



## **REQUEST FOR PROPOSAL TO PROVIDE RENTAL ACCOMMODATION AND LOGISTICAL SUPPORT FOR THE ESTABLISHMENT OF A FACILITY TO MANUFACTURE RUBBER CRUMB FROM WASTE/END OF LIFE TYRES**

### **1.0 INTRODUCTION**

#### **1.1 CARIRI Overview**

The Caribbean Industrial Research Institute (CARIRI) is the Government of the Republic of Trinidad and Tobago's principal agency with responsibility for developing the country's technological base via the provision of technical and technology-based support services to the public and private sectors, encompassing manufacturing, energy and services.

Since its establishment in 1970, CARIRI has contributed significantly to the development of the local and regional business and industrial bases through the provision of its suite of services which includes Analytical and Engineering Services, the mainstay of which are Analytical Testing Services (state-of-the-art, internationally accredited facilities); Consulting, inclusive of training and business development support; and Research, Development and Innovation (RDI).

Cognizant of the imperative of reducing dependence on energy sector earnings and the strategic importance of RDI and Entrepreneurship Development as key pillars of sustainable development, CARIRI has been increasing its focus over the past decade on building capacity for Innovation and Entrepreneurship, as well as the undertaking of investigative/developmental work aimed at substantively supporting the creation of a diversified economic base. A signal achievement in this regard has been the establishment of the Institute's Centre for Enterprise Development (CED), located at Freeport in central Trinidad, which is its flagship development for facilitating Innovation capacity building and fostering new business creation and expansion through the provision of appropriate infrastructure.

CARIRI has an extensive client base, both locally and in the Caribbean region, comprising Micro, Small and Medium-sized Enterprises, Large Private Sector Enterprises, State/Public Sector Agencies/Enterprises, and Regional and International Organizations.

## 1.2 Definitions

- a) "Agreement or Contract" (hereinafter Contract) means the legally binding written document, signed between CARIRI and the Paving Contractor Firm.
- b) "Paving Contractor Firm (PCF)" means a legally established professional entity that provides services under the Contract.
- c) "Services" mean the tasks to be performed by the PCF pursuant to the Contract.
- d) "Day" means a calendar day, unless otherwise specified.
- e) "CARIRI" is the contracting entity for the services.
- f) "Experts" include all personnel of the PCF with requisite qualifications and experience, who will perform services under the Contract.
- g) "Key Expert(s)" means an individual whose skills, qualifications, knowledge, and experience are critical to the performance of the services under the Contract and whose CV will be considered in the technical evaluation of the PCF's proposal.
- h) "Project Chief (PC)" means the CARIRI nominated person with overall responsibility for project execution.
- i) "Proposal" means the a single Proposal encompassing both Technical and the Financial inputs.
- j) "RFP" means the Request for Proposals.
- k) "Terms of Reference (TOR)" means a document, or part of a document, that defines the objectives, scope of work, activities, and tasks to be performed, respective responsibilities of the parties, and expected results and deliverables of the assignment.

### 1.3 Project Background

As an integral part of its efforts to foster RDI activity and hence enhance its contribution to the diversification thrust, CARIRI has been actively exploring opportunities for the development and implementation of projects with potential to generate significant developmental outcomes. One such project that was identified and has been the subject of developmental work over the past three years involves the establishment of a facility for the manufacture of rubber crumb from waste/end of life tyres and associated downstream products.

The project was initiated with the undertaking, over the period October, 2018 to May, 2019, of a pre-feasibility study for the establishment of both a rubber crumb production facility and a facility that produces rubber asphalt. The Study was carried out by Consultants from the Council for Scientific and Industrial Research (CSIR) of South Africa under a contractual arrangement between both institutions. CSIR is a member of the World Association of Industrial and Technological Research Organizations (WAITRO) of which CARIRI is a founding member. This activity constituted Phase 1 of the project initiative.

