
BIDDING DOCUMENTS

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OPEN NATIONAL BIDDING

for

Procurement of

*Provision of Lighting System through PV
Solar Panels on Public Beaches*

Procurement Reference No: BA/OAB/13/2017/18

Project: Lighting System on Public Beaches

BEACH AUTHORITY

Standard Bidding Document

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PART 1 – Bidding Procedures

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Section 1 - Instructions to Bidders

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Section I - Instructions to Bidders

A. General

- 1. Scope of Bid**
- 1.1 The Public Body as defined¹ in Section II “Bidding Data Sheet” (**BDS**) also referred to herein as Employer invites bids for the construction of Works, as **described in the BDS** and Section VII, “Particular Conditions of Contract” (**PCC**).
- The name and identification number of the Contract are **provided in the BDS and the PCC**.
- 1.2 The successful Bidder shall be expected to complete the Works by the Intended Completion Period **specified in the BDS**.
- 1.3 Throughout these bidding documents, the terms:
- (a) “writing” means any typewritten or printed communication, including e-mail and facsimile transmission,
 - (b) “day” means calendar day, and
 - (c) Singular also means plural.
- 2. Source of Fund**
- 2.1 The Works shall be financed by the Public Body’s own budgetary allocation, **unless otherwise stated in the BDS**.
- 3. Challenge and Appeal**
- 3.1 Unsatisfied bidders shall follow procedures prescribed in Regulations 48, 49 and 50 of the Public Procurement Regulations 2008 to challenge procurement proceedings and award of procurement contracts or to file application for review at the Independent Review Panel.
- 3.2 Addresses to forward Challenges or Application for Review are **specified in the BDS**.
- 4. Fraud and Corruption**
- 4.1 The Government of the Republic of Mauritius requires that bidders/suppliers/contractors, participating in procurement in Mauritius, observe the highest standard of ethics during the procurement process and execution of contracts.
- 4.2 Bidders, suppliers and public officials shall be aware of the provisions stated in sections 51 and 52 of the Public Procurement Act which can be consulted on the website of the Procurement Policy Office (PPO): ppo.govmu.org

¹ See Section IV, “General Conditions of Contract,” Clause 1. Definitions.

- 4.3 The Employer will reject a proposal for award if it determines that the Bidder recommended for award has, directly or through an agent, engaged in corrupt, fraudulent, collusive, coercive or obstructive practices in competing for the contract in question;

For the purposes of this Sub-Clause:

- (i) “corrupt practice” is the offering, giving, receiving or soliciting, directly or indirectly, of anything of value to influence improperly the actions of another party;
- (ii) “fraudulent practice” is any act or omission, including a misrepresentation, that knowingly or recklessly misleads, or attempts to mislead, a party to obtain a financial or other benefit or to avoid an obligation;
- (iii) “collusive practice” is an arrangement between two or more parties designed to achieve an improper purpose, including to influence improperly the actions of another party;
- (iv) “coercive practice” is impairing or harming, or threatening to impair or harm, directly or indirectly, any party or the property of the party to influence improperly the actions of a party;
- (v) “obstructive practice” is deliberately destroying, falsifying, altering or concealing of evidence material to the investigation or making false statements to investigators in order to materially impede an investigation into allegations of a corrupt, fraudulent, coercive or collusive practice; and/or threatening, harassing or intimidating any party to prevent it from disclosing its knowledge of matters relevant to the investigation or from pursuing the investigation

- 4.4 The Employer commits itself to take all measures necessary to prevent fraud and corruption and ensures that none of its staff, personally or through his/her close relatives or through a third party, will in connection with the bid for, or the execution of a contract, demand, take a promise for or accept, for him/herself or third person, any material or immaterial benefit which he/she is not legally entitled to. If the Employer obtains information on the conduct of any of its employees which is a criminal offence under the relevant Anti-Corruption Laws of Mauritius or if there be a substantive suspicion in this regard, he will inform the relevant authority (ies) and in addition can initiate disciplinary actions. Furthermore, such bid shall be rejected.

- 5. Eligible Bidders**
- 5.1 (a) In accordance with CIDB Act 2008, Contractors currently operating in the construction industry have the statutory obligation to be registered with the Construction Industry Development Board (CIDB) accordingly.
- (b) Subject to paragraph (e), Foreign contractors as defined in the CIDB Act will have to apply for and obtain a Provisional Registration prior to bidding for this project. If the contract is awarded to the foreign contractor the latter shall have to apply for and obtain a Temporary Registration before starting the project.
- (c) Contractors whether local or foreign under an existing or intended joint venture will be eligible as a joint venture if, in addition to their respective individual registration, they obtain a Provisional Registration for the joint venture prior to bidding for this project. If an existing or intended joint venture is awarded the contract it shall have to apply for a Temporary Registration prior to starting the project.
- (d) Sub-contractors undertaking works for value Rs 500 000 or above are subject to registration as applicable to Contractors.
- (e) Paragraph (b) shall not apply to Foreign contractors who have been carrying construction works in the construction industry during the 20 years preceding 01 March 2017; and where at least two-thirds, or such other percentage as may be prescribed, of the total number of its or his employees are as citizens of Mauritius.
- (f) A Foreign contractor referred to in paragraph (e) shall, for the purpose of registration, make an application with the CIDB and obtain a valid registration certificate prior to bidding for this project.
- (g) Bidders are strongly advised to consult the website of the CIDB cidb.govmu.org for further details concerning registration of contractors.
- 5.2 (a) Subject to ITB 5.6, a Bidder, and all parties constituting the Bidder, may have the nationality of any country except in the case of open national bidding where the bidding documents may limit participation to citizens of Mauritius or entities incorporated in Mauritius, if so qualified in the BDS.
- (b) Bidder may be natural person, private entity, or government-owned entity or any combination of them in the form of a joint venture.
- (c) Bids submitted by a joint venture of two or more firms as partners shall comply with the following requirements, unless

otherwise stated in the **BDS**:

- (i) the Bid shall include all the information listed in ITB Sub-Clause 6.2 below for each joint venture partner;
- (ii) the Bid shall be signed so as to be legally binding on all partners;
- (iii) the Bid shall include a copy of the agreement entered into by the joint venture partners defining the division of assignments to each partner and establishing that all partners shall be jointly and severally liable for the execution of the Contract in accordance with the Contract terms; alternatively, a Letter of Intent to execute a joint venture agreement in the event of a successful bid shall be signed by all partners and submitted with the bid, together with a copy of the proposed agreement;
- (iv) one of the partners shall be nominated as being in charge, authorized to incur liabilities, and receive instructions for and on behalf of any and all partners of the joint venture; and
- (v) the execution of the entire Contract, including payment, shall be done exclusively with the partner in charge.

5.3 A Bidder shall not have a conflict of interest. All Bidders found to have a conflict of interest shall be disqualified. A Bidder may be considered to have a conflict of interest with one or more parties in this bidding process, if :

- (a) they have a controlling partner in common; or
- (b) they receive or have received any direct or indirect subsidy from any of them; or
- (c) they have the same legal representative for purposes of this bid; or
- (d) they have a relationship with each other, directly or through common third parties, that puts them in a position to have access to information about or influence on the Bid of another Bidder, or influence the decisions of the Employer regarding this bidding process; or
- (e) a Bidder participates in more than one bid in this bidding process. Participation by a Bidder in more than one Bid will result in the disqualification of all Bids in which the party is involved. However, this does not limit the inclusion of the same subcontractor in more than one

bid; or

- (f) a Bidder or any of its affiliates participated as a consultant in the preparation of the design or technical specifications of the contract that is the subject of the Bid; or
- (g) a Bidder, or any of its affiliates has been hired (or is proposed to be hired) by the Employer as Engineer for the contract.

5.4 (a) A bidder that is under a declaration of ineligibility by the Government of Mauritius in accordance with applicable laws at the date of the deadline for bid submission and thereafter shall be disqualified

(b) Bids from contractors appearing on the ineligibility lists of African Development Bank, Asian Development Bank, European Bank for Reconstruction and Development, Inter-American Development Bank Group and World Bank Group shall be rejected.

Links for checking the ineligibility lists are available on the PPO's website: ppo.govmu.org

5.5 Government-owned enterprises in the Republic of Mauritius shall be eligible only if they can establish that they are legally and financially autonomous and operate under commercial law, and that they are not a dependent agency of the Government.

6. Qualifications of Bidders

6.1 All bidders shall provide in Section III, a preliminary description of the proposed work method and schedule, including drawings and charts, as necessary.

6.2 Bidders shall include the information and documents listed hereunder with their bids, unless otherwise **stated in the BDS**. If, after opening of bids, it is found that any document is missing, the Employer may request the submission of that document subject to clause 30. The non-submission of the documents by the Bidder within the prescribed period may lead to the rejection of its bid.

- (a) valid registration certificate with the CIDB;
- (b) copies of original documents defining the constitution or legal status, place of registration, and principal place of business of the Bidder;
- (c) major items of construction equipment proposed to carry out the Contract;
- (d) qualifications and experience of key site personnel and technical personnel proposed for the contract;

- (e) report on the financial standing of the Bidder for the last three years, such as certified copies of Financial Statements/Audited Accounts as filed at the Registrar of Companies before the deadline set for submission of bids;
 - (f) evidence of adequacy of cash-flow capital for this Contract (access to line(s) of credit and availability of other financial resources);
 - (g) authority to seek references from the Bidder's bankers;
 - (h) information regarding any litigation, current or during the last five years, in which the Bidder was/is involved, the parties concerned, the issues involved, the disputed amounts, and awards; and
 - (i) proposals for subcontracting components of the Works amounting to more than 10 percent of the Contract Price.
- 6.3 To qualify for award of the Contract, bidders shall meet the following minimum qualifying criteria:
- (a) duly registered with the CIDB under the grade that would allow him to perform the value of works for which he is submitting his bid
 - (b) registered with the CIDB under the class(es) and field of specialisation **specified in the BDS**;
 - (c) proposals for the timely acquisition (own, lease, hire, etc.) of the essential equipment **listed in the BDS**;
 - (d) a Contract Manager/Supervisor with five years' experience in works of an equivalent nature and volume, including no less than three years as Manager or as otherwise **specified in the BDS**; and
 - (e) liquid assets and/or credit facilities, net of other contractual commitments and exclusive of any advance payments which may be made under the Contract, of no less than the amount **specified in the BDS**.²

Pending litigations against the Applicant or any partner of a Joint Venture may result in Disqualification.

B. Contents of Bidding Document

7. Sections of Bidding

- 7.1 The Bidding Document consists of all the Sections indicated below, and should be read in conjunction with any Addenda

² Usually the equivalent of the estimated payments flow over 4-6 months at the average (straight line distribution) construction rate. The actual period of reference shall depend on the speed with which the Government shall pay the Contractor's monthly certificates.

- Document** issued in accordance with ITB 10.
- Section I - Instructions to Bidders (ITB)
Section II- Bidding Data Sheet
Section III - Bidding Forms
Section IV - Evaluation Criteria
Section V - Employer's Requirements
Section VI – General Conditions of Contract
Section VII- Particular Conditions of Contract
Section VIII - Contract Forms
- 7.2 The Invitation for Bids issued by the Employer is not part of the Bidding Document.
- 8. Clarification of Bidding Document**
- 8.1 A prospective Bidder requiring any clarification of the Bidding Document shall contact the Employer in writing at the Employer's address **indicated in the BDS**.
- The Employer will respond in writing to any request for clarification, provided that such request is received 15 days prior to the deadline for submission of bids.
- Should the Employer deem it necessary to amend the Bidding Document as a result of a request for clarification, it shall do so following the procedure under ITB 10.
- 9. Site visit/Pre-bid meeting**
- 9.1 Bidders, at the Bidders' own responsibility and risk, are encouraged to visit and examine the Site of Works and its surroundings and obtain all information that may be necessary for preparing their Bids and entering into a contract for construction of the Works. The costs of visiting the Site shall be at the Bidders' own expense.
- 9.2 The Bidder or its designated representative is invited to attend a pre-bid meeting, as **provided for in the BDS**. The purpose of the pre-bid meeting will be to clarify issues and to answer questions on any matter that may be raised at that stage.
- Non-attendance at the pre-bid meeting will not be a cause for disqualification of a bidder.
- 10. Amendment of Bidding Document**
- At any time prior to the deadline for submission of bids, the Employer may amend the Bidding Document by issuing addenda and extend the deadline for submission of bids, if needed.

