CAI/ADM/20/200/402EGY4003 Call for Consultancy

Supervision and monitoring of the rehabilitation/restoration works of the buildings designed by Hassan Fathy in New Gourna

Terms of Reference

Type of contract: Contract for an individual consultant

Organisational Unit: Culture Unit, UNESCO Regional Bureau for Sciences in the Arab States

Duration: April 2020 – April 2021

Background:

Within the framework of the project “Safeguarding of Hassan Fathy’s Architectural Legacy in New Gourna Site”, Environmental Quality International (EQI) (herein after “the Contractor”) has been selected to conduct the rehabilitation/restoration works of the public buildings under the ownership of the Egyptian Ministry of Culture designed by Hassan Fathy in New Gourna. The works of the following priority buildings will commence in March/April 2020; Package 1: The Mosque, Package 3: The Theatre, Package 4: The Khan (Existing), Package 6: The Khan (Missing).

Assignment:

Under the overall supervision of the Director of UNESCO Regional Bureau for Sciences in the Arab States and the direct supervision of the Programme Specialist for Culture, the consultant Engineer (herein after “the Engineer”) will supervise, monitor, document and report the progress in the implementation of the works in New Gourna as per the ITB 402EGY4003 Rehabilitation Architecture Hassan Fathy 217/2019 ed1 (see Annex I) and along with the signed contracts with EQI, the Contractor with the overall aim of supervising and ensuring technically sound, safe, and timely delivery of all contracted tasks as per ITB 402EGY4003 Rehabilitation Architecture Hassan Fathy 217/2019 ed1 (see Annex I) and along with the signed contracts with EQI, the Contractor. He/She should ensure regular reporting to UNESCO and the National Organisation of Urban Harmony (NOUH) under the Ministry of Culture. The Engineer will carry the responsibility of technical advisor of UNESCO Cairo for the follow up and supervision of the work of the Contractor assigned for the restoration/rehabilitation works of the unique buildings of the masterpieces, built by the Architecture legend Hassan Fathy in the New Gourna village in Luxor. Details pertaining to the Scope of Work and Technical Specifications expected of the Contractor, and which the Engineer will be supervising, are available for reference under Annex II.

In this regard, the Engineer shall undertake the following tasks:

1. Check the detailed work plans, drawings and sketches prepared by the Contractor and provide feedback and technical suggestions before their approval.
2. Study, evaluation and verify the drawings in terms of architecture, structure, sanitation, electricity, mechanics, and any other related aspects required for the
adequate delivery of works as per the ITB. The Engineer is responsible for securing adequate expertise for each of these lines of engineering actions as required, to ensure that the drawings are not contradictory and compatible, complete and matching each other.

3. Review, evaluate, comment and recommend changes, and recommend approvals of the work plans and the designs and the required terms, approaches and specifications to execute the works submitted by the Contractor.

4. Review the timeline of the works submitted by the Contractor.

5. Review the system for registering materials supplied to the site and monitoring their codification and their storing methods.

6. Review and monitor quality control systems for the materials suppliers and subcontractors to ensure they are in compliance with specifications and ensure that tests are done.

7. Inspect supplies and installations, and certify their conformity with approved samples and technical specifications.

8. Assess and suggest on-site solutions to implementation problems that might be encountered at the site, and propose amendments or changes that the Contractor prepares and presents to UNESCO for approval with NOUH endorsement.

9. Monitor the progress of the works and their compliance with the approved work plan.

10. Attend regular meetings with UNESCO, NOUH, the Contractor and other stakeholders to follow up the implementation of the works and approved decisions.

11. Review the specifications to ensure their conformity with the drawings.

12. Review the design in terms of performance, safety, economy, and the feasibility of implementation.

13. Maintain communication and relationships with the local authorities and community.

14. Monitor the Contractor’s works of operation and delivery, which include reviewing, receiving and operating all equipment after installing it, and reviewing and approving operating and maintenance catalogues and documents provided by the Contractor.

15. Monitor and review the possibility of implementation in relation to the site conditions and ensure that all technical alternatives have been studied by the Contractor.

16. Review technical safety of the completed works in all specialties of the project.

17. Review the accuracy of the documentation works in the entire process from the present status, identification of problems and solutions, implementation and final status.

18. Prepare and submit the certificate of payment to UNESCO within 15 days of the receipts of invoices from the Contractor.

