

**Terms of Reference for
Detailed Engineering and Construction Management Consultant for the development of
Kailasagiri Hill Park at Vishakhapatnam**

1. BACKGROUND OF PROJECT

With a strong industrial base and the growing IT sector, Visakhapatnam city is the engine for growth in the state. It is also a major port and a defense hub. The provision of ample public spaces, within the city area, along the beachfronts and on hilltops is characteristic of the city of Visakhapatnam. These spaces appear to be well utilized, and have become key destinations for locals and tourists. **Kailasagiri** is a hilltop park in the city. The park was developed by Visakhapatnam Urban Development Authority (VUDA) comprising 380 acres (150 ha) of land covered with flora and tropical trees. The hill, at 360 feet (110 m), overlooks beaches, forests, and the city of Visakhapatnam. Some of the important attractions in Kailasagiri are Shiva Parvathi statue, Floral clock, jungle trails, Shanti Ashram, art gallery, children play park, conference hall, Titanic view point, toy train, gliding base point, telescopic point and Shanku Chakra Naama. On average, around three lakh Indian and foreign tourists visit this spot every year. The Government of Andhra Pradesh awarded Kailasagiri as "Best Tourist Spot" in 2003.

The city of Visakhapatnam was hit by Hud-Hud cyclone on Dt. 12th and 13th October 2014. The city suffered massive devastation. Winds during severe cyclonic storm damaged public and private properties and importantly majority of the green cover in the city was almost disappeared. Kailasagiri also bore the brunt of Hud-Hud's devastating blow. All greenery atop the picturesque hill has been wiped out and the ropeway from the foot to the top of the hill also got damaged. The 'joy train', also got derailed. Given the devastation of the Kailasagiri hilltop park, it needs to be redeveloped for reducing further damages resulting from impacts of hazards, and also for recreational benefits of citizens and visitors as well as preserve and possibly enhance the existing infrastructure. Through this consultancy work, it is therefore proposed to carry out extensive study for preparing the master plan, detailed designs; supervision and quality control of Kailasagiri Hill Park.

2. Project Funding:

The Government of India has received a Loan from the World Bank towards the cost of Andhra Pradesh Disaster Recovery Project (APDRP) in Andhra Pradesh, India and intends to apply a part of the proceeds for consulting services. VUDA, a Project Implementation Unit (PIU) for the project desires to invite reputed and well qualified consultants to submit a Technical Proposal and a Financial Proposal for Project Management Consultancy Services "for Detailed Engineering and Construction Management" of Kailasagiri Hill Park at Visakhapatnam including preparation of bidding documents of works contracts as per World Bank guidelines and support in procurement process. The Loan has been approved by the World Bank vide no. 5694-IN.

3. Objectives of the Consultancy Services

The main objectives of the consultancy service is to prepare master plan, detailed architectural and engineering design and then to support VUDA in construction management of identified/selected works included in "Kailasagiri Hill Park re-development" at Vishakhapatnam, including necessary additional measures, if any.

4. Scope of Works Contract :

The major scope of the consultancy work is to develop a master plan of the Kailasagiri Hill Park in Visakhapatnam, detailed engineering design of each identified component, and construction management of the redevelopment work in the park area. Apart from the overall master plan, the works should include restoration of, but not limited to:

- Lighting and water supply arrangements
- Play equipment
- Ghat road and retaining wall/s
- Drip irrigation system
- BT roads,
- Laser show
- Landscaping
- Parking and restrooms, picnic facilities, recreational playgrounds etc

The entire consultancy assignment is divided into two (2) tasks. The scope included both the tasks are not limited to the following:

Task-1-Design Work

The task shall be for the preparation of master plan, feasibility report, and detailed design report and bid documents. The detailed scope under this task is:

1. Carry out the reconnaissance survey and prepare inventory (Baseline Data) of all assets and their details, including the damaged works in the park area (with base map if necessary). Compile the data and identify the works to be carried out.
2. Preparing the master plan for the redevelopment of the park defining the vision, different activity spaces; themes and functional aspects
3. Conduct the feasibility and prepare the report for park re-development works.
4. Carry out the detailed survey and investigation as necessary for the identified/agreed works.
5. Carry out the planning, initial design, detailed design, cost estimate, rate analysis, bill of quantity and technical specification for the identified works.
6. Prepare good for construction drawings for the all the works.
7. Prepare bid document following the World Bank guidelines.
8. Assist client in finalization of procurement methodology including packaging etc.
9. Investigation for using the locally available materials and identification of suitable quarries for these materials and make suitable provisions in the estimates.
10. Prepares the general ground modeling plan and planting layout.
11. Prepares drawings and specifications of utilities (such as irrigation, drainage, lighting, etc.)
12. Prepares schedule of shrubs, trees, and other plants.
13. Prepares details of landscaping elements.
14. The detailed engineering for the project work, shall be as per relevant rules and standards
15. All the design and estimate shall be based on latest applicable Indian Standard Codes and applicable schedule of rate.

