the plinth of the existing ruin.



Fig. 13 East wing from the road



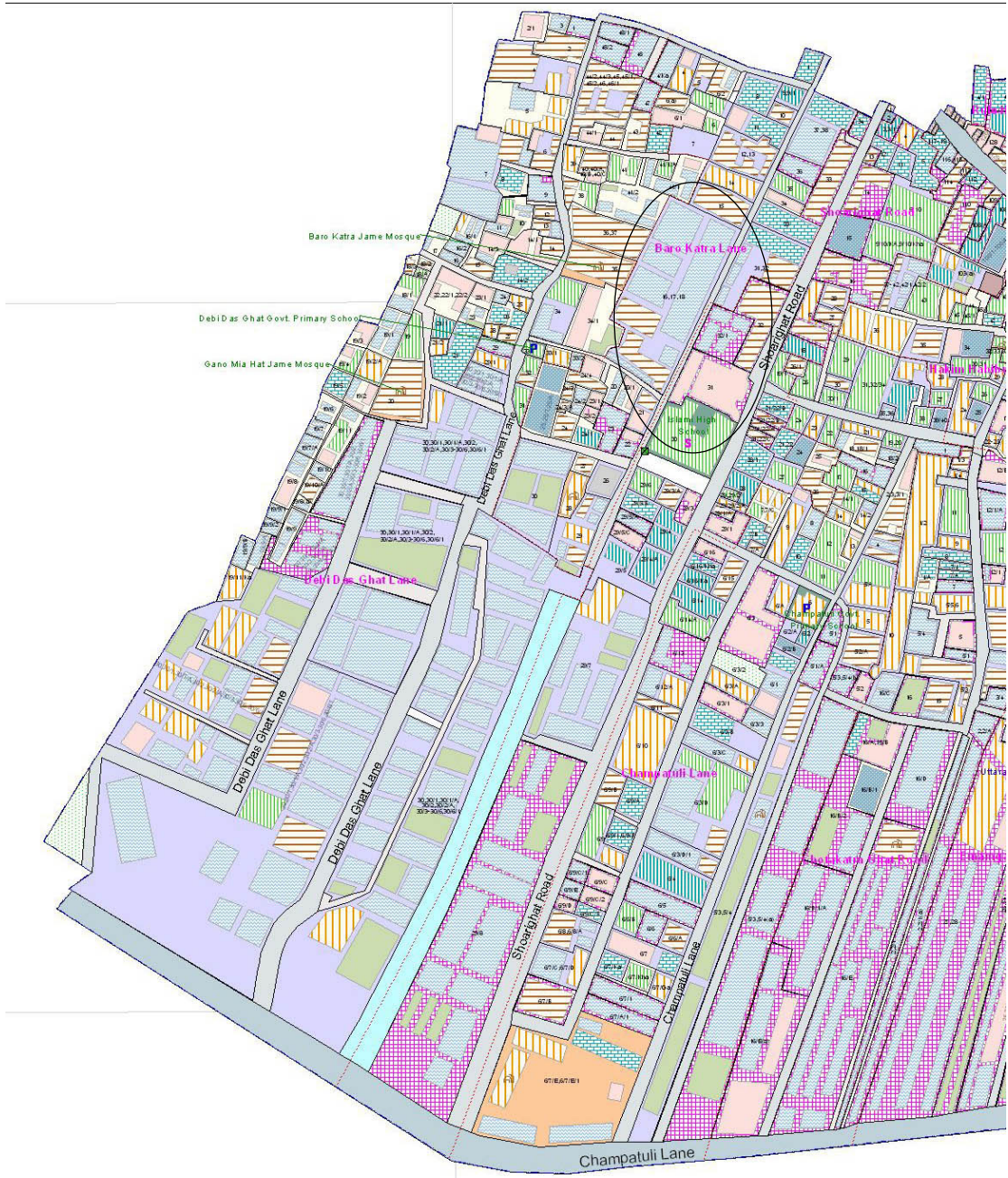
Fig14 New settlements in the enclosed space