C. Preparation of Bids

- 11. Cost of Bidding** 11.1 The Bidder shall bear all costs associated with the preparation and submission of its Bid, and the Employer shall in no case be responsible or liable for those costs irrespective of the outcome of the bidding process.
- 12. Language of Bid** 12.1 The Bid, supporting documents as well as all correspondence relating to the bid exchanged by the Bidder and the Employer shall be in English Language.
- 13. Documents Comprising the Bid** 13.1 The Bid shall comprise the following:
- (a) Bid submission Form (in the format indicated in Section III);
 - (b) Qualification information and documentary evidence establishing the Bidder's qualifications to perform the contract;
 - (c) Technical Proposal as per ITB 18.1;
 - (d) completed Bill of Quantities / Activity Schedule;
 - (e) Bid Security as per the format provided in section III or as a subscription to a Bid Securing Declaration in the Bid Submission Form; and
 - (f) any other material required to be completed and submitted by bidders, as specified in ITB and the BDS.
- 14. Bid Submission Form and Schedules** 14.1 The Bid Submission Form, Schedules, and all documents listed under ITB 13.1 shall be prepared using the relevant forms, if so provided.
- 15. Alternative Proposal** 15.1 Alternative Technical Proposals and completion dates if allowed shall be indicated in Section V- Specifications. The evaluation methodologies for their consideration shall be given in Section IV.
- 16. Bid Prices and Discounts** 16.1 The Contract shall be for the whole Works, as described in ITB Sub-Clause 1.1, based on the priced Activity Schedule/Bill of Quantities³ submitted by the Bidder.
- 16.2 Bidders shall fill in rates and prices for all items of the Works described in the Bill of Quantities.⁴ Items for which no rate or price is entered by Bidders, shall not be paid for by the Public Body when executed and shall be deemed covered by the other rates and prices in the Bill of Quantities. Corrections, if any, shall be made by crossing out, initialing,

³ In lump sum contracts, delete "priced Bill of Quantities" and replace with "priced Activity Schedule."

⁴ In lump sum contracts, delete "described in the Bill of Quantities" and replace with "described in the drawings and specifications and listed in the Activity Schedule."

dating and rewriting.

16.3 All duties, taxes, and other levies payable by the Contractor under the Contract, or for any other cause, as of the date 14 days prior to the deadline for submission of bids, shall be included in the rates, prices, and total Bid price submitted by Bidders.⁵

16.4 The price to be quoted in the Bid Submission Form shall be the total price of bid after any discount offered.

The discount if any and the conditions of its application shall be indicated separately.

17. Currencies of Bid and Payment

17.1 The bid price and rates shall be in Mauritian Rupees and fixed for the duration of the contract unless otherwise **specified in the BDS.**

17.2 Unless otherwise **specified in BDS** interim payment for Plant and Material on site is applicable as per GCC 39.7.

18. Documents Comprising the Technical Proposal

18.1 The Bidder shall furnish a Technical Proposal including a statement of work methods, equipment, personnel, schedule and any other information as stipulated in the Bidder Qualification Form (section III), in sufficient details to demonstrate the adequacy of the Bidders' proposal to meet the work requirements and the completion time.

19. Period of Validity of Bids

19.1 Bids shall remain valid for a period of 90 days after the bid submission deadline prescribed by the Employer unless otherwise **specified in the BDS.**

19.2 In exceptional circumstances, prior to expiry of the original bid validity period, the Employer may request that the bidders extend the period of validity for a specified additional period. The request and the responses thereto shall be made in writing.

20. Bid Security/Bid Securing Declaration

20.1 The Bidder shall furnish either a subscription to a Bid Securing Declaration or a Bid Security in its original form with its bid as part of its bid, if so **required in the BDS.**

20.2 Bid Security shall be in the form of a Bank Guarantee from a local commercial bank as per the format contained in section III and shall be valid for a period of 30 days beyond the validity period of the bid or beyond any period of extension.

20.3 Any bid not accompanied by an enforceable and substantially compliant Bid Security or a subscription to a Bid Securing Declaration in the Bid Submission Form, if required in accordance with ITB 20.1, shall be rejected by the Employer

⁵ In lump sum contracts, delete "rates, prices, and."

as non-responsive.

20.4 Bid Security shall be forfeited or the Bid Securing declaration exercised for non-compliance on the part of the Bidder for reasons mentioned in the Bid Security format contained in Section III or the Bid Suring Declaration contained as Appendix to the Bid Submission Form.

**21. Format and
Signing of Bid**

21.1 The Bidder shall prepare one original of the documents comprising the bid as described in ITB 13.1 and clearly mark it "ORIGINAL". In addition, the Bidder shall submit **two copies** of the bid and clearly mark each of them "COPY." In the event of any discrepancy between the original and the copies, the original shall prevail.

21.2 The original and all copies of the bid shall be typed or written in indelible ink and shall be signed by a person duly authorized to sign on behalf of the Bidder.

D. Submission and Opening of Bids

**22. Sealing and
Marking of Bids**

22.1 Bidders may always submit their bids by mail or by hand. Procedures for submission, sealing and marking are as follows:

(a) Bidders submitting bids by mail or by hand shall enclose the original and each copy of the Bid, including alternative bids, if permitted in accordance with ITB 15, in separate sealed envelopes, duly marking the envelopes as "ORIGINAL", "ALTERNATIVE" and "COPY." These envelopes containing the original and the copies shall then be enclosed in one single envelope. The rest of the procedure shall be in accordance with ITB sub-Clauses 22.2.

22.2 The inner and outer envelopes shall:

- (a) bear the name and address of the Bidder;
- (b) be addressed to the Employer as indicated in ITB 22.1;
- (c) bear the specific identification of this bidding process indicated in accordance with ITB 1.1; and
- (d) bear a warning not to open before the time and date for bid opening.

**23. Deadline for
Submission of
Bids**

23.1 Bids shall be delivered to the Employer at the address and no later than the time and date **specified in the BDS**.

The Employer may, at its discretion, extend the deadline for the submission of bids by amending the Bidding Document in

accordance with ITB 10.

- 24. Late Bids** 24.1 Late bids shall not be considered. They will be returned unopened
- 25. Withdrawal, Substitution, and Modification of Bids** 25.1 No bid may be withdrawn, substituted, or modified in the interval between the deadline for submission of bids and the expiration of the period of bid validity specified by the Bidder on the Bid submission Form or any extension thereof.
- 26. Bid Opening** 26.1 The Employer shall open the bids at the time place and address **specified in the BDS** in the presence of Bidders' designated representatives who choose to attend.
- 26.2 The bidders' names, the Bid Prices, the total amount of each bid, any discounts, any alternative bid, bid modifications and withdrawals, the presence or absence of bid security, and such other details as the Employer may consider appropriate, will be announced and recorded by the Employer at the opening.

E. Evaluation and Comparison of Bids

- 27. Confidentiality** 27.1 Information relating to the examination, evaluation, comparison, and post-qualification of bids and recommendation of contract award, shall not be disclosed to Bidders or any other person not officially concerned with such process.
- 27.2 Any attempt by a Bidder to influence the Employer in the evaluation of the bids or Contract award decisions may result in the rejection of its bid.
- 28. Clarification of Bids** 28.1 To assist in the examination, evaluation, and comparison of the bids, and qualification of the Bidders, the Employer may, at its discretion, ask any Bidder for a clarification of its bid. No change in the prices or substance of the bid shall be sought, offered, or permitted, except to confirm the correction of arithmetical errors discovered by the Employer in the evaluation of the bids, in accordance with ITB 31.
- 29. Determination of Responsiveness** 29.1 The Employer's determination of a bid's responsiveness is to be based on the contents of the bid itself, as defined in ITB13.
- 29.2 A substantially responsive bid is one that meets the requirements of the Bidding Document without material deviation, reservation, or omission.
- 29.3 The Employer shall examine the technical aspects of the bid submitted in accordance with ITB 18, Technical Proposal, in particular, to confirm that all requirements of Section IV

(Employer's Requirements) have been met without any material deviation, reservation or omission.

29.4 If a bid is not substantially responsive to the requirements of the Bidding Document, it shall be rejected by the Employer and may not subsequently be made responsive by correction of the material deviation, reservation, or omission.

30. Nonconformities, Errors, and Omissions

30.1 Provided that a bid is substantially responsive, the Employer may waive any non-material non-conformity in the bid, request that the Bidder submit the necessary information or documentation, to rectify nonmaterial nonconformities in the bid related to documentation requirements but not related to any aspect of the price of the bid; and shall rectify quantifiable nonmaterial nonconformities related to the Bid Price.

31. Correction of Arithmetical Errors

31.1 Provided that the bid is substantially responsive, the Employer shall correct arithmetical errors on the following basis:

(a) only for unit price contracts, if there is a discrepancy between the unit price and the total price that is obtained by multiplying the unit price and quantity, the unit price shall prevail and the total price shall be corrected, unless in the opinion of the Employer there is an obvious misplacement of the decimal point in the unit price, in which case the total price as quoted shall govern and the unit price shall be corrected;

(b) if there is an error in a total corresponding to the addition or subtraction of subtotals, the subtotals shall prevail and the total shall be corrected; and

(c) if there is a discrepancy between words and figures, the amount in words shall prevail, unless the amount expressed in words is related to an arithmetic error, in which case the amount in figures shall prevail subject to (a) and (b) above.

32. Margin of Preference

32.1 **Unless otherwise specified in the BDS**, Margin of preference shall not apply.

33. Evaluation of Bids

33.1 The Employer shall use the criteria and methodology defined in this clause and no other evaluation criteria or methodologies shall be permitted.

33.2 To evaluate a bid, the Employer shall consider the following:

(a) the bid price, excluding Provisional Sums and the provision, if any, for contingencies in the Summary Bill of Quantities for admeasurement contracts or Schedule of Prices for lump sum contracts, but including Daywork

items, where priced competitively; and

- (b) price adjustment for correction of arithmetic errors, discounts, non-conformities, due to the supplementary criteria as defined in Section IV, and Margin of Preference, if applicable.

33.3 If this Bidding Document allows Bidders to quote separate prices for different contracts, and to award multiple contracts to a single Bidder, the methodology to determine the lowest evaluated price of the contract combinations, including any discount offered in the Bid Submission Form, is specified in Section IV (Evaluation and Qualification Criteria).

33.4 If the bid for an admeasurement contract, which results in the lowest Evaluated Bid Price, is seriously unbalanced, front loaded or substantially below updated estimates or if any item in the Priced Activity Schedule is front loaded or contains an erroneous amount in the opinion of the Employer, the Employer may after clarification require the Bidder to produce detailed price analysis for any or all items that the amount of the performance security be increased at the expense of the Bidder.

- 34. Comparison of Bids** 34.1 The Employer shall compare all substantially responsive bids in accordance with ITB 33 to determine the lowest evaluated bid.
- 35. Qualification of the Bidder** 35.1 The Employer shall determine to its satisfaction whether the Bidder that is selected as having submitted the lowest evaluated substantially responsive bid meets the qualifying criteria.
- 36. Employer's Right to Accept Any Bid, and to Reject Any or All Bids** 36.1 The Employer reserves the right to accept or reject any bid, and to annul the bidding process and reject all bids at any time prior to contract award, without thereby incurring any liability to Bidders.

F. Award of Contract

- 37. Award Criteria** 37.1 Subject to ITB 36.1, the Employer shall award the Contract to the Bidder whose offer has been determined to be the lowest evaluated bid and is substantially responsive to the Bidding Document, provided further that the Bidder is determined to be qualified to perform the Contract satisfactorily.
- 38. Notification of Award** 38.1 Prior to the expiration of the period of bid validity, the Employer shall, for contract amount above the prescribed threshold, notify the selected bidder of the proposed award and accordingly notify unsuccessful bidders. Subject to

Challenge and Appeal the Employer shall notify the selected Bidder, in writing, by a Letter of Acceptance for award of contract. The Letter of Acceptance shall specify the sum that the Employer will pay the Contractor in consideration of the execution and completion of the Works (hereinafter and in the Conditions of Contract and Contract Forms called “the Contract Price”) and the requirement for the Contractor to remedy any defects therein as prescribed by the Contract. Within seven days from the issue of Letter of Acceptance, the Employer shall publish on the Public Procurement Portal (publicprocurement.govmu.org) and the Employer’s website, the results of the Bidding Process identifying the bid and lot numbers and the following information:

(i) name of the successful Bidder, and the Price it offered, as well as the duration and summary scope of the contract awarded; and

(ii) an executive summary of the Bid Evaluation Report.