All structural detailed designs shall be vetted by the IIT Madras. Consultants shall make his own arrangement for these activities by the IIT, Madras. No separate

payment shall be made to the consultants for these activities by IIT, Madras, and it would be deemed that the required costs are already included in the costs for detailed designing.

Task-2: Construction Management:

Consultant shall carry out the construction management of all the identified and tendered works covered in his scope in Task-1. Scope of work under this task shall be, but not limited to the following:

1. Assist client in procurement of various works, equipment, materials and services under NCB, ICB or shopping procedure as necessary including preparation of tender document, notification, tendering, tender evaluation and contract award.
2. Assist client as necessary in the evaluation of bids and preparation of evaluation report, recommendation for award and contract agreement.
3. Assist the client in supervision and quality control of works and issue necessary certificate for acceptance of the work by the client
4. Assist the client in resolution of contractual issues including review, evaluation and confirmation of contract variation orders.
5. As necessary assist the client in overall contract management and review and acceptance of the "As Built" drawings prepared by the contractors of various works.
6. Ensure implementation of the Environment Monitoring and Management Plans.
7. Consultant shall manage communication processes to ensure timely and appropriate collection, distribution, storage, retrieval and ultimate disposition of project information. They shall make use of multiple communication modes such as post, e-mail, fax, telephone and web or any other method agreed and accepted by the client.
8. Risk management is a vital area of focus for the Consultant as a part of overall construction management. Risks affecting the project have to be identified and listed along with the analysis. Consultant shall ensure and monitor the risk management plan during the execution.
9. Under take any other work as assigned by the client.

5. Deliverables and Time Schedule

- a. The total consultancy contract period is for 28 months. Consultants shall complete entire design services in initial four (4) months. Twenty four (24) months is the estimated time for procurement of some works and for construction management.
- b. The site supervision and project management team shall be mobilized keeping in view the requirement of services for procurement of works and the date for the actual commencement of works by the contractors, or as decided by the Employer.
- c. Any DPRs prepared, incomplete/inadequate or part submission shall be deemed as invalid submission. The adequacy of any submission shall be determined at the sole discretion of the client. Client will generally accord approval within 15 days of submission of reports.
- d. During the entire period of contract, the consultant shall prepare and submit

the reports/deliverables as detailed in Annexure-1

6. Staffing

- a. The Consultant will engage the minimum key experts of required qualification and experience as detailed in Annexure-2. The Consultants shall make its own assessment for the requirement of any additional key or non-key expert, which it feels is required for the successful and satisfactory completion of the services. Consultant shall submit their financial proposal accordingly. No extra claim shall be made by the client on any such account in respect of Tasks 1 as these would be Lump Sum contracts. However, this would not be applicable on Task 2 as the activities under this will be governed by the pace of construction by the contractors. This Task would therefore be paid on man-month and reimbursable costs basis, on actuals.
- b. The supervision work is subject to award of works to the bidders. It will start when advised/intimated to the consultants to proceed, and will continue till the completion of the construction activities by contractors, and processing and approval of claims and as-built drawings by the contractor. Any mobilization of staff during the construction phase shall only be following the agreement and approval by the VUDA.

7. Payment Schedule

A lump-sum payment will be made to the consultant for the Task 1, whereas the payment for Task 2, shall be made monthly on the basis of staff deployment. Schedule of payment shall be as below:

Payment Schedule for Task 1		
Mobilization advance	:	10% of the quoted fees for Task 1
On submission of Draft Master Plan with three options of overall plan	:	10% of the quoted fees for Task 1
On submission of Final Master Plan	:	10% of the quoted fees for Task 1
On submission of Concept Plan/Report for the selected option of development	:	15% of the quoted fees for Task 1
On submission of Detailed Project Report of Identified Works	:	30% of the quoted fees for Task 1
On submission of bid documents	:	15% of the quoted fees for Task 1
On approval of reports and start of bidding process of works under Task 1	:	10% of the quoted fees for Task 1
<i>Note: Mobilization paid for Task 1 will be adjusted in 3 (three) equal installments.</i>		
Payment Schedule for Task 2		
Mobilization advance	:	10% of the quoted fees for Task 2
Payment for the period of construction management	:	Shall be paid monthly on the basis of staff deployment
<i>Note: Mobilization advance paid to the consultant for construction management period will be adjusted in first 6 (six) invoices in equal installment.</i>		