Based on the findings of Phase 1, Phase 2 is currently being implemented under the Government's Public Sector Investment Programme (PSIP). It involves the procurement and establishment of a small scale rubber crumb facility for production and demonstration purposes; the conduct of investigative/developmental work utilizing imported rubber crumb in the interim; and the conduct of market research.

Rubber crumb, also referred to as ground rubber or rubber granules, is defined as "rubber that has been reduced to a particle size of 3/8 inch or less". The process of making crumb rubber involves shredding the tyres and removing the steel and polyester fragments; with the remaining rubber chips being further reduced to crumb-like particles. These particles are then used in a number of applications, one of the most common being paving products.

When crumb rubber is used in asphalt paving, it is termed crumb rubber modifier (CRM). CRM has been used in asphalt mixtures and in a number of asphalt paving products for numerous years.

Rubberized asphalt, also termed Rubber Asphalt or Asphalt Rubber, is defined as an asphalt cement binder that has been modified with CRM and can be used in various asphalt paving products.

Generally, the addition of crumb rubber to asphalt has been shown to improve the durability of the asphalt, resulting in increased resistance to cracking, reduced temperature susceptibility, improved oxidation and aging resistance, as well as improved resistance to permanent deformation.

In addition to rubber asphalt, there are a number of uses for rubber crumb. Downstream value-added applications span bricks and tiles, concrete modification, artificial turf, athletics tracks, road speed reducers, rubber flooring, playgrounds, adhesive and sealing compounds, textured and non-slip paints, and artificial reefs in marine environments.

## **2.0 PURPOSE OF THE RFP**

CARIRI is in the process of procuring a Rubber Crumb Manufacturing Facility and is issuing this Request for Proposals (RFP) to solicit proposals from suitably qualified paving contractor firms to provide the following: (i) accommodation for the facility and (ii) associated logistical support for its operationalization.

Detailed Terms of Reference for the aforementioned may be found at **Annex 1**.

## **3.0 ELIGIBILITY FOR SUBMISSION OF PROPOSALS**

- 3.1 The services requested may only be provided by Paving Contractor Firms registered and domiciled in Trinidad and Tobago.
- 3.2 To ensure compliance with the aforementioned requirements, firms shall provide proof of registration and domicile.

## **4.0 INSTRUCTIONS TO PAVING CONTRACTOR FIRMS**

### **4.1 General Information**

#### **4.1.1 *Proposal Submission Requirements***

The PCF must provide the following:

- One (1) single Proposal incorporating a Technical Section (Section 1) and a Price Section (Section 2).

The Technical Section should outline how the firm will achieve the objectives of the assignment and perform the activities outlined in the Terms of Reference.

The Price Section should provide a breakdown of costs/fees which would be incurred.

The original Proposal and three (3) copies should be placed in a sealed envelope clearly marked **"ORIGINAL AND COPIES OF PROPOSAL"**.

The envelope should bear the submission address and title of the assignment. **Proposals must be submitted in hard copy, with an accompanying Submission Letter (Annex 2) no later than 4:00 p.m., October 20<sup>th</sup>, 2021** and should be addressed to:

Mr. Reyad Ali  
Procurement Officer  
Caribbean Industrial Research Institute (CARIRI)  
UWI Campus  
ST AUGUSTINE  
Email: rali@cariri.com

**Proposals must be dropped in Tender Box 1 located in CARIRI's Reception Area , UWI Campus, St. Augustine.**

***All Proposals received after the deadline will be rejected.***

***Tender Validity Period:*** Proposals must remain valid up to 90 days after the submission date, i.e. until: January 22nd, 2022.

***Queries:*** PCFs may request clarification of the RFP no later than 5 working days before the submission date, i.e. **4:00 pm on October 14<sup>th</sup>, 2021**. Any request for clarification must be emailed to Mr. Reyad Ali at the email address shown above.