Fig. 15 southern entrance from inner side



Fig. 16 New settlements, close to the South wing



LEGEND				
Boundaries	Existing Landuse	Structure	Educational	Social Features
<ul style="list-style-type: none"> DCC Boundary Zone Boundary Ward Boundary Mahalla Boundary Plot Boundary 	<ul style="list-style-type: none"> Under Construction Residential Commercial Mixed Use Educational Religious Government Slum Playground / Open Space Vacant Land Graveyard Water Body Health Social Industrial 	<ul style="list-style-type: none"> Under Construction One Storied Building Two Storied Building Three Storied Building Four Storied Building Five Storied Building Six Storied Building Seven Storied Building Multi storied Building Katcha Semi-Pucca 	<ul style="list-style-type: none"> Primary School Secondary School College Madrasa University Other Education Institute 	<ul style="list-style-type: none"> Ward Commissioner Office Govt/Semi Govt Organization NGO Autonomous Organization Bank Community Center Important Structure/Building Dustbin Container
Physical Features		Health Institute	Religious	
<ul style="list-style-type: none"> Primary Road Secondary Road Tertiary Road Footpath Island/ Road Divider Rail line Bridge Underpass Over Bridge 		<ul style="list-style-type: none"> Hospital (Govt) Hospital (Pvt) Clinic Other Health Center 	<ul style="list-style-type: none"> Mosque Temple Church Mazar 	

Fig. 17 Map of Ward 66

Fig. 12 Source: Dhaka City Corporation.

6.3 Present condition of the ruin: Except the southern wings with gateway all other part of *Bara Katra* has almost disappeared. There are traces of walls and foundations of east and west wings standing with the newly built residences at east and *madrassa* at west side. The wings with entrance on north side have completely disappeared but the southern wings still exist as ruin with some alternation as a ruin. Addition of newly built toilet and ablution spaces on the terrace of first floor has been made. Some tin shaded structures are also added on the terrace of second floor.

Though the building has got small openings of traditional *Mughal style* entrance of ample natural lighting was ensured by raising the number of windows. In the ground floor and staircases most of the openings are sealed that prevents the usual access of light.



Fig. 18 Approach road from the riverbank



Fig.19 Open terrace on 1st and 2nd



Fig. 20 Existing south wing

7. Investigation on construction method: Some of the *Mughal* structures around the site were studied to understand the construction method of *Bara Katra*. Local people and technical people were also consulted towards this end

7.1 Soil Condition: The upper layer of the soil up to 10' to 12' deep is hard and reddish but the second layer is blackish and not as hard as the upper layer. The next two layers of sand and clay alter number of times but hard rock is found at 400' depth.



Fig. 21 existing entrance hall from north

7.2 Foundation: It has a masonry foundation that is wide and deep enough. These structures of *Mughal* period were structurally over designed that ensure structural safety.

7.3 Materials:

Bricks: Small bricks from local clay were used in the *Mughal* buildings of this area.

Mortar: Shell lime mixed with brick dust in 1:1 ratio is to get used as mortar.

Plaster: Mixture of coarse brick dust and shell lime in 1:1 ratio was spread over the uneven brick surface and rammed by bamboo sticks then lime water was dispersed over this 1.5” to 2” thick layer. Mixture of sand and fine brick dust in 1:9 ratio were mixed with lime in 1:1 ratio for another 1/8” thick layer.

Lime wash: Shell were burned and meshed into powder and kept wet to get paste that was strained and mixed with blue pigment to achieve bright white color. But an unidentified material was also used to achieve adhesive quality. This ultimate product was used over the plaster inside instead of color.

7.4 Floor:

Mixture of brick chips, brick dust and lime in 6:3:1 ratio was laid over the clay tiles set on the rafter (2”x2” with 10” gap between two rafter) placed over wooden beams then it was rammed. The finishing layer was laid over the first layer with addition of garlic, molasses, tamarinds, and betel nut with the mixture to make it damp proof. The finishing layer was well rammed to make it highly watertight.

8. Damage Survey:

8.1 Inspection Of Decay:



Fig. 22 Major crack on wall



Fig. 23 Continuation of the major crack inside.



Fig. 24 Continuation of The major crack on floor

8.1.1 Inspection Of Major Structural Damage:

Between the entrance and the octagonal turret at the east a prominent crack seems to bisect the entire southern wing. The crack is clear at elevation and both side of the slabs. The crack is now filled with cement mortar.

8.1.2 Inspection Of Roof:

Prominent cracks run through the center of the barrel vault from one end to another. The free end of this vault takes the form of archway that shows the depth of the continuous crack bisecting the whole vault roof.