38.2 Until a formal contract is prepared and executed, the notification of award shall constitute a binding Contract.

39. Signing of Contract

39.1 Promptly upon issue of Letter of Acceptance, the Employer shall send to the successful Bidder the Contract Agreement.

39.2 Within twenty-one (21) days of receipt of the Contract Agreement, the successful Bidder shall sign, date, and return it to the Employer.

40. Performance Security

40.1 Within twenty-one (21) days of the receipt of the Letter of Acceptance from the Employer, the successful Bidder shall furnish the Performance Security in accordance with the conditions of contract, using for that purpose the Performance Security Form included in Section VIII (Contract Forms).

40.2 Failure of the successful Bidder to submit the above-mentioned Performance Security or to sign the Contract Agreement within the prescribed delay shall constitute sufficient grounds for the annulment of the award and forfeiture of the bid security.

Preference Security

40.3 The successful bidder having benefitted from a Margin of Preference shall provide a Preference Security, **as specified in the BDS**. The amount for the Preference Security shall be the difference between the price quoted by the selected bidder and that of the lowest evaluated bid which would have been selected for award of contract, if the said Margin of Preference was not applicable

- 41. Advance Payment and Security** 41.1 The Public Body shall provide an Advance Payment on the Contract Price as stipulated in the GCC, subject to a maximum amount, as stated in the BDS. The Advance Payment shall be guaranteed by a security as per the format contained in Section VIII.
- 42. Plant and Materials on site** 42.1 Unless otherwise **specified in BDS** interim payment for Plant and Material on site is applicable as per GCC 39.7.
- 43. Debriefing** 43.1 The Employer shall promptly attend to all requests for debriefing for the contract, made in writing, and within 30 days from the date of the publication of the award or date the unsuccessful bidders are informed about the award, whichever is the case, by following regulation 9 of the Public Procurement Regulations 2008 as amended.

SAMPLE

Section II- Bidding Data Sheet

A. General	
ITB 1.1	<p>The Public Body is: BEACH AUTHORITY</p> <p>The Works are <i>Provision of Lighting System through Photovoltaic Solar Panels on Public beaches</i></p> <p>The name and identification of the Contract are <i>BA/OAB/13/2017/18</i></p> <p>The Project is <i>Lighting System through PV Solar Panels on Public Beaches</i></p>
ITB 1.2	The Intended Completion period is – 60 days as from date of handing over of sites
ITB 2.1	The Funding Agency is: The Beach Authority
ITB 3.2	<p>The address to file Challenges in respect of this procurement is:</p> <p style="text-align: center;">General Manager / Manager Beach Authority 5 & 6th Floors, Peninsula Building 2A, Falcon Street Port Louis.</p> <p>(a) The address to file Application for Review is:</p> <p style="text-align: center;">The Chairman Independent Review Panel, 9th Floor, Wing B Emmanuel Anquetil Building Pope Hennessy Street Port Louis Tel : 2013921</p>
ITB 5.4	The list of debarred firms according to the Debarment process may be obtained from the web site of the Procurement Policy Office: ppo.govmu.org
ITB 6.2	The information required from bidders in ITB Sub-Clause 6.2 is modified as follows: none.
ITB 6.2 (g)	The assessment of the financial soundness of the company shall be on a pass/fail basis on its overall performance including its profitability.
ITB 6.3 (b)	<p>(A1) The Contractor shall demonstrate that it is registered with the CIDB under the following class(es): at least GRADE G and specialization in the following area(s) Civil Engineering and/or Electrical works</p> <p>In case the areas of specialization defined by CIDB do not cover the particular work, the criteria (A2) below shall also apply.</p> <p>(A2) The Contractor shall also demonstrate that it meets experience as prime contractor in the construction of a minimum of two works of a nature and</p>

	complexity equivalent to the Works over a period of 3 years
ITB 6.3 (c)	The essential equipment to be made available for the Contract by the successful Bidder shall be: All equipment required for Lighting and Civil Works.
ITB 6.3 (d)	<p>Qualifications requirements for key personnel:-</p> <p><i>A contract manager/supervisor with at least a Diploma in Electrical Engineering and one year experience and a site agent with at least 3 years experience in electrical works/installations.</i></p> <p><i>A General Foreman with at least 10 years experience in civil works.</i></p> <p>Qualifications and Experience should be specified.</p> <p>Signed CVs of the personnel mentioned above should be submitted.</p>
ITB 6.3 (e)	<p>The minimum amount of liquid assets and/or credit facilities net of other contractual commitments of the successful Bidder shall be 20 percent of the quoted contract price.</p> <p>The bidder shall submit, together with his bid, updated evidence from a recognized local bank specifying that he has access to financial resources, amounting to a minimum of 20% of the quoted contract price, to execute this particular project. The project name should be specified.</p>
B. Bidding Documents	
ITB 8.1	<p>The Public Body's address for clarification is: The General Manager Attention: Procurement & Supply Officer Address: Beach Authority, 5 & 6th Floors, Peninsula Building 2A, Falcon Street - Port Louis.</p> <p>Country: Mauritius Telephone: 212-0059/70 Facsimile number: 212-0060 Electronic mail address: beachauthority@intnet.mu</p>
ITB 9.2	N/A
C. Preparation of Bids	
ITB 13.1 (f)	Any additional materials required to be completed and submitted by the Bidders are "none".
ITB 17.1	The Contract "is not" subject to price adjustment in accordance with GCC Clause 44.
ITB 17.2	Interim Payment for Plant and Material on site is not applicable. Interim Payment for works executed shall be according to Section 39 of General

	Conditions of contract
ITB 19.1	The Bid shall be valid for 90 days after the deadline set for the submission of bid, the deadline being counted as day one of the validity period.
ITB 20.1	Bid shall include a subscription to a Bid Securing Declaration
D. Submission of Bids	
ITB 23.1	The deadline for submission of bids shall be Monday 27 November 2017 by 14.00 hrs @ latest.
	<p>The Employer's address for the purpose of Bid submission is</p> <p>Beach Authority</p> <p>Attention: The General Manager Address: 6th Floor, Peninsula Building 2A, Falcon Street</p> <p>Floor-Room number: Quotations should be deposited in the Quotation/Tender Box located at the address hereunder not later than the</p> <p>date and time of the deadline hereunder. Late quotations will be rejected.</p> <p>City: Port-Louis</p> <p>Country: Mauritius</p>
E. Evaluation and Comparison of Bids	
ITB 26.1	<p>The bid opening shall take place at: Beach Authority</p> <p>Street Address: 2A, Falcon Street</p> <p>Floor/ Room number: 6th Floor, Peninsula Building</p> <p>City: Port Louis.</p> <p>Country: Mauritius.</p> <p>Date: 27 November 2017</p> <p>Time: 14.05 hrs (approx)</p>
ITB 32	<p>32.1 A Margin of Preference shall apply as defined hereunder and in Section IV- Evaluation Criteria.</p> <p>The following procedure shall be used to apply the Margin of Preference:</p> <p>(a) responsive bids shall be classified into the following groups:</p> <ul style="list-style-type: none"> • Group A: bids offered by bidders meeting the conditions

	<p>satisfying eligibility for a Margin of Preference , and</p> <ul style="list-style-type: none"> • Group B: all other bids; <p>(b) for the purpose of further evaluation and comparison of bids only, all bids classified in Group B shall be increased by the percentage(s) of preference allocated to those in group A.</p> <p>32.2 Bidders applying for the Margin of Preference shall submit, as part of their bidding documents evidence of:</p> <ul style="list-style-type: none"> (a) their incorporation in the Republic of Mauritius; (b) their Joint Venture Agreement or intention to legally enter into a Joint Venture Agreement to be incorporated in the Republic of Mauritius, where applicable; (c) the percentage of the total man-days to be deployed by local manpower with break-down indicating type of works to be entrusted to the local manpower. (d) A financial statement signed by a certified Accountant vouching that the annual turn-over of the local Small and Medium enterprise (where applicable) does not exceed Rs 50M. (e) their deployment of manpower to demonstrate how they will undertake to employ the local manpower for the project. The evidence may include the number of existing employees that will be involved in the project and the number of workers that may be hired temporarily. <i>Non-submission of the evidence may entail non-eligibility of the bidder for margin of preference.</i>
F. Award of Contract	
ITB 40.1	N/A
ITB 40.3	<p>For contracts up to 100M, the public body shall either retain money from progressive payments to constitute the preference security or request a security in the form of a bank guarantee at the selected bidder's option.</p> <p>For contract above Rs 100M, the preference security in the form of a bank guarantee issued from a local commercial bank shall be submitted at the time of contract award failing which the award of contract may be annulled.</p>
ITB 41	The Advance Payment shall NOT be applicable.
ITB 42.1	<p>Interim Payment for Plant and Material on site is not applicable.</p> <p>Interim Payment for works executed shall be according to Section 39 of General Conditions of contract.</p>

Section III - Bidding Forms

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SAMPLE

Bid Submission Form

The Bidder must prepare the Bid Submission Form on stationery with its letterhead clearly showing the Bidder's complete name and address.

Date: _____

Bidder's Reference No.: _____

Procurement Reference No.:.....

To:

We, the undersigned, declare that:

- (a) We have examined and have no reservations to the Bidding Documents, including Addenda issued in accordance with Instructions to Bidders (ITB) Clause 10;
- (b) We offer to execute in conformity with the Bidding Documents the following Works:
_____;
- (c) The total price of our Bid after discounts, if any, offered in item (d) below is:

_____;
- (d) The discounts offered and the methodology for their application are:

_____;
- (e) Our bid shall be valid for a period of **90 days** from the date fixed for the bid submission deadline in accordance with the Bidding Documents, and it shall remain binding upon us and may be accepted at any time before the expiration of that period;
- (f) We hereby confirm that we have read and understood the content of the Bid Securing Declaration attached hereto and subscribe fully to the terms and conditions contained therein, if required. We understand that non-compliance to the conditions mentioned may lead to disqualification.
- (g) If our bid is accepted, we commit to obtain a Performance Security and a Preference Security (if applicable) in accordance with the Bidding Document;
- (h) We, including any subcontractors or suppliers for any part of the contract, do not have any conflict of interest in accordance with ITB 5.4;
- (i) We are not participating, as a Bidder in more than one bid in this bidding process other than alternative offers submitted in accordance with ITB 15;
- (j) Our firm, its affiliates or subsidiaries, including any Subcontractors or Suppliers for any part of the contract, has not been declared ineligible under the laws of Mauritius;

- (k) We are not a government owned entity / We are a government owned entity but meet the requirements of ITB 5.4;⁶
- (l) We hereby “*apply/do not apply*” for Margin of Preference as provided in the bidding document;⁷
- (m) We have taken steps to ensure that no person acting for us or on our behalf will engage in any type of fraud and corruption as per the principles described hereunder, during the bidding process and contract execution:
- i. We shall not, directly or through any other person or firm, offer, promise or give to any of the Public Body’s employees involved in the bidding process or the execution of the contract or to any third person any material or immaterial benefit which he/she is not legally entitled to, in order to obtain in exchange any advantage of any kind whatsoever during the tender process or during the execution of the contract.
 - ii. We shall not enter with other Bidders into any undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelisation in the bidding process.
 - iii. We shall not use falsified documents, erroneous data or deliberately not disclose requested facts to obtain a benefit in a procurement proceeding.

We understand that transgression of the above is a serious offence and appropriate actions will be taken against such bidders.

- (n) We understand that this bid, together with your written acceptance, shall constitute a binding contract between us, until a formal contract is prepared and executed;
- (o) We understand that you are not bound to accept the lowest evaluated bid or any other bid that you may receive; and
- (p) If awarded the contract, the person named below shall act as Contractor’s Representative:

Name: _____

In the capacity of: _____

Signed: _____

Duly authorized to
sign the Bid for and
on behalf of: _____

Date: _____

Seal of Company _____

⁶ Use one of the two options as appropriate.

⁷ Strike out as appropriate

Appendix to Bid Submission Form

Bid Securing Declaration

By subscribing to the undertaking in respect of paragraph (f) of the Bid Submission form:

I/We* accept that I/we* may be disqualified from bidding for any contract with any Public Body for the period of time that may be determined by the Procurement Policy Office under section 35 of the Public Procurement Act, if I am/we are* in breach of any obligation under the bid conditions, because I/we*:

- (a) have modified or withdrawn my/our* Bid after the deadline for submission of bids during the period of bid validity specified by the Bidder in the Letter of Bid; or
- (b) have refused to accept a correction of an error appearing on the face of the Bid; or
- (c) having been notified of the acceptance of our Bid by the **Beach Authority** during the period of bid validity, (i) have failed or refused to execute the Contract, if required, or (ii) have failed or refused to furnish the Performance Security, in accordance with the Instructions to Bidders.

