PC-II

Documentation, Studies and Development of Conservation Plan For Sheikhupura Fort, Sheikhupura.

ESTIMATED COST: Rs. 15.000 Million

Directorate General of Archaeology,
Tourism and Archaeology Department,
Government of the Punjab
(July-2022)

PLANNING COMMISSION
PC-II FORM
PROFORMA FOR DEVELOPMENT PROJECTS

1.	**Name by which survey feasibility will be identified**		**Documentation, Studies and Development of Conservation Plan For Sheikhupura Fort, Sheikhupura**
2.	**Administrative authorities responsible for**		Directorate General of Archaeology, Government of Punjab, Lahore.
	i.	**Sponsoring**	Tourism Department, Government of Punjab, Lahore.
	ii.	**Execution**	Directorate General of Archaeology through consultant.
3.	**Details of survey/ feasibility study**		
	i.	**General description and Justification**	**1. Introduction** Pakistan is proud of its glorious cultural heritage. The Sheikhupura Fort is an important hunting resort of Jahangir period in Pakistan. The most impressive buildings inside the fort are the magnificent havelis (mansions). The Sheikhupura Fort is declared as Protected Monument under Antiquity Act 1975. Number of building represents from Jahangir, Sikh and British period. Their special importance lies in rich ornamentation of Sikh period wall mural paintings. It is therefore, primary responsibility to preserve and restore such cultural heritage and maintain them for present and future generations. Project directly links to objective of the Archaeology sector. **2. Justification and scope of the Studies** Sheikhupura Fort is located 35 km northwest of Lahore. It is a Protected monument and under the administrative control of Directorate General of Archaeology, Government of the Punjab. Sheikhupura Fort was built by Emperor Jahangir in 1619 A.D. It was used as halting stage for imperial visits to Kashmir or Kabul. Some Havilies were added in the fort during Sikh period. The fort is unique as a symbol of both Mughal and Sikh culture. Its construction and early use began under the Mughal era which is reflected in the Fort's architecture and external design. This region has few examples that display such a distinctive array of fresco work reflecting the era's craftsmanship or portraying the folk stories depicting the secular beliefs of that era. The Sheikhupura Fort was declared protected monument in 1964. However, the Fort was still misused by local authorities to accommodate the Police Force, the refugees from East Pakistan in 1971, and people rendered homeless by floods. The monument shows material decay and structural distress brought about by dampness, drainage, uneven settlements and long neglect resulting in deterioration and in some cases partial disappearance in structures. Earthquakes and heavy downpours, unplanned additions and alterations to the structure, as well as perpetual neglect and human vandalism, have contributed to the decay of the Fort. Furthermore, urbanization and a high population growth rate threaten to further encroach upon the continued existence of

this national monument. Hence, the project requires urgent major preservation and restoration efforts lest this monument of immense historic value is lost forever.

Fort was transferred to Punjab Government during devolution after 18th Constitutional Amendment in precarious condition. In past few years Directorate General of archaeology carried out conservation / restoration works particularly on fortification wall and some supporting work of interior structures. However as condition of interior structures critically alarming due to settlements and appearance of cracks in building. Due to its dangerous structures, the fort is at present closed for the public.

Consideringprecarious condition of the structures it is essential that before going for any further conservation/restoration work, detailed studies of for causes of decay may be conducted for development of Comprehensiveplan for Sheikhupura Fort. To achieve the said goals, consultancy services are required for carrying out sevenstudies regarding historical structure, and to prepare comprehensive development plan.

3. Description of the Assignment

This assignment comprises of a package of seven studies to be produced under a single consultancy.Following are the major heads.

i. Digital Documentation of all buildings of the Fort and topographic survey of the Fort.
ii. Geo-Technical Studies.
iii. GPR (ground Penetration Radar) Tests to investigate the hidden structures of the Fort
iv. Research on structural stability of the leaning and cracked structures and proposals for safety of these structures
v. Study/Research on previous occupation and interventions in the Fort.
vi. Study of water drainage system and recommendations
vii. Damage Analysis and Preparation Of Conservation And Re-Use Proposal

Since the task is multidimensional, involving diverse expertise therefore it is not possible for the Directorate General of Archaeology, with its existing capacity, to carry out these studies. Services of Consultants are essential to be acquired for the preparation of development plan, after going through required studies, surveys and comprehensive documentation of the historical Sheikhupura Fort which will help to derive a strategy for the site conservation.