19. Certify and report the finalization of the completion of each phase and the invoices submitted by the Contractor.

20. Review the final drawings “as built”.

21. Monitor the security and safety at the site.

22. Participate in the meetings of hand over committees.

23. Undertake monitoring mission to New Gourna at least once a month and/or as needed.
24. Help in the identification and recruitment by UNESCO Cairo of the resident engineer (with no less than 5 years’ experience) to be stationed on the New Gourna site. While the resident engineer will be contracted by UNESCO Cairo office, he/she will be technically accountable and reporting to the Engineer who continues to be responsible and accountable for all engineering supervisory activities in New Gourna, including those undertaken by the resident engineer. 

25. Coordinate, directly supervise and manage all activities performed by the resident engineer on site to ensure the above tasks are accomplished.

The Engineer shall prepare a monthly progress report (in English with photos and drawings of the works) based on a weekly report prepared by the resident engineer and submit it to UNESCO for approval with NOUH endorsement.

The Engineer shall prepare and submit a final report (both in printed and digital format) with the certificate of final completion when all the works should be completed by the Contractor to UNESCO for approval with NOUH endorsement.

Deliverables and Timeline:

The following are documents in English to be submitted within the timeline:

<table>
<thead>
<tr>
<th>Timeline</th>
<th>Deliverables</th>
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<tbody>
<tr>
<td>1</td>
<td>20 April 2020 Approval of EQI work plan</td>
</tr>
<tr>
<td>2</td>
<td>31 May 2020 Monthly progress report</td>
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<td>3</td>
<td>30 June 2020 Monthly progress report</td>
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<td>4</td>
<td>31 July 2020 Monthly progress report</td>
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<td>31 August 2020 Monthly progress report</td>
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<td>6</td>
<td>30 September 2020 Monthly progress report</td>
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<td>31 December 2020 Monthly progress report</td>
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<td>31 January 2021 Monthly progress report</td>
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<tr>
<td>11</td>
<td>28 February 2021 Monthly progress report</td>
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<tr>
<td>12</td>
<td>31 March 2021 Final report with the certificate of final completion</td>
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required qualification and specialised knowledge/experience:

1) Have a no less than 15 years of experience in restoration of mud brick buildings
2) Being a member of the Egyptian Engineer Syndicate
3) Have excellent ability to coordinate and work with experts with a wide range of expertise including earthen architecture, structural engineering, project management, architectural documentation, electrical engineering, plumbing engineering, project document control, etc.
4) Excellent skills of communication both in oral and writing in English and Arabic
Application:

Interested individuals are invited to submit updated CVs (with information on the projects and budgets that s/he handled in the past) and cover letter, indicating approach (the tasks for the lead Engineer and the resident engineer), justification that the resident engineer shall be selected on competitive basis or that the resident engineer can provide services at value for money. CV of the resident engineer and fees for the lead Engineer and resident engineer each, to UNESCO Cairo Office at the email address to cairo@unesco.org with copy to c.park@unesco.org and s.moustafa@unesco.org by 6 April 2020, midnight Cairo Egypt Time.
Annex II

Scope of Works and Technical Specifications of the Contractor

Scope of Works

The proposed works of the contractor, focus on the urgent reconstruction and/or restoration works to prevent further deterioration of three unique buildings of the master pieces built by the Architecture legend Hassan Fathy and restore them to their original standing. These buildings were built in the New Gourna village in Luxor, in the mid of the twentieth century using traditional earthen architecture (mud bricks). This includes the provision of adequate basic services required to complete restoration work of those buildings to their original state, using the same architectural methodology, methods, and techniques of Hassan Fathy, and equip them with appropriate and adequate facilities (electricity, water facilities and public toilets) that can allow the proper functioning of the buildings reuse plan.

These three buildings are registered under the Egyptian Law No. 144/2006 for significant buildings of value, and the Law No. 119/2008 for the basis and standards of the National Organization for Urban Harmony for significant buildings and sites of heritage value, issued by the National Organization for Urban Harmony and declared by the Supreme Council of Urban Planning and Development.

The restoration phase of the turn-key project will be upheld in accordance with the precept and guidelines of the UNESCO 1972 Convention concerning the Protection of the World Cultural and Natural Heritage. Therefore, it is imperative, that contractors’ bid proposal demonstrate relevance and knowledge of these conservation and restoration precepts and codes in the method of statement.

