

## Outline Terms of Reference for Consulting Services:

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### Monitoring Heritage Structures ADB Loan No. 3062-IND: Jaipur Metro Rail Line 1-Phase B Project

#### A. Background and Objectives

1. The objective is to monitor the condition of heritage structures located along Jaipur Metro Rail Line 1 Phase B underground metro alignment (2.349 kilometers) from Chandpole to Badi Chaupar, during construction and early stages of operation.

#### B. Scope of Services

2. The scope includes the following:

- (a) At least one month before the start of construction activities conduct a baseline survey of all heritage structures along the metro alignment and record detailed information including, but not limited to: list of heritage structures with details on location and distance from the metro alignment, exact height of structures above ground, existence of cracks/damages prior to start of construction, detailed photographs, etc.
- (b) Monitor the condition of the heritage structures on a monthly basis throughout the construction period and compare the status with the baseline status to ensure that there are no changes from the baseline condition.
- (c) Provide advice on necessary procedures if any historical/traditional artifacts are found during tunneling works.
- (d) Provide advice on technical measures during construction to prevent any damages to the heritage structures.
- (e) In the event of observation of any damage to any heritage structure(s) immediately alert JMRC and recommend appropriate mitigation or restoration measures.
- (f) Provide technical advice on and supervise the mitigation or restoration activity.
- (g) Prepare a monitoring report on a monthly basis to record activities implemented and monitoring findings and submit to JMRC safeguards cell as well the Environmental Specialist. Findings of the report will be included in the quarterly environmental monitoring report that will be prepared by the environmental specialist.

3. The scope also includes the following:

- (a) Overseeing the excavation and restoration of Choti Chaupar and Badi Chaupar from heritage perspective;
- (b) Assessing the impact of the proposed designs and undertaking a Visual Impact Assessment from heritage perspective;
- (c) Identifying alternate options to mitigate the visual impact on the heritage precinct/historic built environment;
- (d) Assessing visual impact of proposed stations and related services; and suggesting incorporation of heritage elements even in underground structures wherever found relevant;
- (e) Assessing the Heritage impact of the designs proposed;

- (f) Developing design options based on Client's designs to create a more appropriate design from the Heritage point of view;
- (g) Preparing drawings for submission to JMRC;
- (h) Presenting the design scheme before JMRC; and
- (i) Making changes to the designs based on the recommendations of JMRC.

### **C. Implementation Arrangements**

4. The monitoring of heritage structures will be carried out over a period of about 36 calendar months from the commencement of services. It is anticipated that the following national staff will be required:

One Heritage Expert:

(18 person-months or approximately 10 working days per month, including report preparation in home office).

Minimum Qualification Requirement:

Bachelor's degree in architecture and / or engineering of heritage sites or significant buildings/infrastructure with 8 years of working experience in preparation, implementation, supervision of engineering and / or architectural design of heritage sites, buildings, other public infrastructure and similar structures. Metro experience will be given preference.

### **D. Outcome and Reports**

5. The targeted outcome is no damages incurred on heritage structures and, in the event of damage, oversee implementation of immediate restoration and mitigation measures. The following deliverables are required:

- (i) Baseline Survey (as soon as possible for the initial construction area and 2 months from the commencement date for the entire tunnel alignment)
- (ii) Heritage monitoring report (monthly)
- (iii) Visual Impact Assessment reports
- (iv) Technical advice on mitigation measures (as needed)
- (v) Advice on restoration measures in case of any damage to any heritage structure (as needed)
- (vi) Advice on excavation and restoration of Chaupars.