Conservation Plan with all the relevant studies of the monuments, as given in the TORs will be prepared along with a PC-I, for implementation in properly phased manner**.**

3.1 Aim of the assignment

The aim of the assignment is the development of comprehensive conservation plan of Sheikhupura Fort based on the studies as outlined above. Consultant will prepare the Conservation plan with cost estimates, methodology, planned phases, prioritization of implementation, schedules, work plans and identification of key agents in the implementation process.

The Consultant must keep in mind at all times that the over-riding focus of all studies must be to protect and retain the authenticity of the monument in accordance with the international principles of conservation.

3.2 Time frame of the assignment:
Time frame of the project from its approval is 12 months and period for consultancy is 9 month after signing agreement.

3.3 Implementation of the package of studies
The package of seven studies will be prepared under a single consultancy contract; the Main Consultant will be responsible for coordinating the seven studies and their required tasks itemized below, using the approved methodology and the identified expertise in each area, following the agreed work plan and milestones and submitting all the required PC-II deliverables as per schedule.

3.4 Work Plan for the studies
The Consultant is required to submit a detailed work plan for each of the seven individual studies and an integrating overall work plan for the entire assignment as part of the tender submission; keeping in mind the overall time frame and the need to submit all deliverables on time.

3.5 Expected outcomes of the studies

- A package of respective studies and reports on the current state of Sheikhupura Fort against each study.
- Development of methodology for structural stabilization and conservation of Fort.
- A comprehensive conservation plan for implementation of outcome of studies and development works at the Fort.

3.6 This TOR Document
This assignment requires the Consultant to carry out seven individual but closely linked studies. The Terms of Reference for each of these studies is presented below with details of the following:

- Objectives/justification of the study
- Study area boundaries
- Activities/Tasks to be carried out to meet the objectives
- Expertise required in the Consultant's team in order to carry out the tasks
- Time frame.

The final section of this document summarizes professional staffing requirements for the studies and reporting requirements/schedule, and indicative costing.

4. TORs of Individual Studies

4.1 Digital Documentation of all buildings of the Fort i.e. plans, elevations and cross sections and topographic survey of the Fort.

4.1.1 Objective of the study:

The objectives of the study are the

- Preparation of detailed documentation of all its buildings, portions, structures (Decayed, Standing) in the fort. Detailed drawings including plans, elevations and cross sections of all the buildings of the fort.
- A topographic survey which locates all surface features of a property, and depicts all natural features and elevations.
- This will also identify preservable and non preservable structures within fort.

4.1.2 Justification of the study:

Digital documentation is considered an important tool, providing precision, in the recording of physical features and peculiarities of heritage. Photographic documentation has been an essential technique for recording the nature of heritage objects and illustrating conservation procedures. Documentation of the Fort will provide a comprehensive and detailed data for its effective Conservation and development.

4.1.3 Scope of Studies:

Location& Boundaries	Outside perimeter of the Sheikhupura Fort up to and including outer edge of the street/road/open area surrounding the Fort.		
Activities	• Carrying out Topographic survey of the designated area using Electronic Distance Measuring (EDM) machines recording buildings, features, utility lines & appurtenances etc in x,y& z coordinates. • Documenting detailed floor plans of all levels including roof tops of all buildings located within the Fort premises. • Documenting representative cross sections through all buildings. • Documenting major elevations of all buildings including elevations of the fortification. • Photographic documentation of site and buildings covering interior and exterior using still and video photography covering Fort and its immediate environs.		
Deliverables	The full description and schedule of deliverables can be seen in **Annex-A**		
Professionals Required	The following professionals are expected to work on the assignment:		
	SrArchitect	1	Graduate professional Architect

/ Team Leader		having postgraduate qualifications in conservation/documentation of historic buildings with min. seven years of post-qualification experience in relevant field
Architect/ Building Surveyor	1	Graduate professional Architect with minimum five years' experience in survey/documentation of buildings
Land/Building Surveyors	1	Diploma of Associate Engineer in Civil/Architecture/Surveying Technology with min. two years of post-qualification experience in relevant field