Annexure 1: Reporting and deliverables

S.No.	Deliverables	Time Schedule	Contents and details to be provided
Deliverables in design phase –Task-1			
1	Draft Master Plan	D ¹ + 6 weeks	Inventory (Baseline Data) of the existing infrastructure and damaged works on beachfront. Identification of gaps and components to be included in the project. Mapping of all the identified components on city base map. Compiling the information/data. Three to four options/concept designs of master plan for discussion and finalization. Categorization of sub- projects as per World Bank guidelines,
4	Final Master Plan	D + 8 weeks	Master plan (for selected option) on a digital map including line details of components with area, line estimate and specifications Initial designs of the components and layouts with line estimate for discussion and finalization and design criteria and packaging of works
5	Draft Detailed Report for selected works	D+12 weeks	Draft Detailed Project Report for all the works shall include: Design criteria and assumption/basis of designs. Selection of materials Detailed design of each components cost estimate rate analysis and good for construction drawings.
6	Final Detailed Report for selected works	D+14 weeks	Final DPRs should include: Final and accepted design criteria. Final and approved detailed engineering design (all type and nature) for each components included in the project. Final and approved detailed bill of quantity. Final and approved detailed cost estimation. Final and detailed rate analysis Information of available materials proposed to be used. Final and approved detailed engineering drawings (all type and nature) Construction schedule Methodology of bidding process
7	Bid Documents	D+16 weeks	Bid documents for all the identified works following the World Bank guideline.
8	Quality and Construction Manual	D+16 weeks	Quality control manual will be used by all the concerned. Main emphasis will be given on: Various formats – for tests, issuing of drawings, handing over the sites, request for inspection; Formats routing and approval of the concerned; Testing procedures;

¹ D is the date of commencement of the consultancy services

S.No.	Deliverables	Time Schedule	Contents and details to be provided
			Acceptable tolerance limit against each test and finished work; Safety norms to be followed by the contractors and their personnel; Environmental safeguard during construction activities;
Deliverables in construction phase-Task-2			
9	Monthly Report	Monthly for execution period	Broadly it shall include, Physical and financial progress of each package, Problems encountered and action taken for each package, Environmental and safeguard monitoring report.
10	Quarterly Progress Repot	Quarterly for execution period	Broadly it shall include; Physical and financial progress of each package, Problems encountered and action taken for each package, Annual plan of work and forecast of funds requirement for each package
11	Contract/Project Completion Report	After completion of work	Project completion report shall be prepared for the entire project. This shall mainly include; Background of the project and introduction. Details of component under taken in the project. Details of administrative and technical approval procedure followed. Details of change in the original works and changes/additional works under taken. Details of problems encountered and solutions and reason for change in implementation schedule (if any) Listing of improvement due to project
12	Any other relevant report as desired by the client	As and when required	This shall be as per the required by the clients. This may include bid evaluation report, compilation and submission and site photographs. Videography of the work. Preparation of presentation slides for presenting it at various levels. Preparation and compilation of reimbursement claims for submitting to World Bank
All the deliverables shall be submitted, 2 copy in hard, one copy in soft in editable one copy in PDF.			

Annexure-2 Estimated staff requirement with preferred qualification requirements for the consultancy assignment

S.No.	Position	Preferred minimum qualification and experience		General Role and Responsibility
		Qualification	Experience	
Team Required for Task 1 (Design Phase)				
1	Team leader	Post-Graduation preferably in Architecture or related field	Shall have the experience in landscaping/Park Development. Shall have minimum 20 year experience in design and project management.	Team Leader shall be responsible for overall project management and coordination of design works. He shall ensure that all the works are designed as per the prescribed standards, applicable codes and schedules. He shall liaise between the various stakeholders of the project. He shall also be responsible for mobilization/demobilization and scheduling of the of the consultants team, survey and investigations to be carried out under the project in accordance with the requirement and agreed schedule. Overall responsible of the output delivery as required in Terms of Reference. Guide and review the design prepared by his/her team members.
2	Senior Design Engineer	Post Graduate preferably in urban planning/Architecture or related field	Shall have minimum 10 years' experience in design of relevant works preferably in landscaping/park development work	Shall prepare detailed design, estimate, specification, bid document, and good for construction drawings.
3	Design Engineer	Graduate Engineer	Shall have minimum 7 year experience in design of relevant works	Shall prepare detailed design, estimate, specification, bid document, and good for construction drawings.