Water leakage is found at the vault roof of 1st floor of east side. Moreover dampness is a common problem in most of the vault and flat roof.



Fig. 25 Flat roof



Fig. 26 Water leakage through roof



Fig. 27 Application of electric fan
Inside dome

8.1.3 Inspection Of wall:

1) Most of the original plaster has come out and in many cases traces of different layers of original plaster is exposed. In some places the original plaster is still there with hair cracks and termite attack.

2) Both internal and external wall has deteriorated to extent that the bricks are coming out Cracks are also found on these load bearing walls especially at the points where

3) Presence of vegetation is found in resulting in cracks through their spreading roots.

4) Efflorescence is identified from the traces of crystallized forms on the wall surface.

5) Some internal walls are newly plastered over the old ones.



Fig. 28 Crack on arch



Fig. 29 Damp on wall

8.1.4 Inspection Of Floor and Staircases:

The finishing layer is removed from most of the floor surface and the new repair works failed to maintain the slope to drain the rainwater.

The two major stairs leading to the 2nd floor from the ground floor are severely damaged. The eastern one is reconstructed but the western one is standing with exposed surface of bricks.

8.1.5 Inspection Of Rain Water Disposal and Drainage System: Rainwater accumulates on the terrace and roof due to the lack of proper slopes to drain the water. As toilets and ambulation spaces are newly located at the terrace of 2nd floor and the sewerage line are drawn to the west side for disposal to the main line that also causes problem.

8.1.6 Inspection Of Excess Moisture:

Trace of huge moisture at the floor and wall at ground floor indicates capillary action. Though dampness and moisture is a common problem for old buildings in tropical climate the excessive presence of moisture and dampness in most of the floors and walls shows serious lack of maintenance work.



Fig. 30 Natural lighting inside staircase



Fig. 31 Moisture on wall



Fig. 34 Damage stair



Fig. 36 plaster removed from wall



Fig. 32 Openings sealed



Fig. 33 cracks on wall caused by plant roots

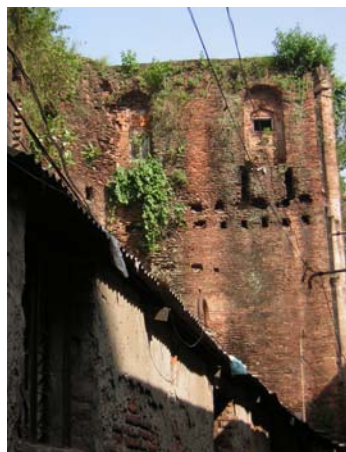


Fig. 35 plaster removed from wall



Fig. 37 Octagonal turret

8.1.7 Inspection Of Door And Windows:

- 1) The old door and windows that are considered original are found in poor condition. Color, Polish and most of the iron grills have disappeared. Rots in iron and deterioration of wooden surface are a common feature.
- 2) Alternation is made but there is a similarity between the old and new one.
- 3) *Gorjon* timber is used as frame and teak is used for rest of the wooden part of the original doors and windows.



Fig. 38 Door detail



Fig. 39 Old Door



Fig. 40 Newly painted door



Fig. 41 Window



Fig. 42 New addition of door-shades at the terrace



Fig. 43 Window from outside

8.1.1 Inspection Of Electrical Services: Electrification is done by surface wiring during 70's. The addition of electrical light, fan, switch and sockets are made without proper plan

8.1.2 Inspection Of fixture and fittings: It is now quite difficult to get the trace of original fitting, as most of these are recent addition.

8.1.3 Inspection Of decorations and finishes:

- 1) Decoration work on plaster at outer wall is partly present but the internal decoration of domes at the top of the octagonal tower and entrance is still intact.
- 2) Different colors have been used in doors, windows and wall surface recently without considering original parches or schemes.



Fig. 44 Damage of plaster detail

8.2 Identified Causes of Decay:

Climatic Causes:

- 1) Seasonal temperature variation
- 2) Humidity (Excessive moisture),
- 3) Precipitation of rain,
- 4) Ground water moisture in soil
- 5) Particulates, dust and sand particles in air.