This is a turn-key/ lump sum reconstruction and restoration project and not a re-measure binding contract. The project should be executed over the course of one calendar year. The existing structures in need of restoration work are structurally fragile and prone to collapse, the missing parts would require almost total reconstruction of the original architectural structure that Hassan Fathy created.

Payments, under contract, will be based on a clear cash flow plan adopted by the contractor and with approval of UNESCO. Final payment in the cash flow plan should comprise of at least 15% of the contract value.
Reconstruction and restoration work of respective buildings will be expected to advance in parallel and not building by building.

The contracted construction company shall review and provide detailed designs, drawings, and work plans needed for all works that are in line with the original method of mud brick architecture, to be approved by UNESCO.

In line with the standards of the 1972 Convention concerning the Protection of the World Cultural and Natural Heritage and with the authentic Earthen Architecture of Hassan Fathy; the architectural and constructive features, the conservation, restoration, and rehabilitation works for the three buildings will require - besides regular construction works – the mastering in traditional construction and restoration techniques to include structural stone masonry, mud bricks and mud based mortars, renders and paintings, considering, the use of authentic local materials originally used in their construction phase and knowledgeable skilled local masons.

Aiming to halt the continuous deterioration of the existing three structures, the rehabilitation / restoration works, as well as the total reconstruction of the missing parts will include the following:

- Repair and restore the walls, arches, ceilings, flooring and foundations of the buildings, surface and underground water drainage, collection and storage systems to protect structural elements from decay, by preventing water infiltration; dismantling and replacement of seriously degraded masonry and timber structural elements; reconstruction of collapsed structures, etc.

- Installation of basic and appropriate infrastructural services, utilities, and facilities foreseeing expansion for future functions and re-use: basic electrical power supply system and lighting, fire alarm, basic water supply and sewage treatment systems and visitors' toilets, etc.

- The capacity of the firm/s to propose a strategy for the execution of the restoration works involving available competencies within the local community to a maximum extent will be an advantage in the technical evaluation.

1. General Notes:
   i. This turnkey / lump sum project is about “SAFEGUARDING OF HASSAN FATHY’S ARCHITECTURAL LEGACY IN NEW GOURNA SITE”. So, the proposed intervention methodology should stand for the preservation of his vision, mission, project objectives, in addition to his authentic Architectural, Urban Design, and Planning products and outcomes.

   ii. The overall approach and methodology of the contractor should be reflected in each step of the project implementation.
iii. The method of statement for all works identified in the BOQ is used as a reference for price evaluation and it is a binding document for the bidder until the contract signature. The method of statement of the contractor will be used to evaluate the deliverables of the contractor.

iv. All reference drawings, BOQs, and technical specifications introduced into the competitive bid are based on previous studies, consultants recommendations and the historical documents, photos, and images provided as annexes to this bid. This is in addition to site observations and analysis reports previously conducted on the structures in New Gourna.

v. The contractor is required to demonstrate qualifying experience in conservation and/or earthen architecture.

2. Project implementation Plan; Step by Step:
   The contractor should commit to the following steps in their project implementation plan as part of their technical offer, and their contractual work plan and cash flow plan for the lump sum turnkey project for each building:

   i. Methodology review including detailed drawings, implementation plan, and project method of statement per each line item. For this step of the implementation plan, it is estimated to be 5% of the work for each building.

   ii. Site mobilization; not limited to but including material storage areas, staff offices and shelters, staff and team formation and structure, site cleaning and reuse plan for the buildings ruins and debris, scaffolding and shoring erection. For this step of the implementation plan, it is estimated to be 5% of the work for each building.

   iii. Space by Space detailed documentation at least in scale 1/20: showing all material, details brick by brick when needed, condition survey for each part and object in the space, identification of historical layers of intervention for each. For this step of the implementation plan, it is estimated to be 5% of the work for each building.

   iv. Space by Space detailed intervention plan at least in scale 1/20: showing all material, details brick by brick if required, detailed intervention plan as per the project approved method of statement per each line item for each part and object in the space. For this step of the implementation plan, it is estimated to be 5% of the work for each building.

   v. Material supplies and preparation for needed interventions including testing and inspection shall be elaborated in the method of statement. For this step of the implementation plan, it is estimated to be 40% of the work for each building.

   vi. Application of planed detailed intervention plan for each part, space and objects of the project as per shall be elaborated in the method of statement. For this step of the implementation plan, it is estimated to be 25% of the work for each building.

   vii. Project integration and preparation for buildings inauguration including but not limited to: scaffolding and shoring dismantling, site clean-up, systems launching if any, etc. For this step of the implementation plan, it is estimated to be 15% of the work for each building.
Technical specifications

1. General:

Noting that it is not a re-measure contract by any means, it is as well the contractor's responsibility in the post-contracting period to maintain the estimated costs proposed in the bid.