I/We* understand this Bid Securing Declaration shall cease to be valid (a) in case I/we am/are the successful bidder, upon our receipt of copies of the contract signed by you and the Performance Security issued to you by me/us; or (b) if I am/we are* not the successful Bidder, upon the earlier of (i) the receipt of your notification of the name of the successful Bidder; or (ii) thirty days after the expiration of the validity of my/our* Bid.

In case of a Joint Venture, all the partners of the Joint Venture shall be jointly and severally liable.

Qualification Information

*[The information to be filled in by **bidders** in the following pages shall be used for purposes of post-qualification or for verification of prequalification as provided for in ITB Clause 6. This information shall not be incorporated in the Contract. Attach additional pages as necessary. Pertinent sections of attached documents should be translated into English. If used for prequalification verification, the Bidder should fill in updated information only.]*

1. Individual Bidders or Individual Members of Joint Ventures

1.1 Constitution or legal status of Bidder: *[attach copy]*

Place of registration: *[insert]*

Principal place of business: *[insert]*

Valid Registration certificate from the CIDB: *[attach copy]*

Evidence of signatory authorized to sign the bid (if applicable): *[attach]*

1.2 Where the specialization category for which the Bidder is required to be registered does not cover adequately the specialization required for the works Bidder shall provide *[insert number]* of works of a nature and amount similar to the Works performed as prime Contractor over the last *[insert number]* years. *[Also list details of work under way or committed, including expected completion date(s).]*

Project/Contract name and country	Name of client and contact person	Type of work performed and year of completion	Value of contract (national currency)
(a)			
(b)			

1.3 Major items of Contractor's Equipment proposed for carrying out the Works. *[List all information requested below. Refer also to ITB Sub-Clause 6.3 (c).]*

Item of equipment	Description, make, and age (years)	Condition (new, good, poor) and number available	Owned, leased (from whom?), or to be purchased (from whom?)
(a)			
(b)			

1.4 Qualifications and experience of key personnel proposed for administration and execution of the Contract. *[Attach biographical data. Refer also to ITB Sub-Clause 6.3 (d).]*

Position	Name	Years of experience (general)	Years of experience in proposed position
(a)			
(b)			

1.5 Proposed subcontracts and firms involved. Refer to General Conditions of Contract Clause 7.

Sections of the Works	Value of subcontract	Subcontractor (name and address)	Experience in similar work
(a)			
(b)			

[Bidders have to ascertain that sub-contractors executing works of amount Rs 500 000 are duly registered with the CIDB in accordance with CIDB Act 2008.]

1.6 Financial reports for the last *[insert number; usually 3]* years: Financial Statements, Audited Accounts, etc. *[List below and attach copies.]*⁸

1.7 Evidence of access to financial resources to meet the qualification requirements: cash in hand, lines of credit, etc. List below and attach copies of support documents.

1.8 Name, address, and telephone, telex, and facsimile numbers of banks that may provide references if contacted by the Public Body.

1.9 Information on current litigation(s) in which the Bidder is involved.

Other party(ies)	Cause of dispute	Amount involved
(a)		
(b)		

1.10 Statement of compliance with the requirements of ITB Sub-Clause 5.3.

1.11 Proposed program (service work and schedule). Description, drawings and charts, as necessary, to comply with the requirement of the bidding documents.

2. Joint Ventures 2.1 The information listed in 1.1 - 1.9 above shall be provided for each partner of the joint venture.

⁹ Amount to be inserted by the Guarantor in accordance with Sub-Clause 49.2 of the General Conditions of Contract

⁹ In lump sum contracts, the "Bill of Quantities" is prepared for information; it is not contractual. The contractual document prepared by the Bidder shall be a "Schedule of Activities."

- 2.2 The information in 1.11 above shall be provided for the joint venture.
- 2.3 Attach the power of attorney or other acceptable document of the signatory (ies) of the Bid authorizing signature of the Bid on behalf of the joint venture.
- 2.4 Attach the Agreement among all partners of the joint venture (and which is legally binding on all partners), which shows that
 - (a) all partners shall be jointly and severally liable for the execution of the Contract in accordance with the Contract terms;
 - (b) one of the partners will be nominated as being in charge, authorized to incur liabilities, and receive instructions for and on behalf of any and all partners of the joint venture; and
 - (c) the execution of the entire Contract, including payment, shall be done exclusively with the partner in charge.

3. Additional Requirements

- 3.1 Bidders should provide any additional information requested in the Bidding Document.

Bill of Quantities

SUMMARY PAGE

Provision of Lighting System through PV Solar Panels on Public Beaches

Item No	Site	Rate per column with fixtures etc (without VAT)	Total Amount (Rs) without VAT	Amount (Rs) with VAT
A	Pte aux Piments Public Beach (10 columns + 20 luminaires)			
B	Bain Boeuf Public Beach (10 columns + 20 luminaires)			
C	Grand Gaube Public Beach (4 columns + 8 luminaires)			
D	Roches Noires Public Beach (5 columns + 10 luminaires)			
E	Poste Lafayette Public Beach (6 columns + 12 luminaires)			
F	Quatre Soeurs Public Beach (10 columns + 20 luminaires)			
G	Providence Public Beach (4 columns + 8 luminaires)			
H	Baie du Cap Public Beach (8 columns + 16 luminaires)			
I	La Pointe Cassis Le Morne Village Public Beach (5 columns + 10 luminaires)			
J	Bois des Amourettes Public Beach (2 columns + 4 luminaires)			
TOTAL				

The Authority reserves the right to split the contract per beach and to award same to different contractors.

Bill of Quantity Authorised By:

Name:		Signature:	
Position:		Date:	
Contact Number:		Email Address:	
Name of Company:			
Seal of Company			

BILL A**Priced Activity Schedule for Provision of Lighting Facilities through PV Solar panels at Pte aux Piments public beach.**

Item No	Brief Description of Works	Unit of Measure (QTY)	Unit Price (Rs)	Total Price (Rs)
1	Excavation, carting away of excess soil and construction of reinforced concrete foundation for lighting columns and sign board.	Sum		
2	Supply and install hot-dip galvanized double bracket lighting column as per specifications on Reinforced Concrete foundation.	10		
3	Supply and install LED lantern with integrated Battery, solar module and solar charge controller with automatic lighting control functions (minimum 5 yrs warranty & European standard) as per specifications.	20		
4	The complete project to be designed & built and commissioned by a professional Electrical Engineer, duly registered with the Council of Registered Professional Engineers.	SUM		
			Subtotal	
			VAT @ 15 %	
			Total	

Priced Activity Schedule Authorised By:

Name:		Signature:	
Position:		Date:	
Name of Company		Seal of Company:	

BILL B**Priced Activity Schedule for Provision of Lighting Facilities through PV Solar panels at Bain Boeuf public beach.**

Item No	Brief Description of Works	Unit of Measure (QTY)	Unit Price (Rs)	Total Price (Rs)
1	Excavation, carting away of excess soil and construction of reinforced concrete foundation for lighting columns and sign board.	Sum		
2	Supply and install hot-dip galvanized double bracket lighting column as per specifications on Reinforced Concrete foundation.	10		
3	Supply and install LED lantern with integrated Battery, solar module and solar charge controller with automatic lighting control functions (minimum 5 yrs warranty & European standard) as per specifications.	20		
4	The complete project to be designed & built and commissioned by a professional Electrical Engineer, duly registered with the Council of Registered Professional Engineers.	SUM		
Subtotal				
VAT @ 15 %				
Total				

Priced Activity Schedule Authorised By:

Name:		Signature:	
Position:		Date:	
Name of Company		Seal of Company:	

BILL C**Priced Activity Schedule for Provision of Lighting Facilities through PV Solar panels at Grand Gaube public beach.**

Item No	Brief Description of Works	Unit of Measure (QTY)	Unit Price (Rs)	Total Price (Rs)
1	Excavation, carting away of excess soil and construction of reinforced concrete foundation for lighting columns and sign board.	Sum		
2	Supply and install hot-dip galvanized double bracket lighting column as per specifications on Reinforced Concrete foundation.	4		
3	Supply and install LED lantern with integrated Battery, solar module and solar charge controller with automatic lighting control functions (minimum 5 yrs warranty & European standard) as per specifications.	8		
4	The complete project to be designed & built and commissioned by a professional Electrical Engineer, duly registered with the Council of Registered Professional Engineers.	SUM		
			Subtotal	
			VAT @ 15 %	
			Total	

Priced Activity Schedule Authorised By:

Name:		Signature:	
Position:		Date:	
Name of Company		Seal of Company:	

BILL D**Priced Activity Schedule for Provision of Lighting Facilities through PV Solar panels at Roches Noires public beach.**

Item No	Brief Description of Works	Unit of Measure (QTY)	Unit Price (Rs)	Total Price (Rs)
1	Excavation, carting away of excess soil and construction of reinforced concrete foundation for lighting columns and sign board.	Sum		
2	Supply and install hot-dip galvanized double bracket lighting column as per specifications on Reinforced Concrete foundation.	5		
3	Supply and install LED lantern with integrated Battery, solar module and solar charge controller with automatic lighting control functions (minimum 5 yrs warranty & European standard) as per specifications.	10		
4	The complete project to be designed & built and commissioned by a professional Electrical Engineer, duly registered with the Council of Registered Professional Engineers.	SUM		
			Subtotal	
			VAT @ 15 %	
			Total	

Priced Activity Schedule Authorised By:

Name:		Signature:	
Position:		Date:	
Name of Company		Seal of Company:	

BILL E**Priced Activity Schedule for Provision of Lighting Facilities through PV Solar panels at Poste Lafayette public beach.**

Item No	Brief Description of Works	Unit of Measure (QTY)	Unit Price (Rs)	Total Price (Rs)
1	Excavation, carting away of excess soil and construction of reinforced concrete foundation for lighting columns and sign board.	Sum		
2	Supply and install hot-dip galvanized double bracket lighting column as per specifications on Reinforced Concrete foundation.	6		
3	Supply and install LED lantern with integrated Battery, solar module and solar charge controller with automatic lighting control functions (<i>minimum 5 yrs warranty & European standard</i>) as per specifications.	12		
4	The complete project to be designed & built and commissioned by a professional Electrical Engineer, duly registered with the Council of Registered Professional Engineers.	SUM		
			Subtotal	
			VAT @ 15 %	
			Total	

Priced Activity Schedule Authorised By:

Name:		Signature:	
Position:		Date:	
Name of Company		Seal of Company:	

BILL F**Priced Activity Schedule for Provision of Lighting Facilities through PV Solar panels at Quatre Soeurs public beach.**

Item No	Brief Description of Works	Unit of Measure (QTY)	Unit Price (Rs)	Total Price (Rs)
1	Excavation, carting away of excess soil and construction of reinforced concrete foundation for lighting columns and sign board.	Sum		
2	Supply and install hot-dip galvanized double bracket lighting column as per specifications on Reinforced Concrete foundation.	10		
3	Supply and install LED lantern with integrated Battery, solar module and solar charge controller with automatic lighting control functions (minimum 5 yrs warranty & European standard) as per specifications.	20		
4	The complete project to be designed & built and commissioned by a professional Electrical Engineer, duly registered with the Council of Registered Professional Engineers.	SUM		
			Subtotal	
			VAT @ 15 %	
			Total	

Priced Activity Schedule Authorised By:

Name:		Signature:	
Position:		Date:	
Name of Company:		Seal of Company:	

BILL G**Priced Activity Schedule for Provision of Lighting Facilities through PV Solar panels at Providence public beach.**

Item No	Brief Description of Works	Unit of Measure (QTY)	Unit Price (Rs)	Total Price (Rs)
1	Excavation, carting away of excess soil and construction of reinforced concrete foundation for lighting columns and sign board.	Sum		
2	Supply and install hot-dip galvanized double bracket lighting column as per specifications on Reinforced Concrete foundation.	4		
3	Supply and install LED lantern with integrated Battery, solar module and solar charge controller with automatic lighting control functions (minimum 5 yrs warranty & European standard) as per specifications.	8		
4	The complete project to be designed & built and commissioned by a professional Electrical Engineer, duly registered with the Council of Registered Professional Engineers.	SUM		
			Subtotal	
			VAT @ 15 %	
			Total	