***Expected Commencement Date:*** The expected date for commencement of the assignment is **mid/end November, 2021**.

## **4.2 Preparation of Proposals**

### **4.2.1 Technical Section**

The Technical Section shall be concise and organized according to the outline below:

#### **a. Organizational and Experience**

- i) Provide the primary contact, phone numbers, email and office address that will support this project.
- ii) Provide a brief description of your organization and an outline of relevant experience.
- iii) Provide an affidavit stating that your organization can obtain insurance coverage to be utilized for the assignment and provide evidence of such coverage prior to commencement of service delivery and at any other time as may be requested.
- iv) Describe your ability to complete the expected assignment, providing examples of relevant projects that highlight your experience in the area of plant assembly/establishment of new production capability.
- v) Provide contact information for no more than two relevant projects for clients within the last five (5) years, viz. company contact person, telephone number(s) and email. Provision of this information constitutes permission to CARIRI to contact them.

**b. Proposed Methodology**

- i) Clearly describe your understanding of the objectives of the assignment, as outlined in the Terms of Reference, and the approach that will be employed to carry out the activities and obtain the expected output.
- ii) Describe your approach to the overall project management of a resulting Contract.
- iii) Describe and justify any modifications or improvements to the terms of reference you are proposing to improve performance in carrying out the assignment. Suggestions should be concise.

**c. CVs**

- i) Identify the Project Manager or Team Leader for this effort and provide the composition of the proposed team, including the signed CVs of key experts. The PCF should have key experts with relevant expertise and experience in areas pertinent to the subject matter of this RFP. The CVs submitted must be of those experts who will be assigned to this project if the PCF is selected. Any substitution in the team of key experts proposed must be approved in advance by CARIRI.

**4.2.2 Price Section**

- i) The Price Section should list all costs associated with the undertaking of the assignment, inclusive of all expenses. The cost of any item(s) not requested in the TOR but that the PCF believes would add value to the products of this assignment, should be shown separately. Costs should be expressed in Trinidad and Tobago dollars.
- ii) The Price Proposal shall include all costs, so neither arithmetical corrections nor price adjustments shall be made by CARIRI.
- iii) All costs incurred in the preparation of the Proposal shall be borne by the PCFs.

## **5.0 EVALUATION AND AWARD**

- 5.0 A firm will be selected in accordance with CARIRI's Procurement Policy Guidelines. The Institute will be seeking the most competitive offer in terms of quality and cost.
- 5.1 Proposals shall be evaluated by an Evaluation Committee on the basis of PCFs' responses. The PCF shall provide its best offer, both technically and financially.
- 5.2 CARIRI shall open and evaluate the Proposals as soon as possible following receipt.
- 5.3 Incomplete or inadequate responses, lack of response to an item or items, or misrepresentation in responding to this RFP may result in the rejection of a PCF's proposal.
- 5.4 Any effort by a PCF to influence CARIRI in the process of examination, clarification, evaluation, and comparison of proposals, or in decisions regarding the award of a Contract, may result in the rejection of the PCF's proposal.
- 5.5 After receipt of proposals, information relating to the evaluation process shall not be disclosed to PCFs, or to any persons not directly associated with the evaluation process.
- 5.6 CARIRI reserves the right to cancel the process any time before the adjudication of the contract or to reject any and/or all proposals for any reason or for no reason without recourse and to request substitution and/or clarification of any information provided. CARIRI does not bind itself in any way to select the PCF submitting the lowest priced proposal.
- 5.7 The PC will notify the highest ranked PCF and invite it to a Pre Award Meeting. The PCF representative must have legal authority to negotiate and sign a Contract on behalf of the PCF. The Meeting would address matters pertinent to the business terms (length of time, start and finish dates, team composition, clarification of deliverables, payment schedule, etc.) of the envisioned Contract. The discussions must not result in changes to the terms that would alter the outcome of the selection process or significantly alter the scope of the



assignment. The PC shall prepare minutes of the Meeting that are signed by the PC and the PCF's authorized representative.