4.2 Damage Analysis, preparation of Conservation and Re-Use proposal

4.2.1 Objective of the study:

The specific objectives of this study are

- To identify and study the all the possible damages which refers to changes and threaten a building as a whole or impair the preservation/longevity of its components due to Alteration, Damage, Decay, Degradation, Deterioration, Weathering, Loss and determine extent of the damage present.
- To carry outdetail conditionsurveys of the historical structures to provide situational awareness and critical information on: Type, scope and severity of the damage.
- Preparation of conservation and management plan including its adaptive re-use proposal of the Fort with the methodology explained with detailed Architectural designs, in a phased manner along with material and cost detail.

4.2.2 Justification of the study:

Conservation and restoration of monuments and historical areas are disciplines that require specific training. The forts are among these monuments that present high complexity due to the elevate nature of the forts. Each fort has distinctive engineering and architectural features that turn its study a challenge.

All historical monuments can be affected by different factors under natural environmental conditions, i.e., aging of the materials, lack of maintenance, inadequate use, or natural hazards. A better understanding of the structural behavior of these buildings is a crucial step to prevent social, cultural, and economic losses. Since the Fort has been observed to be under serious structural threat it is necessary to analyze the extent and nature of its damage, which will help develop a plan for its structural stabilization for its effective restoration.. Due to severity of the damage it is necessary to hire specialized Experts through consultancy.

4.2.3 Scope of the study:

Location& Boundaries	Entire Fort premises		
Activities	• Carrying out Damage Analysis of buildings, structures, materials of construction, fabric and decorations and preparation of damage atlas and Report. • Carrying out minimal invasive investigative studies to determine the existing condition of structure and fabric based on visual observation. • Carrying out necessary tests of building components and/or materials of construction to determine original compositions and degree of deterioration. • Preparing options for rehabilitation and re-use of the Fort or its components. • Finalizing re-use proposals and preparation of detailed scheme for conservation and re-use of the historic monument and its premises.		
Deliverables	The full description and schedule of deliverables can be seen in **Annex A**		
Professionals Required	The following professionals are expected to work on the assignment:		
	Senior Conservation Expert	1	Graduate professional Architect/Engineer having postgraduate qualification in architectural conservation with min. seven years of post-qualification experience in relevant field
	Junior Conservation Expert	1	Graduate professional Architect/Engineer with minimum five years' experience in conservation/rehabilitation of historic buildings
	Illustrator/ Graphic Delineator	1	Diploma of Associate Engineer in Civil/Architecture/Surveying Technology with min. two years of post-qualification experience in relevant field

4.3 Study/Research on previous occupation and interventions in the Fort.

4.3.1 Objective of the study:

The specific objectives of this study are

- To identify previous occupation, history and direct/ indirect intervention as a result of its preservation, use, misuse, maintenance, repair, restoration, reassembly, removal or reconstruction of any of its part, leading to the manipulation of the its physics, materials or its surroundings.

- Extensive research and literature review that acknowledges wide range of values and craftsman ship that needs to be integrated into planning its development and conservation practice.
- To get the history right by checking all the details against hard evidence, and preferably against written documents

4.3.2 Justification of the study:

Documenting the history, interventions and events of the past is as much necessary as the same for actual heritage as it can give the backdrop to area's history for local community, students, researchers, scholars and future generations as well and prevent any mistakes to be repeated that may have been done in the past interventions. Directorate of Archaeology has documented the history of Fort but still there is need for more extensive and accurate research through expert Historians.

4.3.3 Scope of the study:

Location& Boundaries	Entire Fort premises		
Activities	• Carrying out historical/archival research to determine past uses and occupancy of the Fort and its immediate environs. • Carrying out archival research to determine previous physical interventions to the structure and fabric as recorded in the historical/oral accounts/records. • Presenting the findings in graphical as well as Report form.		
Deliverables	The full description and schedule of deliverables can be seen in **Annex-A**		
Professionals Required	The following professionals are expected to work on the assignment:		
	Senior Expert	1	Art/Architectural Historian with min. fifteen years of relevant standing in the field with matching publications
	Junior Expert	1	Art/Architectural Historian with min. five years of relevant standing in the field

4.4 Geotechnical Investigations

4.4.1 Objective of the study:

The specific objectives of this study are

- To obtain information on the physical properties of soil earthworks and foundations for Fort structures and for repair of distress to earthwork and structures caused by subsurface conditions by expert geologists and soil engineers.
- To investigated about ancient geotechnical engineering aspects through exploring the subsurface soil profile In

addition to its slope stability.