Priced Activity Schedule Authorised By:

Name:		Signature:	
Position:		Date:	
Name of Company:		Seal of Company:	

BILL H**Priced Activity Schedule for Provision of Lighting Facilities through PV Solar panels at Baie du Cap public beach.**

Item No	Brief Description of Works	Unit of Measure (QTY)	Unit Price (Rs)	Total Price (Rs)
1	Excavation, carting away of excess soil and construction of reinforced concrete foundation for lighting columns and sign board.	Sum		
2	Supply and install hot-dip galvanized double bracket lighting column as per specifications on Reinforced Concrete foundation.	8		
3	Supply and install LED lantern with integrated Battery, solar module and solar charge controller with automatic lighting control functions (minimum 5 yrs warranty & European standard) as per specifications.	16		
4	The complete project to be designed & built and commissioned by a professional Electrical Engineer, duly registered with the Council of Registered Professional Engineers.	SUM		
			Subtotal	
			VAT @ 15 %	
			Total	

Priced Activity Schedule Authorised By:

Name:		Signature:	
Position:		Date:	
Name of Company:		Seal of Company:	

BILL I**Priced Activity Schedule for Provision of Lighting Facilities through PV Solar panels at La Pointe Cassis Le Morne Village public beach.**

Item No	Brief Description of Works	Unit of Measure (QTY)	Unit Price (Rs)	Total Price (Rs)
1	Excavation, carting away of excess soil and construction of reinforced concrete foundation for lighting columns and sign board.	Sum		
2	Supply and install hot-dip galvanized double bracket lighting column as per specifications on Reinforced Concrete foundation.	5		
3	Supply and install LED lantern with integrated Battery, solar module and solar charge controller with automatic lighting control functions (minimum 5 yrs warranty & European standard) as per specifications.	10		
4	The complete project to be designed & built and commissioned by a professional Electrical Engineer, duly registered with the Council of Registered Professional Engineers.	SUM		
			Subtotal	
			VAT @ 15 %	
			Total	

Priced Activity Schedule Authorised By:

Name:		Signature:	
Position:		Date:	
Name of Company:		Seal of Company:	

BILL J**Priced Activity Schedule for Provision of Lighting Facilities through PV Solar panels at Bois des Amourettes public beach.**

Item No	Brief Description of Works	Unit of Measure (QTY)	Unit Price (Rs)	Total Price (Rs)
1	Excavation, carting away of excess soil and construction of reinforced concrete foundation for lighting columns and sign board.	Sum		
2	Supply and install hot-dip galvanized double bracket lighting column as per specifications on Reinforced Concrete foundation.	2		
3	Supply and install LED lantern with integrated Battery, solar module and solar charge controller with automatic lighting control functions (minimum 5 yrs warranty & European standard) as per specifications.	4		
4	The complete project to be designed & built and commissioned by a professional Electrical Engineer, duly registered with the Council of Registered Professional Engineers.	SUM		
			Subtotal	
			VAT @ 15 %	
			Total	

Priced Activity Schedule Authorised By:

Name:		Signature:	
Position:		Date:	
Name of Company:		Seal of Company:	

Section IV - Evaluation Criteria

This section contains supplementary criteria that the Employer shall use to evaluate bids.

1. Evaluation

In addition to the criteria listed in ITB 33 the following criteria shall apply:

(a) Adequacy of Technical Proposal

Evaluation of the Bidder's Technical Proposal will include an assessment of the Bidder's technical capacity to mobilize key equipment and personnel for the contract consistent with its proposal regarding work methods, scheduling, and material sourcing in sufficient detail and fully in accordance with the requirements stipulated in Section V (Employer's Requirements).

(b) Multiple Contracts

Pursuant sub-clause 1.1 of the Instructions to Bidders, if Works are grouped in multiple contracts, evaluation will be as follows:

Evaluation will be effected Lot wise.

(c) Completion Time

An alternative Completion Time, if permitted under ITB 15.1, will be evaluated as follows:

Alternative completion time is not permitted.

(d) Technical Alternatives

Technical alternatives, if permitted under ITB 15.1, will be evaluated as follows:

Bidder will be requested to submit Pamphlets, Brochures, Catalogues and relevant calculation to enable valid assessment of the offer.

(e) Margin of Preference

A Margin of Preference for employment of local manpower shall be applicable as follows:

1.1 For International Bidding

A bidder, incorporated in the Republic of Mauritius, who undertakes to employ local manpower for 80% or more of the total man-days deployed for the execution of a works contract referred hereto, shall be eligible for a preference of 15%.

43.2 For National Bidding

- (a) A local Small and Medium enterprise, having an annual turnover not exceeding Rs 50million or a joint venture consisting of local Small and Medium Enterprises having an aggregate annual turnover not exceeding Rs 50million who undertakes to employ local manpower for 80% or more of the total man-days deployed for the execution of the works contract referred hereto, shall be eligible for a Margin of Preference of 20%.
- (b) Any bidder incorporated in the Republic of Mauritius not satisfying all the conditions mentioned in (a) above but undertakes to employ local manpower for 80% or more of the total man-days deployed for the execution of the works contract referred hereto, shall be eligible for a Margin of preference of 10%.

Note: Local manpower shall mean employees on the payroll of the Contractor as well as those for subcontractors for executing the works contract on the site.

SAMPLE

PART 2 – Employer’s Requirements

SAMPLE

Section V - Employer's Requirements

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SAMPLE

SCOPE OF WORKS, SPECIFICATIONS AND PERFORMANCE REQUIREMENTS

INTRODUCTION

The Client intends to undertake the Project of Providing Lighting Facilities on Public Beaches through PV Solar Panels and the list of Sites are as hereunder:

- i. Pte aux Piments,
- ii. Bain Boeuf
- iii. Grand Gaube
- iv. Roches Noires
- v. Poste Lafayette
- vi. Quatre Soeurs
- vii. Providence
- viii. Baie du Cap
- ix. La Pointe Cassis Le Morne Village
- x. Bois des Amourettes

PROJECT OBJECTIVES

- Provide physical security whilst providing a basic amenity to beach users/picknickers.
- Promote leisure and recreational activities in a sound and safe environment for longer hours.
- Reduce dependency of electricity generated from fossil fuels
- Achieve energy efficiency in public lighting.
- Make Government to lead by example in the promotion of renewable energies.

SCOPE OF WORKS, SPECIFICATIONS AND PERFORMANCE REQUIREMENTS

SCOPE OF WORKS –

1. The bidder shall provide Photo-voltaic Stand- Alone double bracket LED Lighting System, suitable for the beach. The system shall be easy to install. A minimum of five year warranty on the full system shall be provided. The average illumination shall be around 15-20 lux per luminaire.
2. The bidder shall supply, install and commission **64 units** Photo-Voltaic Stand Alone double bracket LED Lighting System as per specification.

The work to be carried out under the contract shall include the supply, install and commission of 16 numbers of double bracket lighting columns and all accessories to form a complete beach lighting installation on public beaches namely: **Pte aux Piments (10), Bain Boeuf (10), Grand Gaube (4), Roches Noires (5), Poste Lafayette (6), Quatre Soeurs (10), Providence (4), Baie du Cap (8), La Pointe Cassis (5), Bois des Amourettes (2)**

3. The contractor shall provide and maintain one sign board per site in location to be agreed with the client for the display of names of project, client and contractor.
4. The columns with a single outreach shall be of nominal height of 6m. All columns for lighting poles shall be provided with a galvanised flanged base-plate surface mounted on a reinforced concrete column using galvanised anchored steel bolts. All steel works shall be hot dip galvanized.
5. The columns to be located at a minimum setback of 30 metres from High Water Mark.
6. The columns and brackets including anchor bolts shall be capable of supporting the two luminaires with integral accessories and shall be able to resist cyclonic gusts of at least 300 km/hr. The whole system shall be resistive to marine environment.
7. The double brackets shall be securely fixed to the column to prevent rotation. The brackets shall give a maximum outreach to the centre of Lantern as per the Lantern manufacturer's recommendation in order to achieve the best utilisation and uniformity of light.
8. Steel anchor bolts with two nuts per bolt (both bolts and nuts being hot dipped galvanised) are to be supplied and installed in previously cast foundation by the contractor. The contractor will be required to place anchor bolts in box outs in these foundations and concrete the bolts into the foundation.
9. The concrete foundation shall be constructed by the main contractor with a box out for the insertion and final concreting of anchor bolts. All concrete works to be Grade 30. The base plate including bolts and nuts to be covered neatly with concrete mortar as per Project Manager's Approval.

10. After the pole has been plumbed, all the space below the base and bolts is to be grouted with Epidermix 372 or the contractor may use chemical bolts.
11. All works including all necessary civil works shall be carried out by the main contractor as per specifications.
12. The bidder shall cater for any associated civil works for achieving the above mentioned works.

SPECIFICATIONS FOR SOLAR PANEL, CONTROL BOX, BATTERIES AND POLES SHALL BE AS FOLLOWS:

- Country of origin shall be specified.
- Shall be compliant with European standards
- Hot dipped galvanised steel pole
- Height of poles 6m (approx.)
- Height of luminaires above ground 6m
- Supplied with charge controller and timer
- Lithium Ion Battery suitable for solar application or equivalent with a minimum battery life of five years. Three days autonomy with a maximum of 12 hours daily operation.
- Poles and its assemblies shall be designed to withstand cyclonic winds of approximately 300km/h or more, that is, of grade at least **GR 65** material which is a low alloy structural steel.
- All cables and other accessories such as stainless steel nuts, connectors shall be provided. Solar charge controller with automatic lighting control functions. Functions to turn on/off the light automatically by detecting the brightness level all through the year. Function to protect the battery from overcharging or over discharging. The controller must have an aluminium shell, for easy heat dissipation. The controller must have an IP 68 water proof rating.
- Solar lighting systems with dimming capabilities are preferred.

SPECIFICATIONS FOR LUMINAIRE TECHNICAL DATA

- European standard with five years warranty
- High efficiency LED lamps (super bright LED)
- LED street lantern 100 lm/W or greater
- Color Temperature 4000 – 6000 K
- Street lighting fixture to IP 65 or better
- LED life cycle of 50,000 hours at L70, LM 80
- Rust and Corrosion free
- Power efficiency >90%
- Instant start
- Operates in high humidity and marine environment
- Viewing angle 120°
- Working temperature – 30° C – + 60° C.
- Infrared motion sensor
- Surge protector

SPECIFICATIONS AND PERFORMANCE REQUIREMENTS**1.1 Submission**

1. Submit shop drawings
 - a) Show all reinforcement details for bases and stub columns including types, numbers, dimensions, spacing, appropriate curtailment, cover to reinforcement, grade of concrete and all other pertinent data.
 - b) Show all connections details for lighting pole, including large scale details of members and materials, of brackets and anchoring devices and of connection and jointing details fully dimensioned layouts for positioning on brackets, bolts and anchoring devices structures, dimensions gauges, thickness, description of materials including catalogue members, product and manufacturer's name, alloy, finishes specifications and all other pertinent data.
 - c) The manufacturers shall guarantee adherence to this Specification and the performance of their luminaire under all the required design conditions. Independent test reports shall be provided to show the luminaires will operate under these conditions.

1.2 Delivery and Storage

1. Adequately protect lighting poles, accessories and finishes to prevent damages thereto during fabrication, storage shipping handing and installation.
2. Deliver, handle and store units by methods approved by manufacturer. Protect from damage and staining.
3. Protect stills and stools after installation with suitable protection, secured in place, to prevent staining or scratching.