To that effect, the technical recommendations and specifications within all given UNESCO reports are important sources of information and guidelines for the contractor's consideration. Innovative solutions of the contractor are also welcomed in relation to the use of same or other natural materials that can be used for the restoration works, as long as it complies with the standards of the 1972 Convention concerning the Protection of the World Cultural and Natural Heritage, and with the authentic Earthen Architecture of Hassan Fathy adopted in these buildings; the buildings' architectural and constructive features.

All the conservation, restoration, and rehabilitation works will require - besides regular construction works – the mastering of traditional construction and restoration techniques to include structural stone masonry, mud bricks and mud based mortars, renders and paintings, considering, as much as possible, the use of authentic local materials originally used in their construction phase and knowledgeable skilled local masons and workmanship.

Maintaining the safety and security of personnel and passers-by; and the safety and cleanliness of the site, the buildings facades, public and private properties, and surrounding sidewalks and streets; and maintaining the safety of all utilities works (electricity, potable water, sanitation, gas, telephone networks, paving, etc.) are all the responsibility of the contractor. Repair of any damage caused by the contractor's work is the sole responsibility of the contractor.

Obtaining work and excavation permits; prior and timely coordination with the City Management, and with all relevant utilities’ departments (electricity, potable water, sanitation, gas if any, telephone networks, paving, etc.) are all the responsibilities of the contractor.

All works should be based on the approved shop drawings identified as the treatment drawings submitted by the contractor, space by space and element by element for approval by UNESCO and endorsement of NOUH. All relevant treatments for restoration works should be as per the approved restoration method of statement.
All materials and accessories should be approved by UNESCO and endorsed by NOUH prior to procurement.

- Removal of the remnants and debris of collapsed elements and structures materials inside each building domain should be done manually and carefully, and stored outside each building in an identified and agreed on place within the site, this should be coordinated with UNESCO, NOUH, and the local administrative authority, in order to be reused in the manufacturing of adobe (mud bricks) and mortar manually.

- Removal of the added elements and structures materials within each building (the added walls and arches to the khan as an example) should be done manually and carefully, and stored outside each building in an identified and agreed on place within the site, this should be coordinated with UNESCO, NOUH, and the local administrative authority.

Shoring with cautions and precautions for all critical parts before starting any type of intervention with appropriate techniques. This is to be used, but not limited to, appropriate number of metal jacks, which ends with wooden pieces or new wooden members. All intervention proposals should be approved by UNESCO and endorsed by NOUH. All details should be determined according to site conditions and as per verified calculations from the contractor’s verification consultant, highlighted in the project method of statement in a separate chapter.

The technical specifications will be the basis of the contract and the method of statement should ensure to address it.

The contractor is responsible for all structures stabilization and shoring, for all external forces mitigation, this includes but not limited to: surface, and subsurface water movement, weathering, lateral forces, forces created from paving process, previous disoriented treatments and uses, forces of the soil due to concrete structures in the surrounding area...etc, removal, including applying all needed modifications in the building context as a comprehensive sustainable solution for the area directly surrounding the building. This includes but is not limited to all paved and sanitary infrastructure works for the area adjacent to all structures of this ITB, within the radius of 2 meters.

Each case of the foundations, walls, arches, domes, vaults, roofs, flooring, plaster, electrical connections, and sanitary works should be considered separately in the insulation, treatment, conservation, restoration, consolidation and maintenance.

2. Specification of Materials should be used

General Notes:
All suggested material needed for the restoration work will have to be fully tested by the contractor, reported, accredited by a certified lab, and authenticated by the contract’s verification consultant in order to be approved by UNESCO and endorsed by NOUH before the restoration work commences.

- No cement based mortars and treatments are allowed in the interventions for all activities in the original buildings and structures of the five buildings built by Hassan Fathy: the mosque, the theatre, the market, the Khan and the house of Hassan Fathy, even if suggested in any of the annexed reports of previous missions and consultants.