- To provide a knowledge for further Structural stabilization of the Fort and its rectification.

4.4.2 Justification of the study:

Heritage sites and their associated remains are not always in equilibrium with the environment. They are continuously impacted and weathered by a variety of internal and external factors, both natural and human-induced, with rapid and/or slow onset. These include major sudden natural hazards, such as earthquakes or extreme meteorological events, but also slow cumulative processes such as the erosion.

Moreover, In earthquake-prone areas (as this Fort has been exposed to in the past) it is of extreme importance to carry out Geotechnical Investigations and structural analysis studies for assessing the actual behavior of sub surface soil and archaeological constructions, and for proposing adequate intervention measures. Geo-tech investigation is required to find out nature of the strata of the soil. It is essential before the study of structure stability. Since Directorate of Archaeology does not possess such technical expertise and equipment needed to carry out this investigation, it is necessary to produce these studies through consultancy.

4.4.3 Scope of the study:

Location& Boundaries	Fort premises and immediate environs		
Activities	• Drilling of eight (8) exploratory boreholes each down to 15m depth below existing ground level (EGL) using hydraulic feed straight rotary drilling technique. • Performing Standard Penetration Tests (SPTs) in each borehole at a general depth interval of 1.5m along the collection of disturbed soil samples and determining bearing capacity of the soil at different strata. • Collecting undisturbed soil samples from the cohesive strata from these boreholes using appropriate samples (if encountered) • Obtaining pertinent ground water information from the boreholes drilled during these investigations (if encountered) • Performance of laboratory tests on selected soil/water samples • Preparation of Geotechnical Investigations Report upon completion of field and laboratory testing works.		
Deliverables	The full description and schedule of deliverables can be seen in **Annex A**		
Professionals Required	The following professionals are expected to work on the assignment:		
	Senior	1	Graduate professional Soil

Expert		Expert/Geologist/Engineer having postgraduate qualifications with min.seven years of post-qualification experience in relevant field
Junior Expert	1	Graduate professional Engineer having experience in geo-technical studies with min three years of experience in field.

4.5 Research on structural stability of the leaning and cracked structures and making proposals for safety of these structures

4.5.1 Objective of the study:

The specific objectives of this study are

- The principal objective of structural analysis of the Fort is to ensure the reliability and durability of structure of Fort, its walls and enclosed buildings.
- Computation of deformations, internal forces, and stresses which reveals the structural performance of the design of Fort.
- To devise a most suitable, sound step by step criteria and remedial measures for rectification of the cracks and its structure along with methodology.
- To extend the life cycle of Fort and ensure its survival and is concordant with the policy of sustainable development.

4.5.2 Justification of the study:

Archaeological sites and their associated remains are continuously impacted and weathered by a variety of internal and external factors, both natural and human-induced, with rapid and/or slow onset. These include major sudden natural hazards, such as earthquakes or extreme meteorological events, but also slow cumulative processes such as the erosion.

Most of the buildings in the leg part of this structural complex had collapsed in an earthquake in the latter half of the 19th century, and were cleared away subsequently. Other buildings partly collapsed or precariously leaning out of the vertical line still hold on tenaciously to their existence despite wide vertical cracks. Structural study of this building is required to investigate the causes of deterioration and remedial measures. Moreover, In earthquake-prone areas (as this Fort has been exposed to in the past) it is of extreme importance to carry out structural analysis studies for assessing the actual behavior of archaeological constructions, and for proposing adequate intervention measures.

Since Directorate of Archaeology does not possess such technical expertise and equipment needed to carry out this investigation, it is necessary to produce these studies through consultancy.