Biological Causes:

- 1) Vegetations
- 2) Termites

Natural disaster:

- 1) Earthquake
- 2) Flood

Man-made Causes:

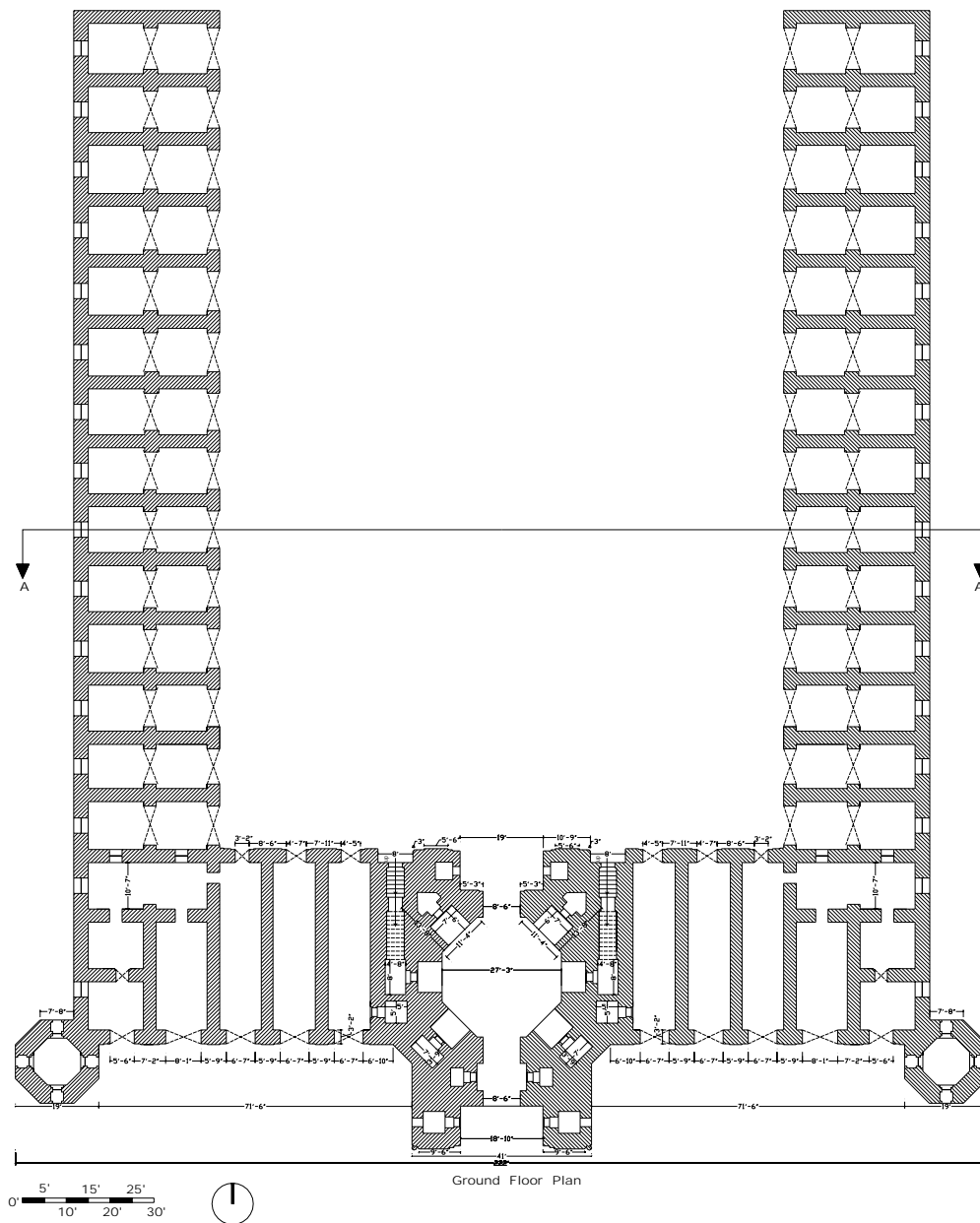
- 1) Lack of maintenance
- 2) Purposeful alternation.
- 3) Traffic vibration.
- 4) Vandalism and arson.
- 5) Lack of security precautions.
- 6) Encroachment.