## **6.0 CONFIDENTIALITY**

- 6.1 The PCF and its employees or agents are aware that in discharging their obligations pursuant to this Contract, they may have access to privileged, confidential and/or proprietary information of CARIRI or another but in possession of CARIRI including without limitation CARIRI's financial, statistical, marketing, business and personnel information, projections, plans, forecasts, reports, service capabilities or any other data or information collected and gathered in the provision of the services and relating to CARIRI's business and any information whether written or oral identified as confidential by CARIRI ("Confidential Information"). Under no circumstances, except with CARIRI's express written permission, shall the PCF and its employees or its agents copy, reproduce, sell, assign, license, market, transfer, give, or otherwise disclose to any person or organization, in any manner or form, now or after the expiration of the Contract, such Confidential Information or any part thereof.
- 6.2 Upon request by CARIRI or upon completion of the services, the PCF will immediately return to CARIRI at its expense all Confidential Information of CARIRI and any other CARIRI documents or data and all copies thereof.

## **ANNEX 1**

### **TERMS OF REFERENCE FOR ENGAGEMENT OF A PAVING CONTRACTOR FIRM TO PROVIDE RENTAL ACCOMMODATION AND LOGISTICAL SUPPORT FOR THE ESTABLISHMENT OF A FACILITY TO MANUFACTURE RUBBER CRUMB FROM WASTE/END OF LIFE TYRES**

#### **1. BACKGROUND**

In recognition of the pressing need to enhance its contribution to both the economic diversification thrust and the mitigation of the impact of environmental degradation, the Caribbean Industrial Research Institute (CARIRI) has been investigating, both solely and in collaboration with strategic partners, a number of project initiatives with potential for significant national impact.

One such project that was identified and has been the subject of developmental work over the past three years involves the establishment of a facility for the manufacture of rubber crumb from waste/end of life tyres and associated downstream products.

The project was initiated with the undertaking, over the period October, 2018 to May, 2019, of a pre-feasibility study for the establishment of both a rubber crumb production facility and a facility that produces rubber asphalt. The Study was carried out by Consultants from the Council for Scientific and Industrial Research (CSIR) of South Africa under a contractual arrangement between both institutions. CSIR is a member of the World Association of Industrial and Technological Research Organizations (WAITRO) of which CARIRI is a founding member. This activity constituted Phase 1 of the project initiative.

Based on the findings of Phase 1, Phase 2 is currently being implemented under the Government's Public Sector Investment Programme (PSIP). It involves the procurement and establishment of a small scale rubber crumb facility for production and demonstration purposes; the conduct of investigative/developmental work utilizing imported rubber crumb in the interim; and the conduct of market research.

From an economic perspective, tyre recycling represents a potentially viable business opportunity given the range of products which could be manufactured from waste rubber; one such being a

mix of rubber crumb and asphalt to produce rubberized asphalt, which is a tested road paving material. The roads paved with this material are more durable and less noisy when driving.

From an environmental perspective, the importance of the project stems from the serious environmental and health hazards posed by the indiscriminate dumping of discarded tyres. In this regard, it is noteworthy that there are over one million vehicles on the roads of Trinidad and Tobago with an estimated 3,000,000 tyres being imported into the country annually.

CARIRI considers that the time is opportune to exploit this potentially viable investment opportunity given a number of favourable factors, as follows:

- Existence of a good raw material supply base, i.e. asphalt and waste/end of life tyres
- The recognition by Government of the seriousness of the issue of improper disposal of tyres and its demonstrated resolve to address the problem.
- The imperative of addressing economic diversification, which is afforded through the pursuit of recycling opportunities.

Accordingly, CARIRI is seeking to enlist the services of a paving contractor firm to progress the project development work initiated through provision of targeted assistance in the establishment of a rubber crumb manufacturing facility.