4.5.3 Scope of the study:

Location& Boundaries	Entire Fort premises
Activities	• Inspecting the site, examining and assessing site data and conditions, and reviewing all

	documentation available with or already prepared by the Directorate General of Archaeology, Government of the Punjab. • Review and assessment of structural stability of the above mentioned structures.. • Analysis of causes of damage to the structures, including: o damages caused by to differential settlements; o damages caused by the dynamic loads such as earthquakes etc; o damages caused by historic interventions from Sikh, British and post-independence interventions; o damages occurred due to ageing and weathering or any other factor; • Coordination and guiding geo-tech survey consultants for finalization of all required tests/data. • Developing remedial proposal by establishing criteria and standards for structural stability of the structures. • Presenting proposals in graphical as well as Report form..	
Deliverables	The full description and schedule of deliverables can be seen in in **Annex A**	
Professionals Required	The following professionals are expected to work on the assignment:	
	Senior Structural Expert	1 Professional Structural Engineer having min. fifteen years of post-qualification experience in assessment and protection of historic structures
	Junior Expert	1 Graduate Civil Engineer with minimum five years' experience in relevant field

4.6 GPR (ground Penetration Radar) Tests to investigate the hidden structures of the Fort

4.6.1Objective of the study:

The specific objectives of this study are

- To identify best places to excavate at site for buried features and to reveal likely locations of buried evidence or artifacts, observe changes in soil structure, and identify any potential damage risks.
- To pinpoint location of underground utilities without disturbing the ground

4.6.2Justification of the study:

Sheikhupura Fort is the site which has not been excavated yet and there is possibility of finding several hidden treasures, artifacts and

even old buried structures and systems under its sub surface.
Since GPR is considered the most accurate, highest resolution geophysical technology these days which works best in dry sandy soils, this test will help to find out all fallen and buried structures in the fort premises. It Could really help with surveying this sensitive archeological site remotely and non-destructively. Targeting what to excavate saves time, money and protect any fragile artifacts and features. Directorate of Archaeology does not possess such technical expertise and equipment needed to carry out this investigation, it is necessary to produce these studies through consultancy.

4.6.3Scope of the study:

<table>
<tr><td>Location& Boundaries</td><td colspan="3">Selected location within Fort</td></tr>
<tr><td>Activities</td><td colspan="3">• To check underground foundations, walls and basement.
• To check hidden cavities, sculptures, antiquities, treasures etc.
• Buried Drainage system, feed lines, pipe lines, conduits and cable harnesses.
• Distribution boxes and drainage pipes.
• Backfilled wells, trenches and dugouts.
• Secret tunnels/ basements</td></tr>
<tr><td>Deliverables</td><td colspan="3">The full description and schedule of deliverables can be seen in Annex A</td></tr>
<tr><td rowspan="4">Professionals Required</td><td colspan="3">The following professionals are expected to work on the assignment:</td></tr>
<tr><td>Senior Conservation Expert</td><td>1</td><td>Graduate professional Architect/Engineer having postgraduate qualifications in architectural conservation with min. seven years of post-qualification experience in relevant field</td></tr>
<tr><td>Junior Conservation Expert</td><td>1</td><td>Graduate professional Architect/Engineer with minimum three years’ experience in conservation/rehabilitation of historic buildings</td></tr>
<tr><td>Illustrator/ Graphic Delineator</td><td>1</td><td>Diploma of Associate Engineer in Civil/Architecture/Surveying Technology with min. two years of post-qualification experience in relevant field</td></tr>
</table>

4.7 Study of water drainage system and recommendations
4.7.1Objective of the study:

The specific objectives of this study are

- To find out original drainage system of the fort

- To ascertain the damages to the original drainage system
- Recommendation with plan to restore original system as well as further improvement if required.

4.7.2Justification of the study:

Water penetration in through old faulty drainage system is the major cause of derogation in the buildings. This cause settlement resulting in cracks, deformation and destruction of the structures. Poor drainage of roofs and subsequent floors weaken the roof, walls and other elements of the building,reducing itsserviceablelife. Dampness also helps in growth of plants, algae etc. in the building structure which further helps in decay of old buildings. It is therefore essential to remove any cause of seepage of water and provide efficient drainage system for disposal of rain water safely.