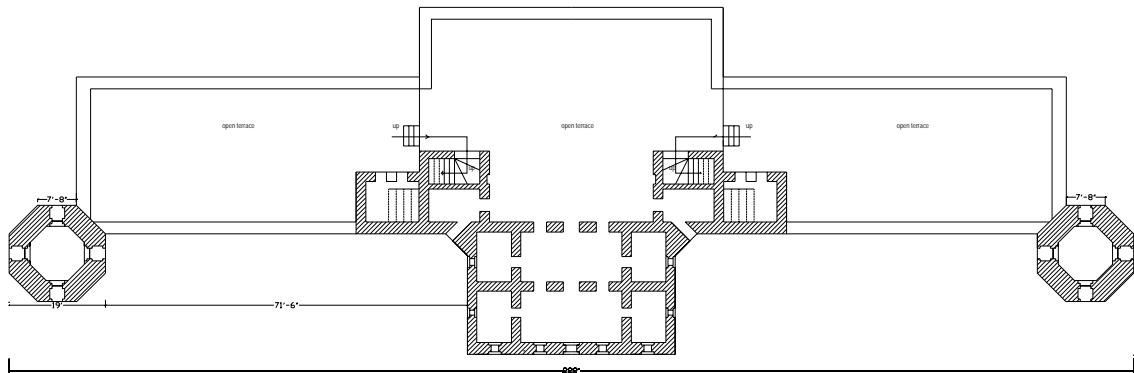
Fig. 45 details on plaster

9 MORPHOLOGICAL ANALYSES:

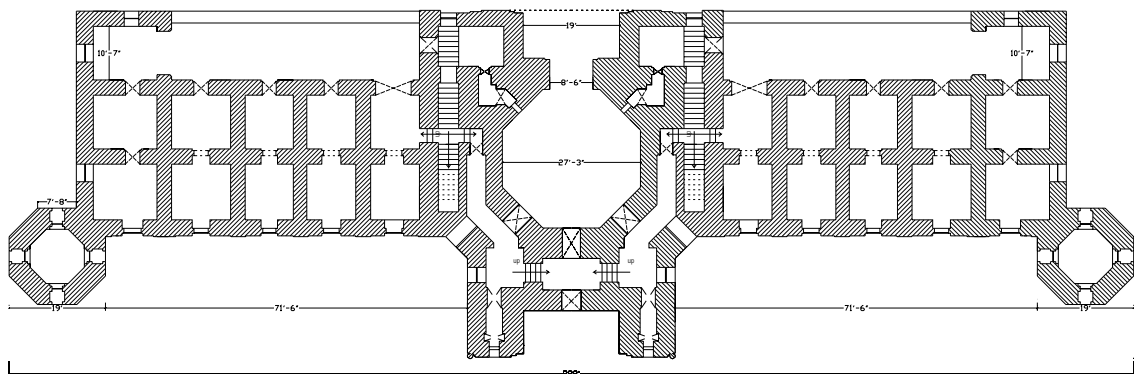
- 1) Composition in plan and elevation is symmetric.
- 2) Enclosed quadrangular space or courtyard is related with wings at four sides.
- 3) Facade Articulation: To relate the building of grand scale with human scale small openings of different shape and size are used on façade.
- 4) Repetition of elements like dome, vault, and arches followed for harmonization.
- 5) Central axis is strongly followed along north and south through entrance and center of the enclosed courtyard.
- 6) Strong geometric relation of octagonal turrets at pivot point of segmented linear form.
- 7) Ambulatory circulation followed through corridor around the courtyard as an interface between open and covered space.



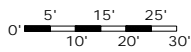
Drawing 1: Ground floor(Bara Katra) with south, east & west wing.
Courtesy: The entire survey was carried out personally but support was taken from the survey drawing (1947) of dept of Archaeology, Dhaka.