S.No.	Position	Preferred minimum qualification and experience		General Role and Responsibility
		Qualification	Experience	
4	Quantity Surveyor	Graduate/Diploma in Civil Engineer	Graduate with minimum 5 years relevant experience Diploma with 10 years relevant experience	Shall support the design engineers in estimation and preparation of bill of quantity.
5	Procurement Expert	Graduate Engineer in any discipline	Minimum 10 years of experience in procurement related works	Shall be responsible for preparation of bid document as per the World Bank guideline.
6	Landscape Architect	Post graduate in Architecture with specialization in landscaping and or related work	Minimum 10 years of experience in related works preferably in parks/landscaping	Shall prepare detailed design, estimate, specification, bid document for landscaping works.
7	Technical Construction Specialist	Post Graduate in Civil Engineering/Management and/or related work	Minimum 10 years of experience in management/planning of civil works preferably in parks/landscaping	Shall prepare Construction Management Manual (Quality Assurance Manual) including various aspects of project management and supervision Shall develop norms for checking and certification of contractors' invoices, formats for review and approval of variation of quantities and contract provisions, and formats for progress reports, completion report and certificates, etc.
8	Environmental Expert	Post Graduate in related discipline	Minimum 10 year experience in relevant field and work	Shall be responsible for conducting EIA for planning and designing

S.No.	Position	Preferred minimum qualification and experience		General Role and Responsibility
		Qualification	Experience	
9	Social Expert	Post Graduate in related discipline	Minimum 10 year experience in relevant field and work	Shall be responsible for conducting SIA for planning and designing

Team Required for Task 2 (Construction Phase)					
S.No.	Position	Man-month	Preferred minimum qualification and experience		Responsibility
			Qualification	Experience	
1	Resident Engineer	24	Civil Engineer with post graduation in relevant field	Minimum 15 year experience in construction management with at least 5 years relevant work	Resident Engineer shall be responsible for overall project management and coordination of construction works. He shall ensure that all the works are executed as per the bid requirements and specifications. He shall liaise between the various stakeholders of the project. He shall also be responsible for mobilization/demobilization and scheduling of the of the consultants' team. Review the provisions in the contract and coordinate with the site conditions and make any changes as per the site requirements. He will be responsible for certification of quality of works, submission of monthly, quarterly and completion reports and other reports as per the requirement of Term of Reference. He shall also assist the client in all the procurement procedures.
2	Deputy	24	Civil Engineer	Minimum 10 year	Assist RE in project management and coordination

Team Required for Task 2 (Construction Phase)					
S.No.	Position	Man-month	Preferred minimum qualification and experience		Responsibility
	Resident Engineer			experience in construction management with at least 3 years relevant work	Ensure collection of required information from the field and prepare management reports
3	Design Engineer (intermittent)	8	Civil Engineer	Shall have minimum 7 year experience in design of relevant works	Shall prepare detailed design, estimate, specification, bid document, and good for construction drawings.
4	Procurement Expert (intermittent)	6	Graduate Engineer in any discipline	Minimum 10 years of experience in procurement related works	Shall be responsible for preparation of bid documents and assist client in tendering process and bid evaluation etc.
5	Quality Assurance Engineer	24	Civil Engineer with post graduation in relevant field	Shall have minimum 7 year experience in QA of relevant works	Shall be responsible for assuring quality construction through regular monitoring, quality tests, their documentation and support
6	QA/QC Technician	24	Diploma/graduate Civil Engineer	Shall have minimum 5 years' experience in field and laboratory testing of materials and works	Shall be responsible for ensuring that all required tests are conducted in the field and the tests are recorded in the system for timely decision making
7	Asst Engineer-1	24	Graduate/Diploma in Civil Engineering	Minimum 10 years of experience in supervision of related works	Shall supervise all the construction work including checking of layout, performing and monitoring quality test. Coordination of construction work etc.
8	Asst Engineer-2	24	Graduate/Diploma in Civil Engineering	Minimum 10 years of experience in	Shall supervise all the construction work including checking of layout, performing and monitoring quality

Team Required for Task 2 (Construction Phase)					
S.No.	Position	Man-month	Preferred minimum qualification and experience		Responsibility
				supervision of related works	test. Coordination of construction work etc.
9	Asst Engineer-3	24	Graduate/Diploma in Civil Engineering	Minimum 10 years of experience in supervision of related works	Shall supervise all the construction work including checking of layout, performing and monitoring quality test. Coordination of construction work etc.
10	Draftsman (intermittent)	8	Relevant I.T.I./Diploma	Minimum 5 year experience in drafting work	Shall support the project team in drafting and preparation of drawings as and when required
11	Horticulture Expert	24	Graduate in Agriculture sciences / Engineering	Minimum 10 years of experience in supervision of related works	Shall supervise all the landscaping work including checking of layout, performing and monitoring quality Coordination with construction works etc.
12	Social Expert (intermittent)	8	Post Graduate in related discipline	Minimum 10 year experience in relevant field and work	Shall be responsible for monitoring of social safe guard during the construction
13	Environmental Expert (intermittent)	8	Post Graduate in related discipline	Minimum 10 year experience in relevant field and work	Shall be responsible for monitoring of environmental safe guard during the construction period.