4.7.3Scope of the study:

Location &Boundaries	Entire Fort premises and immediate environs		
Activities	• Carrying out Drainage Analysis of buildings, structures, roof tops, terraces, open areas and spaces based on site reconnaissance and available record • Carrying out minimal invasive investigative studies to determine the existing condition of surface runoff, storm water drainage and sewage disposal.. • Carrying out necessary design calculations to work out proposed interventions • Preparing heritage compatible options for drainage of the Fort premises and making recommendations. • Finalizing proposals and preparation of detailed scheme including cost estimates for drainage of soil and waste water, surface and storm water from the premises		
Deliverables	• The full description and schedule of deliverables can be seen in **Annex-A**		
Professionals Required	The following professionals are expected to work on the assignment:		
	Senior Professional	1	Graduate professional Public Health Engineer having postgraduate qualifications with minimum fifteen years of post-qualification experience in relevant field
	Junior Professional	1	Graduate professional Architect/Public Health Engineer with minimum three years' experience in historic buildings

`	**ii.**	**Implementation Work Plan**	9 Months(For Consultancy Services) **Annex-A**(Over All Gestation Period of the Scheme 12 Months)

	iii.	**Estimated cost (Rs.)**	15.000 M **Annex-B**
	iv.	**Manpower Requirements**	(Detail Attached) **Annex-B**
	v.	**Financial Plan**	The Consultant will be paid according to terms and conditions as approved by the Directorate General of Archaeology, Government of Punjab.
4.	**Expected outcome of the survey feasibility study and details of projects likely to be submitted after the survey**		• Different Study Reports as outlined in the TORs to understand the causes of deteriorations of the fort structure. • Measures and Methodologyto stop damages to preserve a valuable historical asset of the country • Preparation of Systematic Conservation Plan for Structural Stabilization, Preservation, restoration and development of Sheikhupura Fort. • Cost estimates and PC-1

5.	**CERTIFICATE.** **The name, designation and phone # of the officers/Consultants responsible for preparing and checking be provided. It may also be confirmed that PC-II has been prepared as per instructions for the preparation of PC-II for social sector Projects.**	**PREPARED BY:** **Miss. Tehreem Babar.** Sub Divisional Officer (Archaeology) +92(0)3364270349 **Mr. Anjum Saleem Qureshi** Deputy Director (Survey) Government of the Punjab, Lahore Ph. 0333-4101967 **CHECKEDBY.** **Mr. Maqsood Ahmad,** Director Archaeology Government of the Punjab, Lahore Ph. 0321-4784084 **CHECKED & FORWARDED BY.** **Director General of Archaeology**, Directorate General of Archaeology Government of the Punjab. Lahore. **RRECOMMENDED FOR APPROVAL** **SECRETARY,** Archaeology and Tourism department, Govt. of the Punjab, Lahore.

Annex A

Description and Schedule of Deliverables:

Activity	Description	Timeline
1	**Inception Report** – reflecting the Consultants' understanding of the assignment, specifying approach, staffing, schedules and how the main Consultant will monitor and audit the progress and quality of work carried out by all sub-consultants for all studies.	2 weeks after the date of Agreement
2	**Interim Report** based on the scope and duties of the consultants as defined in these TORs. – a combined report including progress report by the main Consultant on overall work carried out so far.	After 2 Months from the date of Agreement
3	**Interim Report** based on the scope and duties of the consultants as defined in these TORs – a combined report including progress report by the main Consultant on overall work carried out so far, plus individual reports from each of the individual seven studies	After 4 Months from the date of Agreement
4	**Interim Report** based on the scope and duties of the consultants as defined in these TORs – a combined report including progress report by the main Consultant on overall work carried out so far, plus individual reports from each of the individual seven studies	After 6 Months from the date of Agreement
5	**Draft Comprehensive Report** based on various studies including proposed plans for ConservationPlan and PC-I - a summary report by the main Consultant with attached full reports on each of the seven studies	After 8 Months from the date Agreement
6	**Final Comprehensive Report** amended after comments from the office of the Directorate General Archaeology.	After 9 Months from the date of Agreement

Clients shall be apprised with detailed presentation of Studies/ Reports/findings during the consultancy period and after the completion of the project

Documentation, Studies and Development of Conservation Plan For Sheikhupura Fort, SheikhupuraImplantation plan