## **2. OBJECTIVES OF THE ASSIGNMENT**

The **general objective** of this assignment is to assist CARIRI, via provision of the requisite resource inputs, in mitigating adverse environmental impacts from indiscriminate disposal of waste/end of life tyres whilst simultaneously enhancing its contribution to the economic diversification thrust through the pursuit of recycling opportunities.

**Specific objectives** are to provide rental accommodation and logistical support to facilitate the establishment and commissioning of the rubber crumb manufacturing facility.

### **3. SCOPE OF SERVICES**

The paving contractor firm will effect the following specific responsibilities:

- Review documentation pertinent to the plant on order (appended), viz. equipment components; dimension/layout; space requirements, inclusive of storage of raw materials (tyres), outputs (rubber crumb, steel wire and fibre) and utilities requirements.
- Locate a site that adequately meets the accommodation needs of the plant, taking into consideration the aforementioned requirements, and negotiate a competitive annual rental cost for an initial three (3) year period, with an option to renew.
- Arrange for transportation of the plant from the Port of entry to the selected site.
- Assist CARIRI in-plant assembly and operationalization via the provision of technical inputs/advisory support.
- Provide Progress Reports on a scheduled basis to CARIRI's Executive Manager, Corporate Services.

### **4. DURATION OF THE ASSIGNMENT**

The assignment is to be undertaken over a period of three (3) months.

### **5. DELIVERABLES**

The deliverables of the assignment are as follows:

#### **i) Workplan**

- a. A Workplan would be developed in collaboration with CARIRI and would highlight the approach to be taken to achieve the identified results. This should be completed no later than one week after signature of the Contract.

#### **ii) Plant Accommodation**

- a. Suitable accommodation secured for the rubber crumb manufacturing facility, with a competitively priced lease arrangement for an initial period of three (3) years.

#### **iii) Plant Delivery**

- a. Plant safely delivered to the selected site.

**iv) Plant Assembly and Operationalization**

- a. Facilitation of plant assembly and operationalization via the provision of technical inputs/advisory support.

**v) Monthly Progress Reports**

- a. The Reports should be submitted no later than one week after the end of the month.

**6. SUPERVISION AND REPORTING**

The paving contractor firm will work in close collaboration with CARIRI on the execution of the various tasks. In this regard, CARIRI's Project Chief will be the focal point for reporting by the firm, pertinent to the day-to-day coordination and logistical support related to the assignment.

**7. REMUNERATION**

The firm will be remunerated for the services provided in accordance with an agreed-upon Payment Arrangement. Payment will be processed solely based on presentation of an Invoice with supporting documentation pertinent to the activities undertaken over the period for which payment is requested.

**8. QUALIFICATIONS AND EXPERIENCE**

The assignment requires the firm to demonstrate experience and/or capabilities, as follows:

- Demonstrated understanding and knowledge of the paving industry, with a proven record of a minimum of ten (10) years experience in the industry.
- Key expert(s) with post-graduate training and at least seven (7) years experience in the area of production/mechanical/electrical engineering.
- Prior experience in plant assembly/establishment of new production capability.
- Project Management experience and certification.
- Research, Development and Innovation (RDI) capability would be an asset.