1.3 Warranty

1. **The contractor shall submit a warranty in writing from the manufacturer certifying that the lighting poles can resist cyclonic winds of not less than 300 km/hr. (To be submitted upon award of contract)**
2. **The contractor shall also submit a certificate duly signed by Civil/Structural Engineer registered with the council of Registered Professional Engineer (CRPE), certifying that the reinforcement and the sizing of the concrete bases and stub columns fixed in position shall withstand wind speed of not less than 300km/hr and to also submit design calculations. This certificate shall in no way waive or diminish the contractor's liability towards the employer. (To be submitted upon award of contract)**
3. **At time of submission of bid: (i) Complete Test Certificate of the luminaire by an internationally recognized laboratory and IEC approved shall be submitted. (ii) The supplier shall also submit a warranty certificate of five years for the luminaires from the manufacturer.**
4. **A Bank guarantee 5% of contract value to be submitted upon commissioning of project covering a period of five years.**

1.4 Materials

1. Low alloy structural steel plate – ASTM A572 Grade 65.
2. Bolts, screws and fasteners: Hot dipped galvanized.

The mechanical properties for ASTM A572 Grade 65 steel plate:

Grade	Thickness (mm)	Min Yield (Mpa)	Tensile (Mpa)	Elongation (%)
A572 Gr 65	4-6 mm	636 Mpa	687 Mpa	24 %

The min impact energy is longitudinal energy

TEST FOR CONCRETE

1 CONCRETE

1.1 Scope of Section

This section covers concrete and mortar required in the Permanent Works other than the special concretes and mortars specified in other sections of the Specification.

1.2 Definitions

Structural concrete is any class of concrete which is used in reinforced, prestressed or unreinforced concrete construction, which is subject to stress and which is required to comply with Clause 7.4.

Non-structural concrete is composed of materials complying with the Specification but for which no strength requirements are specified and which is used only for filling voids and similar purposes where it is not subjected to significant stress.

A formed surface is a face which has been cast against formwork. A free surface is a horizontal or nearly horizontal surface produced by screeding or trowelling to the level and finish required. A pour refers to the operation of placing concrete into any mould, bay or formwork, etc, and also to the volume which has to be filled. Pours in vertical succession are also referred to as lifts.

Water/cement ratio is the ratio by weight of the free water in the mix divided by the weight of cement in the mix. Free water is the water in the mix excluding water absorbed by the aggregate.

1.3 Materials for Concrete

1.3.1 General

The Contractor shall submit to the Employer's Representative full details of all materials which he proposes to use for making concrete. No concrete shall be placed in the Permanent Works until the Employer's Representative has approved the materials of which it is composed. Approved materials shall not thereafter be altered or replaced by other materials without the consent of the Employer's Representative.

1.3.2 Cement

(a) Cement shall comply with the appropriate Standards, which include the following:-

- BS 12 Portland Cement
- BS 4027 Sulphate resisting Portland Cement
- BS 5075 Concrete Admixtures
- Part 1: Accelerating admixtures, retarding admixtures and water reducing admixtures
- Part 2: Air entraining admixtures
- Part 3: Super plasticising admixtures

Cement shall be free flowing and free of lumps. It shall be supplied in the manufacturer's sealed unbroken bags or in bulk. Bagged cement shall be transported in vehicles provided with effective means of ensuring that it is protected from the weather. Bulk cement shall be transported in vehicles or in containers built and equipped for the purpose.

Cement in bags shall be stored in a suitable weatherproof structure of which the interior shall be dry and well ventilated at all times. The floor shall be raised above the surrounding ground level and shall be so constructed that no moisture rises through it.

Each delivery of cement in bags shall be stacked together in one place. The bags shall be closely stacked but shall not be stacked against an outside wall. If pallets are used, they shall be constructed so that bags are not damaged during handling and stacking. No stack of cement bags shall exceed 3 m in height. Different types of cement in bags shall be clearly distinguished by visible markings and shall be stored in separate stacks.

Cement from broken bags shall not be used in Permanent Works. Cement in bags shall be used in the order in which it is delivered. Bulk cement shall be stored in weatherproof silos which shall bear a clear indication of the type of cement contained in them. Different types of cement shall not be mixed in the same silo.

The Contractor shall provide sufficient storage capacity on Site to ensure that his anticipated programme of work is not interrupted due to lack of cement having due regard to factors outside the Contractor's control such as transport, weather conditions, holidays and breakdowns.

Cement which has become hardened or lumpy or fails to comply with the Specification in any way shall be removed from the Site.

All cement used in the Permanent Works shall be tested by the manufacturer or the Contractor in a laboratory acceptable to the Employer's Representative. The tests shall be in accordance with Test A1 in Appendix B, and the Contractor shall supply two copies of each test certificate to the Employer's Representative.

Each set of tests carried out by the manufacturer or Contractor shall relate to not more than one day's output of each cement plant, and shall be made on samples taken from cement which is subsequently delivered to the Site. Alternatively, subject to the agreement of the Employer's Representative, the frequency of testing shall be one set of tests for every 200 tonnes of cement delivered to Site from each cement plant.

Cement which is stored on Site for longer than one month shall be retested in a laboratory acceptable to the Employer's Representative at the rate of one set of tests for every 200 tonnes, and at monthly intervals thereafter.

Cement which does not comply with the Specification shall not be used in the Permanent Works.

The Contractor shall keep full records of all data relevant to the manufacture, delivery, testing and use of all cement used in the Permanent Works and shall provide the Employer's Representative with two copies thereof.

1.3.3 Aggregates for Concrete

Aggregates for concrete shall conform to the requirements for fine and coarse aggregates in BS 882. Fine and coarse aggregates shall separately conform to the requirements set out below:-

(a) General Requirements

Aggregate shall be clean, hard, durable and frost resistant and shall not contain iron pyrites, iron oxides (other than magnetite), mica, shale, coal or other laminar, soft or porous materials.

(b) Grading

Fine aggregate shall conform to BS 882 Table 5, Zones C or M. In order to achieve an acceptable grading it may be necessary to blend materials from more than one source. Coarse aggregates shall be supplied in the normal sizes specified and shall be graded in accordance with BS 882 for single sized aggregates. A coarse aggregate shall be predominantly angular, rounded or irregular as defined in BS 812, part 1.

(c) Chlorides

The chloride content shall not exceed 0.03 per cent by weight expressed as chloride ion when tested in accordance with BS 812 subject to the further restriction on total chloride content hereunder.

(d) Sulphates

The sulphate content shall not exceed 0.4 per cent by weight expressed as SO_3 when tested.

(e) Total Chloride and Sulphate Content

The total chloride content arising from all ingredients in a mix including cement, water and admixtures shall not exceed the following limits, expressed as chloride ion and as percentage of the weight of cement in the mix:-

For prestressed concrete, steam cured concrete or concrete containing sulphate resisting or supersulphated cement: 0.05 per cent.

For any other reinforced concrete 0.3 per cent in 95 per cent of all test results providing no result is more than 0.5 per cent.

The total sulphate content expressed as SO₃ of all ingredients in a mix including cement, water and admixtures shall not exceed 4.0 per cent of the weight of cement in the mix.

(f) Soundness

As may be required, aggregates shall not show a weight loss of more than 18 per cent using magnesium sulphate.

(g) Alkali Reactive Minerals

No part of the aggregates shall contain any mineral known to have a potential to cause alkali silica, alkali silicate, alkali carbonate or any other damaging chemical reaction between alkalis and aggregates.

The minerals present should be determined as required, on a range of samples selected to include every mineral type present in the aggregate as a whole irrespective of the proportion of the mineral.

If during the course of the test it is concluded that an unequivocal identification of a potentially reactive mineral is not possible, alternative tests shall be carried out such as to provide the required identification

(h) Flakiness

Flakiness index of coarse aggregates when tested in accordance with BS 812 shall be as set out hereunder and not as given in BS 882 Table 1.

For nominal 40mm aggregate and above, not more than 40
For nominal 20mm aggregate and below, not more than 35.

(i) Shell Content

In addition to the requirements of BS 882, the content of hollow and flat shells shall not be such as will reduce the 28 day strength below the minimum average strength required or reduce the average 28 day strength by more than 5 percent when tested in accordance with BS 1881 when 10 cubes made of concrete with shells are compared with 10 cubes made of concrete with shells removed.

(j) Water Absorption

The coarse aggregate shall not have water absorption of more than 2.5 per cent when tested as set out in BS 812.

(k) Organic impurities

Fine aggregate shall be tested as set out in BS 1377 Test 8 and rejected if the percentage of organic matter exceeds 1 percent.

1.3.4 Aggregates for Mortar

Aggregates for mortar shall conform to BS 1200

1.3.5 Testing Aggregates

(a) Acceptance testing

The Contractor shall deliver to the Employer's Representative samples containing not less than 50 kg of any aggregate which he proposes to use in the Permanent Works and shall supply such further samples as the Employer's Representative may require. Each sample shall be clearly labelled to show its origin and shall be accompanied by all the information called for in BS 882.

Tests to determine compliance of the aggregates with all the requirements of Clauses 7.3.3 or 7.3.4 shall be carried out by the Contractor in a laboratory acceptable to the Employer's Representative. If the tested materials fail to comply with the Specification, further tests shall be made in the presence of the Contractor and the Employer's Representative and acceptance of the material shall be based on such tests.

The acceptance tests carried out by the Contractor shall generally be on three representative samples of fine and coarse aggregates taken in the presence of the Employer's Representative. Total numbers of tests required for acceptance are as follows:-

Test	Fine Aggregates	Coarse Aggregates
Water absorption	-	3*
Flakiness Index	-	3*
Shell Content determination	-	3*
Test for shell content (Where required)	-	1
10% Fines test or aggregate impact value	-	3*
Grading	3*	3 on each nominal size
Chloride content	3*	3*
Sulphate content	3*	3*
Soundness	-	3*
Petrographic examination	As required, minimum 3	As required, minimum 3
Clay, silt and dust determination	3	3
Organic impurities	3	3

* One test on each sample

If at any time a significant physical or chemical change in the nature of the coarse or fine aggregate occurs, or a new source of aggregate is used, the Employer's Representative may direct that some or all of the acceptance testing is repeated.

(b) Routine Testing

The Contractor shall carry out routing testing of aggregates for compliance with the Specification during the period in which concrete is being produced for the Permanent Works. The tests set out below shall be performed on aggregates from each separate source on the basis of one set of tests for each day on which aggregates are delivered to Site provided that no set of tests shall represent more than 250 tonnes of fine aggregate nor more than 500 tonnes of coarse aggregate, and provided also that the aggregates are of uniform quality. If the aggregate from any source is variable, the frequency of testing shall be as instructed by the Employer's Representative.

Grading	BS 812
Silt and clay content	BS 812
Moisture content	BS 812

In addition to the above routine tests, the Contractor shall carry out the following tests at the frequencies stated:

Moisture content: As frequently as may be required in order to control the water content of the concrete as required by the Specification.

Chloride content: As frequently as may be required to ensure that the proportion of chlorides in the aggregates does not exceed the limit stated in the Specification.

The Contractor shall take account of the fact that when the chloride content is variable it may be necessary to test every load in order to prevent excessive amounts of chloride contaminating the concrete. For this purpose the Contractor shall use the rapid field test (the Quantab test). In the event of disagreement regarding the results of the field test, the chloride content of the aggregate shall be determined in the laboratory as described in BS 812 (the Volhard test).

1.3.6 Delivery and Storage of Aggregates

Aggregates shall be delivered to Site in clean and suitable vehicles. Different types or sizes of aggregate shall not be delivered in one vehicle.

Each type or size of aggregate shall be stored in a separate bin or compartment having a base such that contamination of the aggregate is prevented. Dividing

walls between bins shall be substantial and continuous so that no mixing of types or sizes occurs.

The storage of aggregates shall be arranged so that as far as possible rapid drying out in hot weather is prevented in order to avoid sudden fluctuations in water content. Storage of fine aggregates shall be arranged so that they can drain sufficiently before use in order to prevent fluctuations in water content of the concrete.

1.3.7 Water for Concrete and Mortar

Water for mixing or curing concrete or mortar shall not contain more than the following concentrations of impurities:-

	Max ppm
The sum of sulphates, alkali carbonates and bicarbonates	1000
Chlorides	500
Suspended solids	2000
Other dissolved solids	2000
Seawater or brackish water shall not be used	

At the commencement of the Works the Contractor shall send a sample of the water proposed for concrete and mortar to an accredited laboratory capable of carrying out the full analysis of potable water in accordance with either the "Analysis of Raw, Portable and Waste Waters" published by Her Majesty's Stationery Office (HMSO) or "The Standard Method of Examination of Water and Waste Waters" published by the American Water Works Association (AWWA). The results of the analysis shall be submitted to the Employer's Representative. The sample of water sent for analysis shall be taken in the presence of the Employer's Representative. If the water selected comes from a reliable portable water source the Contractor shall obtain a copy of a recent analysis from the chemist of the Water Authority. If the Employer's Representative considers this satisfactory the tests required above need not be carried out.

If the source of water is changed it shall be tested as above. If water contains 80 percent of the maximum concentration of impurities properties given above it shall be retested at two monthly intervals.