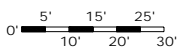
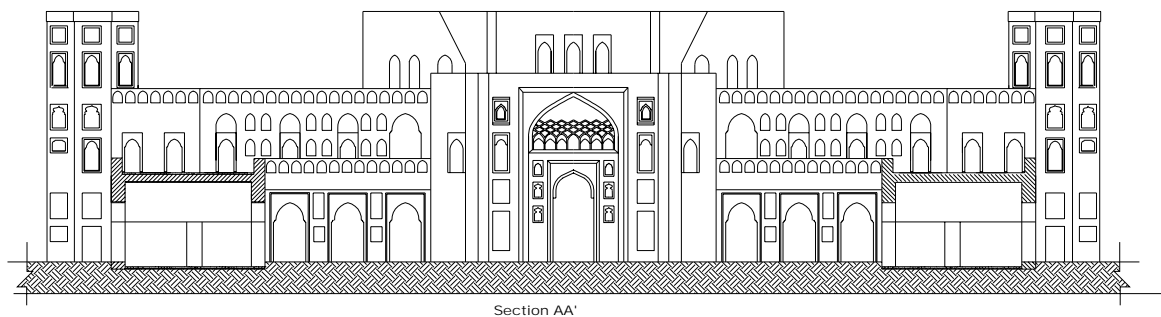
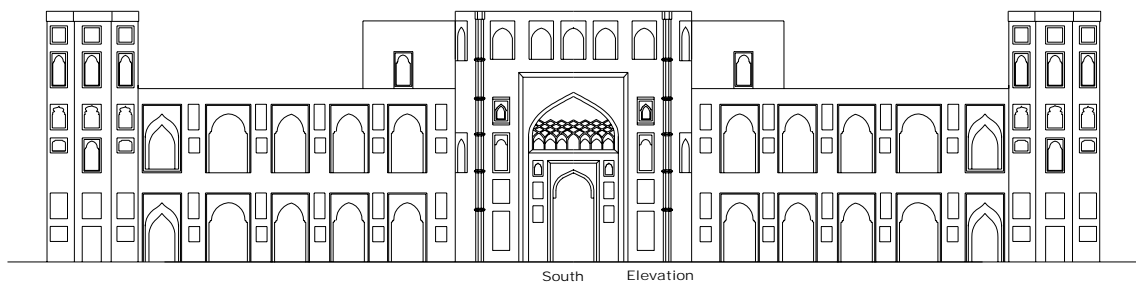
2nd Floor Plan



1st Floor Plan



Drawing2 & 3: 1st & 2nd floor (Bara Katra) with south wing.
Courtesy: The entire survey was carried out personally but support was taken from the survey drawing (1947) of dept of Archaeology, Dhaka.



4 & 5: elevation (south wing) & section AA'.

Courtesy: The entire survey was carried out personally but support was taken from the survey drawing (1947) of dept of Archaeology, Dhaka.



Fig. 46(model study):Bara Khatra with 4 wings



Fig. 47(model study):South elevation



Fig. 48(model study):South wing from the enclosed

10. GUIDELINE FOR ACTION PLAN:

10.1 Degrees of intervention required:

- 1) **Prevention of deterioration:** Preventive maintenance can serve as a primary guideline for *Barakatra*.
- 2) **Preservation:** Most retention and least intervention should be done to preserve the aesthetic, cultural quality of the heritage building. Preservation of patina in the existing ruin should be given priority.
- 3) **Consolidation:** application of the supportive or adhesive material like grouting should be considered in fabricates to ensure continued durability and structural integrity.
- 4) **Restoration:** proper restoration to revive the north, south, east and western wings can be done on the basis of existing ruin, drawings and documentation and archaeological evidences.
- 5) **Rehabilitations:** The contemporary use –Islamic school with hostel on 1st and 2nd floor, shops (original use) at ground floor is highly recommended for adaptive use that should be based on a guideline.

10.2 Recommended Action plan:

a) Immediate work:

- 1) Whole property has to be recovered.
- 2) All the illegal structures within the property should be removed and the enclosed courtyard should be recovered.
- 3) Necessary repair work may be carried out to protect the monument from major structural damage that has divided the southern wing through prominent crack between entrance and octagonal turrets at east.
- 4) Repair work may be carried out for damages on structural elements like load bearing brick walls that are partly destroyed because of weak brick bonding.
- 5) Arches, Vault roofs that are damaged and have the possibility of collapse may be repaired.

b) Urgent work:

- 1) All biological growth including vegetation and termites that cause active deterioration on outer walls should be destroyed.
- 2) Leakage on the roof should be repaired.
- 3) Work to ensure proper slope on the roof and terrace to pass the rainwater may be done.
- 4) To stop capillary action abstraction of water should be reduced and ground subsidence should be controlled. Damp proof course may be injected at plinth level.
- 5) Damp proofing course may also be carried out on plastered walls and floors.
- 6) Proper drainage system in and around the building may be developed.
- 7) Restriction on further live load and traffic vibration may be introduced.
- 8) Restoration work may be done on the staircase that is highly damaged.