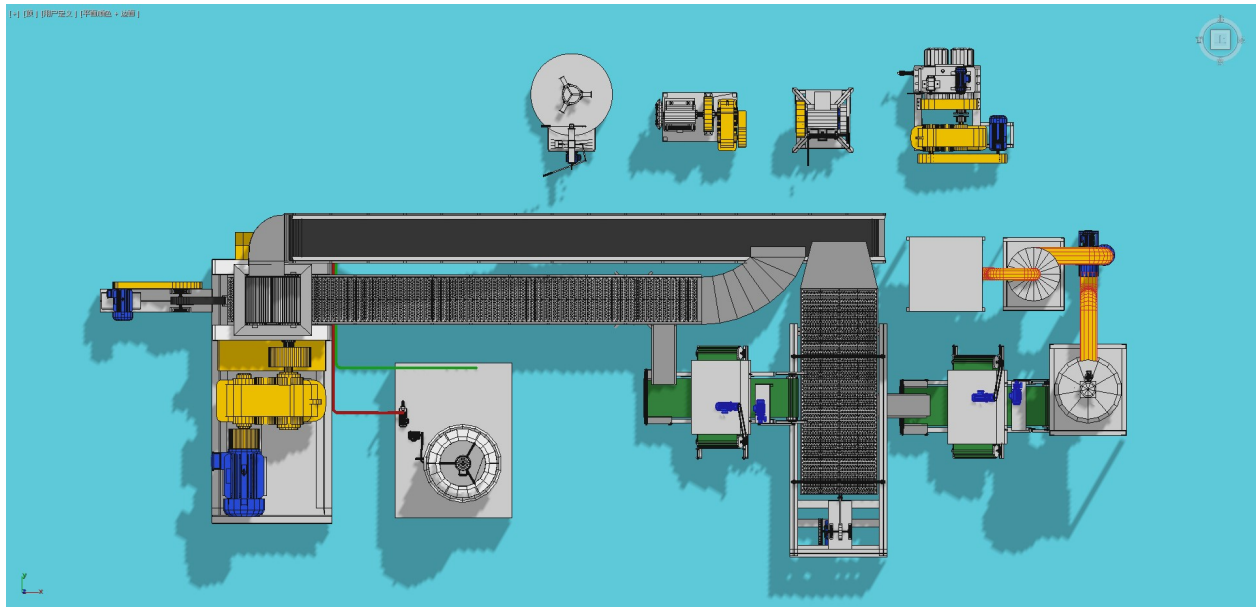
## **APPENDIX**

### **PERTINENT INFORMATION ON THE RUBBER CRUMB MANUFACTURING FACILITY ON ORDER**

- The Plant on order is a “350 Tire Rubber Crumb / Powder Production Line” and it comprises the following components:
  - ❖ Tire circular cutter
  - ❖ Tire strip cutter
  - ❖ Tire block cutter
  - ❖ Tire steel separator
  - ❖ Rubber crumb/powder machine line
  - ❖ Fiber separator
  - ❖ Round vibrate screen
  - ❖ Additional parts (cutters, blades and belts needed in normal operations)

This capacity output of the production line is 150 kg/hr.