1.3.8 Admixtures

(a) General

The use of admixtures in concrete may be required under the Contract to promote special properties to the concrete or may be proposed by the Contractor to assist compliance with the Specification.

In all cases the Contractor shall submit to the Employer's Representative full details of the admixture he proposes to use and the manner in which he proposes to add it to the mix. The information provided shall include:

- i. The typical dosage and the detrimental effects of an excess or deficiency in the dosage
- ii. The chemical names of the main active ingredients in the admixture
- iii. Whether or not the admixture contains chlorides, and if so the chloride ion content expressed as a percentage by weight of admixture
- iv. Whether the admixture leads to the entrainment of air when used at the manufacturer's recommended dosage, and if so, the extent to which it does so
- v. Long and short term effects of the admixture on concrete including the effects on different types of cement and aggregates
- vi. Storage life
- vii. Safety precautions required in handling
- viii. Compatibility with other additives
- ix. Compliance with Standards.

The chloride ion content of any admixture shall not exceed 2 per cent by weight of the admixture nor 0.03 per cent by weight of the cement in the mix.

Admixtures shall not mix together without the consent of the Employer's Representative.

(b) Super Plasticizing Admixtures

Super plasticizing admixtures shall comply with BS 5075 Part 3.

If the Drawings specify or the use of super plasticizing admixtures is subsequently authorized by the Employer's Representative, the Flow Table test carried out in accordance with BS 1881 Part 105 shall be used to control and record workability.

Test cubes shall be made in accordance with BS 1881 except that the concrete shall be placed in the cubes and compacted to the same degree as the concrete placed in the works.

In addition to the normal trial mix cubes required an additional set of cubes shall be made with 1.5 times the intended super plasticizing admixture addition to assess the effect of overdosage on the concrete.

If the super plasticizing additive is not specified but the Contractor requests permission to use it the Employer's Representative shall not approve its use unless full particulars including chemical constituents of the admixture are submitted and the additional trial mixes mentioned above have been carried out and all are considered satisfactory.

The Employer's Representative reserves the right to refuse the use of super plasticizing admixture for concrete required for particular structures.

(c) Air Entraining Agents

In addition to the general requirements, air entraining agents shall be capable of producing an air content in concrete mixes within the limits stated on the Drawings without any tendency to produce excessive air content in the event of prolonged mixing times

The effect of a proposed air entraining agent shall be tested by the Contractor in trial mixes produced in the plant which he proposes to use for the Permanent Works

Air entraining agents shall comply with BS 5075.

(d) Workability Agents

Subject to the agreement of the Employer's Representative, admixtures may be used by the Contractor to assist in meeting the requirements of the Specification or to aid the placing of concrete.

Workability agents shall comply with BS 5075 and shall not have any adverse effect on the properties of the concrete. If a reduction in strength of the concrete is caused, the Contractor shall counteract this by a reduction in water cement ratio or by an increase in cement content.

1.3.9 Other Cementitious Components

(a) Pulverised Fuel Ash

Pulverised Fuel ash shall comply with the requirements of BS 3892 and shall have a carbon content not exceeding seven per cent by weight

The maximum sulphate content of PFA expressed as SO_3 shall be 2.5 per cent by weight of PFA but if the weight of PFA in the mix exceeds the weight of cement in the mix, the maximum content of SO_3 shall be 1.5 per cent.

The maximum SO_3 content of the mix shall not exceed the limit given in clause 7.3.3

The fineness as expressed by the specific surface shall be within the range of Zones B or C in BS 3892, and not more than one test in ten shall show a result falling outside this range.

Pulverised fuel ash shall only be used in conjunction with cement complying with BS 12 and the total sulphate content of the mix from all sources, expressed as SO_3 shall not exceed that stated in Clause 7.3.3(e).

1.4 Design of Concrete Mixes for Structural Concrete

1.4.1 Classes of Concrete

The classes of structural concrete to be used in the Permanent Works shall be those shown on the Drawings. The classes are designated in Table 7.1

Table 7.1

CONCRETE CLASSES

Class of Concrete	Minimum Cement Content Kg/m ³	Maximum Water/Cement Ratios		150mm cubes Required Minimum Average 28 day strength (M.A.S) N/mm ²
C20	180	0.61	-	20
C25	200	0.59	-	25
C30	230	0.57	-	30
C35A	325	0.53	0.50	35
C40	350	0.49	0.46	40

M.A.S = Required Minimum Average 28 day Strength

Concrete for water retaining shall have a maximum cement content of 400 kg/m³ and maximum water/cement ratios as column B above or as shown on the Drawings.

Concrete for other structures shall have maximum water/cement ratios as column A above or as shown on the Drawings.

The coarse aggregate maximum size shall be 20 mm unless 10 mm or 40 mm are shown on the Drawings.

1.4.2 Design of Proposed Mixes

The Contractor shall design the mixes which he proposes to use in the Permanent Works to achieve acceptable workability and resistance to segregation during handling and placing. Mixes shall be designed in accordance with the requirements of BS 5328 and shall also comply with the following requirements:

- (a) The aggregate portion shall be well graded from the nominal maximum size of stone down to the 150 micron size.
- (b) The cement contents shall be as designated in Table 7.1 unless a higher cement content is required to meet the strength requirement
- (c) The water/cement ratio shall be the minimum consistent with adequate workability but in any case not greater than that shown in Table 7.1 taking due account of any water contained in the aggregates. The Contractor shall take into account that this requirement may need the inclusion of a workability agent in the mix.

- (d) The workability shall be consistent with ease of placing and proper compaction having regard to the presence of reinforcement and embedded items.
- (e) The crushing strength at 28 days as determined in accordance with Sub-Clause 7.4.3 shall not be less than the minimum average strength given in Table 7.1 plus 2 N/mm^2
- (f) The drying shrinkage determined in accordance with BS 1881 shall not be greater than 0.05 per cent.
- (g) Blinding concrete shall be Class C 15 unless otherwise indicated on the drawings.

The Contractor shall submit full details of all the mixes he proposes to use to the Employer's Representative.

1.4.3 Trial Mixes with 150 mm test cubes

For each mix of concrete the Contractor shall in the presence of a representative of the Employer's Representative prepare three separate batches of concrete using the materials which have been approved for use in the Permanent Works and the mixing plant which he proposes to use for the Permanent Works.

Six test cubes shall be cast from each batch. The making, curing and testing of all test cubes shall comply with the requirements of BS 1881. The slump of the concrete carried out in accordance with BS 1881 shall be recorded.

Three cubes from each batch shall be tested for compressive strength at seven days and the remaining three at 28 days. The density of all the cubes shall be determined before the cubes are crushed.

The average value of the crushing strength of the nine cubes tested at 28 days less 2 N/mm^2 shall be greater than the Minimum Average Strength given in Table 7.1 for the class of concrete tested.

If the 28 day strength determined as above is less than the minimum average strength shown in Table 7.1 plus 2 N/mm^2 the mix shall be adjusted in order to comply. If adjustment of aggregate proportions does not increase the strength the water cement ratio shall be reduced.

If it is then necessary to increase the workability the use of plasticity additive will be accepted. An increase in cement content will not normally be acceptable.

The average strength of the final nine trial mix 28 day cubes accepted by the Employer's Representative shall be referred to thereafter as the 'final trial mix strength'. The Contractor shall carry out tests to determine the drying shrinkage of the concrete.

If the Employer's Representative does not agree to a proposed concrete mix for any reason, the Contractor shall amend his proposals and carry out further trial

mixes. No mix shall be used in the Permanent Works without the written consent of the Employer's Representative.

Based on the results of the tests on the trial mixes, the Contractor shall submit full details of his proposals for mix design to the Employer's Representative, including the type and source of each ingredient, the proposed proportions of each mix and the results of the tests on the trial mixes

1.4.4 Quality Control of Concrete Production (150 mm cubes)

For each class of concrete in production at each plant for use in the Permanent Works, samples of concrete shall be taken at the point of mixing or of deposition as instructed by the Employer's Representative and in the presence of a representative of the Employer's Representative, all in accordance with the sampling procedures described in BS 1881.

The slump of each sample carried out in accordance with BS 1881 shall be determined at the time of sampling.

Samples shall be taken on the basis of one for each 20 m³ of concrete placed but in any case not less than one sample per day or one sample for each pour of concrete placed, whichever is the more frequent.

Three 150 mm test cubes shall be cast from each sample, cured and tested as set out in BS 1881. One cube shall be tested at seven days and two at 28 days.

The average strength of the two cubes crushed at 28 days shall be referred to as one test result.

Concrete shall be deemed to comply with the strength specified if the average strength of any four consecutive test results (8 cubes) exceeds the final average trial mix strength minus 2 N/mm² for the Class of concrete with no single test result (2 cubes) being less than the final average trial mix strength minus 6 N/mm²

1.4.5 Failure to Comply with Requirements

The Contractor shall take any action instructed by the Employer's Representative to remedy concrete that fails to comply with the Specification. Such action may include but is not necessarily confined to the following:

- (a) Adjusting the mix proportions until the concrete again complies with the Specification
- (b) Cutting test cores from the failed concrete and testing in accordance with BS 1881
- (c) Carrying out additional works to overcome the effect of the failed concrete
- (d) Removing the failed concrete
- (e) Increasing the frequency of sampling until control is again established.

1.5 Mixing Concrete

Before any plant for batching, mixing, transporting, placing, compacting and finishing concrete is ordered or delivered to Site, the Contractor shall submit to the Employer's Representative full details including drawings of all the plant which he proposes to use and the arrangements he proposes to make.

Concrete for the Permanent Works shall be batched and mixed in one or more central plants unless the Employer's Representative agrees to some other arrangement.

Batching and mixing plants shall be modern efficient equipment complying with the requirements of BS 1305 and capable of producing a uniform distribution of the ingredients throughout the mass. Truck mixers shall not be used unless the Employer's Representative agrees otherwise, in which case they shall comply with the requirements of BS 4251.

If the plant proposed by the Contractor does not fall within the scope of BS 1305, it shall have been tested in accordance with BS 3963 and shall have a mixing performance within the limits of Table 6 of BS 1305.

Unless the Employer's Representative agrees otherwise, each mixing plant shall be tested for mix variability as set out in Test A 8 in Appendix B before it is used to mix concrete for the Permanent Works. All mixing operations shall be under the control of an experienced supervisor.

The aggregate storage bins shall be provided with drainage facilities arranged so that drainage water is not discharged to the weigh hoppers. Each bin shall be drawn down at least once per week and any accumulations of mud or slit removed.

Cement and aggregates shall be batched by weight. Water may be measured by weight or volume. The weighing and water dispensing mechanisms shall be maintained in good order. Their accuracy shall be maintained within the tolerances described in BS 1305 and checked against accurate weights and volumes when required by the Employer's Representative.

The weights of cement and of each size of aggregate indicated by the mechanisms employed shall be within a tolerance of plus or minus two per cent of the respective weights per batch agreed by the Employer's Representative.

The Contractor shall provide standard test weights at least equivalent to the maximum working load used on the most heavily loaded scale and other auxiliary equipment required for checking the satisfactory operation of each scale or other measuring device. Tests shall be made by the Contractor at intervals to be determined by the Employer's Representative and shall be carried out in his presence.

For the purpose of carrying out these tests, there shall be easy access for personnel to the weigh hoppers. The Contractor shall furnish the Employer's Representative

with copies of the complete results of all check tests and shall make any adjustments, repairs or replacements necessary to ensure satisfactory performance.

The nominal drum or pan capacity of the mixer shall not be exceeded. The turning speed and the mixing time shall be as recommended by the manufacturer, but in addition, when water is the last ingredient to be added, mixing shall continue for at least one minute after all the water has been added to the drum or pan.

If the Employer's Representative has reason to doubt the adequacy of the mixing, he may order a variability test as set out in Test A8 in Appendix B and the Contractor shall forthwith carry out such tests, the results of which shall comply with the requirements shown in Appendix B.

The blades of pan mixers shall be maintained within the tolerances specified by the manufacturer of the mixer and the blades shall be replaced when it is no longer possible to maintain the tolerances by adjustment.

Mixers shall be fitted with an automatic recorder registering the number of batches discharged. The water to be added to the mix shall be reduced by the amount of free water contained in the coarse and fine aggregates. This amount shall be determined by the Contractor by a method agreed by the Employer's Representative immediately before mixing begins each day and thereafter as the Employer's Representative directs.