2.1 Buildings bricks/adobe

- Construction works shall be carried out for the parts that have been dismantled or for the parts to be removed for their structural integrity and rebuilt once again using the same bricks used in the original construction, by the following steps:
- The old bricks used in the construction (the crushing and crushing debris of the site).
- The mixture is well blended and then kneaded with water to give a cohesive mix.
- Brick is pressed into special presses and left to dry for a suitable period within 3 weeks.
- All tests shall be carried out in accordance with the instructions of the Implementation Consultant prior to the actual commencement of the use.
- In the case of the insufficiency of the demolition product, new bricks shall be made with the same old brick components (clay and straw). The mixing percentages shall be determined by the analysis of the old bricks and the appropriate mixing ratios shall be determined. The possibility of adding materials to improve bricks shall be approved by UNESCO and endorsed by NOUH before use including the use of hand presses suitable stamp to determine the date of manufacture to distinguish between the new and old units.

2.2 Construction mortar

- The construction mortar shall be used from the same mortar used in the manufacture of bricks mentioned in detail in the previous item, but not limited to, it should be also identified case by case as per the original mortar used in each part of the buildings. Each type of mortar has to be fully tested by the contractor, reported, accredited by a certified lab, and authenticated by the contract’s verification consultant in order to be approved by UNESCO and endorsed by NOUH before the restoration work commences.

2.3 Plastering mortar

- Use the same mortar as previous with increasing straw to reduce shrinkage. But it should not be limited to that, it should be also identified case by case as per the original mortar used in each part of the buildings. Each type of mortar has to be fully tested by the contractor, reported, accredited by a certified lab, and authenticated by the contract’s verification consultant in order to be approved by UNESCO and endorsed by NOUH before the restoration work commences.
2.4 Repair mortar

- Use the same mortar as previous taking into consideration the use of palm fibres with Arab Natural glue mixed with water (1:7). But it should not be limited to that, it should be also identified case by case as per the original mortar used in each part of the buildings. Each type of mortar has to be fully tested by the contractor, reported, accredited by a certified lab, and authenticated by the contract’s verification consultant in order to be approved by UNESCO and endorsed by NOUH before the restoration work commences.

2.5 Wood

- Wood of good quality should be used, free from moisture and isolated against moisture and treated against insects by the appropriate materials. Type of wood should be also identified case by case as per the original wood used in each part. Each type of wood has to be fully tested by the contractor, reported, accredited by a certified lab, and authenticated by the contract’s verification consultant in order to be approved by UNESCO and endorsed by NOUH before the restoration work commences.

2.6 Stone

- Low-density stones should be used, which varies between (1.76 t/m3 – 2.16 t/m3) and the strength varies between (120 – 280 kg/cm2). The necessary tests shall be carried out to ensure that it is free from any harmful substances. But it should not be limited to that, it should be also identified case by case as per the original stone used in each part of the buildings. Each type of stone has to be fully tested by the contractor, reported, accredited by a certified lab, and authenticated by the contract’s verification consultant in order to be approved by UNESCO and endorsed by NOUH before the restoration work commences.

2.7 Electricity materials supplies

- El-Sewedy cables or equivalent; Bticino or Schneider switches, sockets, PVC sunk boxes, etc. or equivalent; and Alaa Eddin flexible conduits or equivalent. But it should not be limited to that, it should be also identified case by case as per the function of each part of the buildings. Each type has to be fully tested by the contractor, reported, accredited by a certified lab, and authenticated by the contract’s verification consultant in order to be approved by UNESCO and endorsed by NOUH before the procurement of it.
- Unless otherwise stated, Rates in Bill of Quantities shall include all necessary materials (Cables, conduits, PVC sunk box, bulbs, switches etc.) and labour required to complete the electrical installation to good working order.
- Unless otherwise stated, all costs associated with provision of all holes, openings, chases, ducts and other builders’ work required for installation and make them good, shall be included in the rates.
- Unless otherwise stated, testing and commissioning of the electrical installation is to be carried out by the contractor and Cost of such testing and reports to be included in the rates.

2.8 Plumbing and sanitary supplies

- Grade A Duravit or equivalent equipment and fixtures, Smart drainage UPVC pipes and rooms or equivalent, BR pipes and connections or equivalent But, it should not be limited to that, it should be also identified case by case as per the function of each part of the buildings. Each
type has to be fully tested by the contractor, reported, accredited by a certified lab, and authenticated by the contract’s verification consultant in order to be approved by UNESCO and endorsed by NOUH before the procurement of it.