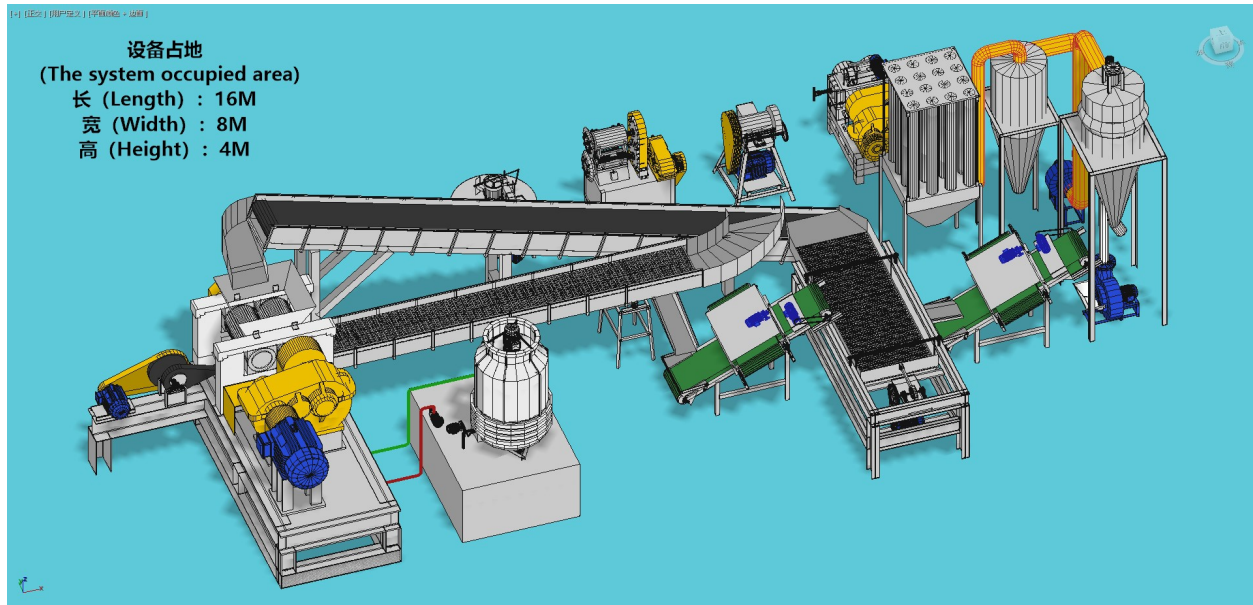
- The plant is intended to process used/end of life vehicle tyres, mainly from commercial and private vehicles, into rubber crumb of specific gradations, separating the steel and fibre components from the final crumb. The plant’s use will be multi-purpose, i.e. commercial, production demonstration and facilitation of the completion of a feasibility analysis. The steel and textile fibre will be treated with as part of the overall Waste Tyre Project.
- The following illustrates the layout of the production line occupying a floor space of 16 x 8 m and requiring a minimum height of 4 m; which gives a square footage of approximately 1400. Additional space of an estimated 1,500 square feet would be required for the storage of raw materials (tyres) and finished products (crumb, wire and fibre).



**Figure 1: Plan view of the production line**



**Figure 2: Elevation of the production line**



**Figure 3: 3D view of the production line**

- Requirements for utilities would be as follows:
  - Power: 230 V and 3 phase supply, with rated plant power of 93.9 kilowatts and consumption of 70.42 kilowatts.
  - Water: 1 CM (1,000 litres) storage for cooling purposes.



## **ANNEX 2**

### **Submission Letter**

**(to be placed on firm's letterhead)**

*[Location, Date]*

To: Ms. Lisa Ramoutar,  
Project Chief, Rubber Crumb Project  
Caribbean Industrial Research Institute (CARIRI)  
University of the West Indies (UWI) Campus  
St. Augustine  
Trinidad and Tobago

Dear Ms. Ramoutar,

We, the undersigned, offer to provide the services in respect of the Procurement of Rental Accommodation and Provision of Logistical Support for the Establishment of a Rubber Crumb Manufacturing Facility in accordance with your Request for Proposals dated *[Insert Date]*. We are hereby submitting our Proposal, which includes a Technical Section and a Price Section.

We hereby declare that:

- a. All the information and statements made in this Proposal are true and we accept that any misinterpretation or misrepresentation contained in this Proposal may lead to our disqualification and/or may be sanctioned by CARIRI.
- b. Our Proposal shall be valid and remain binding upon us for the period specified in Section 4.1.1 above.
- c. We meet the eligibility requirements as stated in Section 3 above.
- d. We accept that the substitution of Key Experts proposed must be approved in advance by CARIRI.

- e. Our Proposal is binding upon us and subject to any modifications resulting from the Pre Award Meeting.

We undertake, if our Proposal is accepted and the Contract is signed, to initiate the Services related to the assignment no later than the date indicated in Section 4.1.1 of the RFP.

We understand that CARIRI is not bound to accept any Proposal that it receives.

Authorized Signature *[In full and initials]*: \_\_\_\_\_

Name and Title of Signatory: \_\_\_\_\_

Name of PCF's Company: \_\_\_\_\_

Address: \_\_\_\_\_

Contact information (phone and e-mail): \_\_\_\_\_