Sr#	Work to be done	01 Month	02 Month	03 Month	04 Month	05 Month	06 Month	07 Month	08 Month	09 Month	10 Month	11 Month	12 Month
1	Selection of Consultants												
2	Digital Documentation of all buildings of the Fort i.e. plans, elevations and cross sections and topographic survey of the Fort.												
3	Geo-Technical Studies												
4	GPR (ground Penetration Radar) Tests to investigate the hidden structures of the Fort												
5	Research on structural stability of the leaning and cracked structures and making proposals for safety of these structures												
6	Study/Research on previous occupation and interventions in the Fort.												
7	Study of water drainage system and recommendations												
8	Preparation Of Conservation And Re-Use Proposal												
9	Preparation And Submission Of Comprehensive Report ofStudies with Conservation Plan with PC-I												
10	Evaluation of the Report / corrections												

Annex B

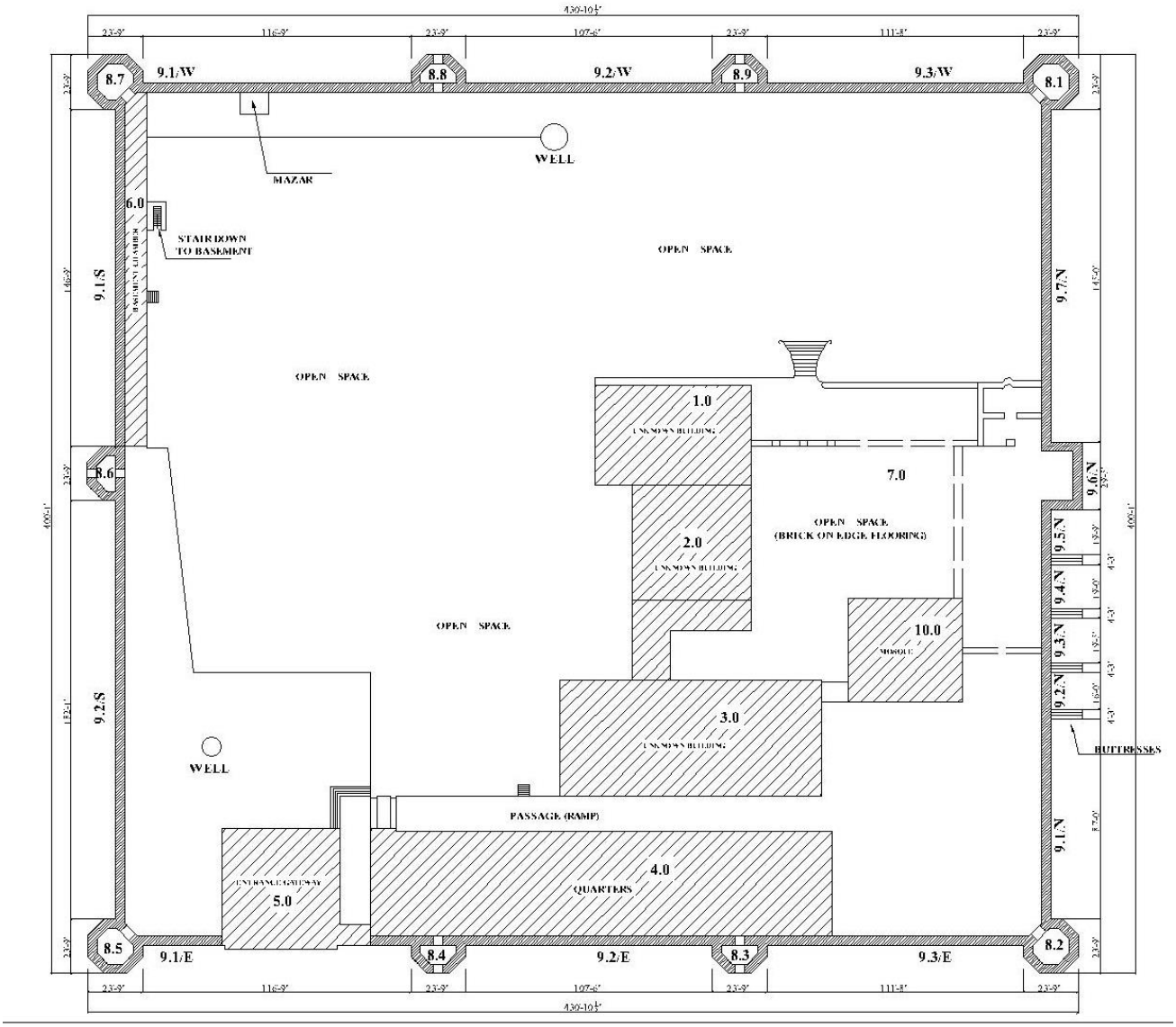
Abstract of Costs

Consultants will involve Relevant Experts for the purpose of carrying out and reporting the above cited studies to the highest professional standards