- 9) Broken parts of the building specially stair at the terrace of the 2nd floor, parapets walls may be restored.
- 10) Restoration of east and west wings may be carried out on the basis of existing ruin, drawings and documentation and archaeological evidences.
- 11) All the temporary and permanent extension like toilet , bathroom , ablution space on 1st and 2nd floor should be cleared.
- 12) As the north wing is totally demolished and its proper documentation is also absent restoration may be done on the basis of historic clues and morphology analysis of the artifact and the other *mughal* artifacts of same typology. As symmetricity is strongly followed and the walk way is developed along the central axis the repetition of the southern gateway may be considered.

c) Necessary work:

- 1) Necessary repair work to recover details on plaster at the outer and inner walls should be carefully handled.
- 2) Proper finishing work in the floor and stairs based on special technical method followed in *Mughal* period should be carried out.
- 3) Traditionally processed lime wash is recommended for final finishing.
- 4) Restoration of door and windows with proper details should be done.
- 5) All the recent addition and changes should be substituted by original typology
- 6) Electrical wiring, fittings like switch sockets, fans, lights should be properly checked and replacements of defected fittings and entire wirings are recommended to ensure safety.

d) Desirable work:

- 1) Vehicular and pedestrian entry into the site with parking facility may be included into the proposal.
- 2) Existing road network with *Buriganga* River may be developed to ensure easy pedestrian access for the visitors using river route.
- 3) Existing road network should be developed to integrate the artifacts with city fabric.

10.3 Maintenance policy:

- 1) The trustee board should include adequate number of representatives from the *Madrassa* authority, department of archaeology and City Corporation to let the “trustee board” work more actively as a unique responsible authority with asset guidelines.
- 2) Any interventions for maintenance should be carried out by the dept of archaeology and approved by the trustee board.
- 3) For technical supports consultant for such conservation can also be included in the trustee board or the maintenance committee.
- 4) “Preventive maintenance” must get priority, as a strategy necessary steps should be taken for emergency maintenance

- 5) Limitation on number of users or live load should be instructed.
- 6) The rooms at ground floor should be rented out to the shops and the trustee board should select the tenant.
- 7) Cyclical maintenance may be ensured a) Policing as required b) Routine house keeping and maintenance) c) periodic maintenance such as monthly, annually and according to suggestions of the experts should be considered.
- 8) Community participation and public awareness programmes may be taken up to protect and conserve the heritage artifacts. Facilities should be provided for the access of researchers, study group, journalists and other visitors.
- 9) Visiting hours for tourists should be specified and adjusted with the activities in the monument.
- 10) As upper storey is used as student dormitory, general tourists' access may be cautiously regulated

10.4.Maintenance cost:

- 1) Part of the income from the shops may be set aside behind the maintenance work.
- 2) Fund may be raised from local and foreign donations.
- 3) Government can provide financial assistance through department of archaeology.
- 4) The income generated from the tourist and visitors may also be utilized for maintenance purpose.

11. FEASIBILITY STUDY:

Close to *Bara Katra* there are two historic monuments located on the bank of river *Buriganga* that have already been conserved and opened up for general public .

Name	Type	Location	Visitors/day	Income (tk)/week
<i>Lalbagh Fort</i>	<i>Mughol fort Complex</i>	62 no ward,lalbah, old Dhaka	6500-7000 (Friday,Saturday) 2000-2100(Sunday-thursday)	22,9462.5
<i>AhsanManzil</i>	Palace	73 no ward,old Dhaka	1600per/day	16,000

As both the monuments mentioned above are successful in drawing public interest for participation and have handsome revenue income to carry maintenance cost it may be rightly argued that such venture to conserve "*Bara Katra* " has got economic and contextual feasibility. In fact it will connect these two heritage sites and enhance each one's individual revenues.

12.LEGAL ASPECTS: There were some limitations on expertise or study equipments besides accessibility for survey. The lack of proper documentation was another factor that resulted many difficulties. However sincere effort is been given to maintain authenticity of information.

13.CONCLUSION: “*Bara Katra*” is a valuable asset for the urban heritage of Dhaka; it has survived under crises because of many reasons rooted in our socio – economic condition. As it is difficult to reach at the goal at a time and different effort has been failed in past to remove the entire user group, contemporary use may be considered for adaptive use along with tourism. More over different phase may be considered for mode of operation to reach the goal. Despite many limitations a contextual action plan has been drawn to revitalize the heritage building. Preventive maintenance strategy as intermediate guideline to reach the goal set in the report can play effective role for its sustainable existence.

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