Sr. No.	Description	Qty	Person Months	Unit Rate (Rs.)	Total Cost (Rs.)	Total Cost (Rs. in millions)
1	Main Consultant	1	9	500000	4500000	4.500
1. DIGITAL DOCUMENTATION,TOPOGRAPHICAL SURVEY, PHOTOGRAPHICAL SURVEY						
1	Sr Architect/ Team Leader	1	0.5	400,000	200000	0.200
2	Architect	1	3	200,000	600000	0.600
3	Building/ Land Surveyors	2	4	80,000	640000	0.640
4	Helper	2	4	30,000	240000	0.240
	Total				1680000	1.680
2. DAMAGE ANALYSIS, PREPARATION OF CONSERVATION PLAN AND RE-USE PROPOSAL						
1	Senior Conservation Expert	1	4	400,000	1600000	1.600
2	Junior Conservation Expert/ Architect	1	4	200,000	800000	0.800
	Quantity Surveyor	1	1	100,000	100000	0.100
3	Illustrator/ Graphic Delineator	1	1	80,000	80000	0.080
	Total				2580000	2.580
3. STUDY/RESEARCH ON PREVIOUS OCCUPATION AND INTERVENTIONS						
1	Senior Expert /Architectural Historian	1	0.5	300,000	150000	0.150
2	Junior Historian	1	1	100,000	100000	0.100
	Total				250000	0.250
4. GEOTECHNICAL INVESTIGATIONS						
1	Senior Expert	1	1	400,000	400000	0.400
2	Junior Expert	1	2	200,000	400000	0.400
	Total				800000	0.800
5. STRUCTURAL STABILITY STUDY AND PROPOSALS FOR SAFETY OF STRUCTURES						
1	Senior Structural Engineer	1	2	400,000	800000	0.800
2	Junior Engineer	1	2	200,000	400000	0.400
3	Junior Engineer Materials	1	2	200,000	400000	0.400
	Total				1200000	1.200
6. GPR (GROUND PENETRATION RADAR) TESTS						
1	Senior Expert	1	1	400,000	400000	0.400
2	Junior Expert	1	2	200,000	400000	0.400
	Total				800000	0.800

7. STUDY FOR WATER DRAINAGE SYSTEM AND RECOMMENDATIONS						
1	Senior Expert	1	1	400000	400000	0.400
2	Junior Expert	1	2	200000	400000	0.400
	Total				800000	0.800
8. SUPPORT/TECHNICAL STAFF OTHERS FOR PREPATION OF FINAL REPORT & PC-1						
1	Consevation Expert	1	2	400000	800000	0.800
2	Junior Engineer	1	2	200000	400000	0.400
3	**Miscellaneous for** Office Staff, Production reports and maps, Collection Of Secondary Data, Equipment's, Transport and other miscellaneous o/h expenditures etc.			Prov. Sum	1000000	1.000
	Total				2200000	2.200
Total (Consultant Related Cost)					**14810000**	**14.81**
B. CONTINGENCIES (Departmental Related Expenditures)Provision for Advertisement, hosting meetings, transportation, and or other contingency expenditures					200000	0.200
				Grand Total	**15010000**	15.010
Say Rs. 15.000 Million						

Drawings/Photographs



Plan of Sheikhupura Fort

Figure 3 Cracks in Fort Wall Bashion

Fortification wall

	
During conservation	After conservation

	
Before conservation	After conservation

Conservation efforts

Present condition of Rani Haveli

Present condition of Buildings inside Fort

Inside haveli Cracks and damaged plaster

Cracks in arches

Development of Cracks in Sikh Haveli

Present condition of Sikh Haveli

Present condition of wall Murals