When the correct quantity of water, determined as set out in the Specification, has been added to the mix, no further water shall be added, either during mixing or subsequently. After mixing for the required time, each batch shall be discharged completely from the mixer before any materials for the succeeding batch are introduced.

Mixers which have been out of use for more than 30 minutes shall be thoroughly cleaned before any fresh concrete is mixed and thereafter the first batch of concrete through the mixer shall contain only half the normal quantity of coarse aggregate. This batch shall be mixed for one minute longer than the time applicable to a normal batch. Mixers shall be cleaned out before changing to another type of cement.

1.6 Transport of Concrete

1.6.1 Site Batched Concrete

The concrete shall be discharged from the mixer and transported to the Works by means which shall prevent adulteration, segregation or loss of ingredients, and which shall ensure that the concrete is of the required workability at the point and time of placing. The loss of slump between discharge from the mixer and placing shall not exceed 25mm.

The time elapsing between mixing and placing a batch of concrete shall be as short as practicable and in any case no longer than will permit completion of placing and compaction before the onset of initial set. If the placing of any batch

of concrete is delayed beyond this period, the concrete shall not be placed in the Permanent Works.

1.6.2 Transport and Delivery of Ready Mixed Concrete

(a) Quantity of Concrete

The basis of supply shall be by the cubic metre of fresh, fully compacted concrete. The volume of a given batch of concrete shall be calculated from the total mass of the batch divided by the mass per cubic metre of fresh, fully compacted concrete determined in accordance with BS 1881. The total mass of the batch shall either be calculated as the sum of the masses of all materials used including water, or determined from the gross and tare weights of the vehicle on a weighbridge.

(b) Transport of Concrete

Concrete shall be transported in a truck mixer complying with the requirements of BS 4251 unless the Employer's Representative agrees to the use of non-agitating vehicles. When non-agitating vehicles are used, the mixed concrete shall be protected from the gain or loss of water.

(c) Delivery Time

Concrete shall be discharged from the delivery vehicle within 2 hours after the time of loading, when concrete is transported in truck mixers or agitators, or within 1 hour after the time of loading when non-agitating equipment is used.

The time of loading, defined as the time of contact between cement and aggregates or, when these are surface dry, between cement and added water, shall be recorded on the delivery ticket.

NOTE: the delivery times indicated are arbitrary; the requirement is that concrete has the required workability at the time of discharge. A longer time may be appropriate in cool, humid weather or when retarding admixtures have been used, but a shorter time may be essential in hot weather with rich mixes, or where accelerating admixtures have been used.

(d) Additional Water

No additional water, other than any amount required to produce the specified workability, shall be added to the truck mixer drum before discharge unless specifically required and signed for by the Contractor and as agreed by the Employer's Representative.

(e) Delivery Ticket

Before discharging the concrete at the point of delivery, the supplier shall provide the Contractor with a delivery ticket for each batch of concrete on which is printed, stamped or written the following minimum information:

- name and location of ready-mixed concrete depot;
- serial number of ticket
- date;
- truck number;
- name of purchaser;
- name and location of site;
- grade or mix description of concrete, including minimum cement content if specified;
- specified workability;
- type of cement;
- nominal maximum size of aggregate
- type of name of admixture, if included,
- quantity of concrete in cubic metres;
- time of loading

Space shall be provided for any additional items that have been specified and for the following to be completed on site:

- arrival and departure times of the truck;
- time of completion of discharge;
- extra water added under supervision at the request of the Contractor, or his representative, and his signature, and as agreed by the Employer's Representative.

A copy of each delivery ticket shall be given to the Employer's Representative

1.7 Placing of Concrete

1.7.1 Consent for Placing

Concrete shall not be placed in any part of the Permanent Works until the Employer's Representative's consent has been given in writing, and the Contractor shall give the Employer's Representative at least 18 hours' notice of his intention to place concrete.

If concrete placing is not commenced within 24 hours of the Employer's Representative's consent, the Contractor shall again request written consent as specified above.

1.7.2 Preparation of Surfaces to Receive Concrete

Excavated surfaces on which concrete is to be deposited shall be prepared as set out in Section 3 of the Specification.

Existing concrete surfaces shall be prepared as set out in Clause 7.13 . Before deposition of further concrete they shall be clean, hard and sound and if required by the Employer's Representative shall be wet but without any freestanding water.

Any flow of water into an excavation shall be diverted through proper side drains to a sump, or be removed by other suitable methods which will avoid washing away the freshly deposited concrete or any of its constituents. Any underdrains constructed for this purpose shall be completely grouted up when they are no longer required by a method agreed by the Employer's Representative.

If so instructed by the Employer's Representative rock surfaces against which concrete is to be placed shall receive a prior coating of mortar mixed in the proportions similar to those of the fines portion in the concrete to be placed. The mortar shall be kept ahead of the concrete. The mortar shall be well worked into all parts of the excavated surfaces and shall be not less than 5mm thick.

If any fissures have been cleaned out as described in Section 3, they shall be filled with mortar or with concrete as instructed by the Employer's Representative.

The amount of mortar placed at any one time shall be limited so that it does not dry out or set before being covered with concrete.

1.7.3 Placing procedures

The concrete shall be deposited as nearly as possible in its final position. It shall be placed so as to avoid segregation of the concrete and displacement of the reinforcement, other embedded items, or formwork. It shall be brought up in layers approximately parallel to the construction joint planes and not exceeding 500 mm in compacted thickness unless otherwise permitted or directed by the Employer's Representative, but the layers shall not be less than four times the maximum nominal size of aggregate in thickness.

Layers shall not be placed so that they form feather edges nor shall they be placed on a previous layer which has taken its initial set. In order to comply with this requirement, a layer may be started before completion of the preceding layer.

All the concrete in a single bay or pour shall be placed as a continuous operation. It shall be carefully worked round all obstructions, irregularities in the foundations and the like so that all parts are completely full of compacted concrete with no segregation or honeycombing. It shall also be carefully worked round and between waterstops, reinforcement, embedded steelwork and similar items which protrude above the surface of the completed pour.

All work shall be completed on each batch of concrete before its initial set commences and thereafter the concrete shall not be disturbed before it has set hard. No concrete that has partially hardened during transit shall be used in the Permanent Works and the transport of concrete from the mixer to the point of placing shall be such that this requirement can be complied with.

Concrete shall not be placed during rain which is sufficiently heavy or prolonged to wash mortar from coarse aggregate on the exposed faces of fresh concrete. Means shall be provided to remove any water accumulating on the surface of the placed concrete. Concrete shall not be deposited into such accumulations of water.

In drying weather, covers shall be provided for all fresh concrete surfaces which are not being worked on. Water shall not be added to concrete for any reason.

When concrete is discharged above its place of final deposition, segregation shall be prevented by the use of chute, downpipes, trunking, baffles or other appropriate devices.

Forms for walls, columns and other thin sections of significant height shall be provided with openings or other devices that will permit the concrete to be placed in a manner that will prevent segregation and accumulations of hardened concrete on the formwork or reinforcement above the level of the placed concrete

When it is necessary to place concrete under water the Contractor shall submit to the Employer's Representative his proposals for the method and equipment to be employed. The concrete shall be deposited either by bottom-discharging watertight containers or through funnel-shaped tremies which are kept continuously full with concrete up to a level above the water and which shall have the discharging bottom fitted with a trapdoor and immersed in the concrete in order to reduce to a minimum the contact of the concrete with the water. Special care shall be taken to avoid segregation.

If the concrete in a tremie pipe is allowed to fall to such an extent that water enters the pipe, the latter shall be removed from the pour and filled with concrete before being again lowered into the placing position. During and after concreting under water, pumping or de-watering in the immediate vicinity shall be suspended if there is any danger that such work will disturb the freshly placed concrete.

1.7.4 Interruptions to Placing

If concrete placing is interrupted for any reason and the duration of the interruption cannot be forecast or is likely to be prolonged, the Contractor shall immediately take the necessary action to form a construction joint so as to eliminate as far as possible feather edges and sloping top surfaces and shall thoroughly compact the concrete already placed in accordance with clause 7.8

All work on the concrete shall be completed while it is still plastic and it shall not thereafter be disturbed until it is hard enough to resist damage. Plant and materials to comply with this requirement shall be readily available at all times during concrete placing.

Before concreting is resumed after such an interruption the Contractor shall cut out and remove all damaged or uncompacted concrete, feather edges or any other undesirable features and shall leave a clean sound surface against which the fresh concrete may be placed.

If it becomes possible to resume concrete placing without contravening the Specification and the Employer's Representative consents to a resumption, the new concrete shall be thoroughly worked in and compacted against the existing concrete so as to eliminate any cold joints.

1.7.5 Dimensions of Pours

Unless otherwise agreed by the Employer's Representative, pours shall not be more than two metres high and shall as far as possible have a uniform thickness over the plan area of the pour.

Concrete shall be placed to the full planned height of all pours except in the circumstances described in Sub-Clause 7.7.4. The Contractor shall plan the dimensions of pours in such a way that thermal or shrinkage stresses are minimized.

1.7.6 Placing Sequence

The Contractor shall arrange that as far as possible the intervals between placing successive lifts of concrete in one section of the Permanent Works are of equal duration.

This duration shall normally be not less than three nor more than seven days under temperate weather conditions unless otherwise agreed or instructed by the Employer's Representative .

Where required by the Employer's Representative to limit the opening of construction joints due to shrinkage, concrete shall not be placed against adjacent concrete which is less than 21 days old.

If concrete has to be placed against recently cast concrete within a period of less than 21 days, the pour shall be carried out as early as possible after the adjacent pour but precautions shall be taken to minimise shrinkage.

The methods described in Clause 7.9.3 can be used to that effect. However the contractor shall submit for approval his proposed method and programme for placing of concrete.

When the Drawings call for contraction gaps in concrete, these shall be of the widths and in the locations shown on the Drawings and they shall not be filled until the full time interval shown on the Drawings has elapsed.

1.8 Compaction of Concrete

The concrete shall be fully compacted throughout the full extent of the placed layer. It shall be thoroughly worked against the formwork and around any reinforcement and other embedded items, without displacing them. Particular care shall be taken at arrises and other confined spaces. Successive layers of the same pour shall be thoroughly worked together.

Concrete shall be compacted with the assistance of mechanical immersion vibrators, unless the Employer's Representative agrees another method.

Immersion vibrators shall operate at a frequency of between 7000 and

10 000 cycles per minute. The Contractor shall ensure that vibrators are operated at pressures and voltages not less than those recommended by the manufacturer in order that the compactive effort is not reduced.

A sufficient number of vibrators shall be operated to enable the entire quantity of concrete being placed to be vibrated for the necessary period and, in addition, stand-by vibrators shall be available for instant use at each place where concrete is being placed.

Where the concrete contains aggregate with a nominal size of 75 mm or more, vibrators with a diameter of 100mm or more shall be used.

Vibration shall be continued at each point until the concrete ceases to contract, a thin layer of mortar has appeared on the surface and air bubbles have ceased to appear. Vibrators shall not be used to move concrete laterally and shall be withdrawn slowly to prevent the formation of voids.

Vibration shall not be applied by way of reinforcement nor shall vibrators be allowed to touch reinforcement or other embedded items. The vibrators shall be inserted vertically into the concrete to penetrate the layer underneath at regular spacing which shall not exceed the distance from the vibrator over which vibration is visibly effective.

1.9 Curing of Concrete

1.9.1 General

Concrete shall be protected during the first stage of hardening from loss of moisture and from the development of temperature differentials within the concrete sufficient to cause cracking. The methods used for curing shall not cause damage of any kind to the concrete.

Curing shall be continued for as long as may be necessary to achieve the above objectives but in any case for at least ten days or until the concrete is covered by later construction whichever is the shorter period.

The above objectives are dealt with in sub-clauses 7.9.2 and 7.9.3, but nothing shall prevent both objectives being achieved by a single method where circumstances permit.

The curing process shall commence as soon as the concrete is hard enough to resist damage from the process, and in the case of large areas or continuous pours shall commence on the completed section of the pour before the rest of the pour is finished.

Details of the Contractor's proposals for curing concrete shall be submitted to the Employer's Representative before the placing of concrete commences in the Permanent Works.

1.9.2 Loss of Moisture

Exposed concrete surfaces shall be closely covered with impermeable sheeting, properly secured to prevent its removal by wind and the development of air spaces beneath it. Joints in the sheeting shall be lapped by at least 300 mm.

If for some reason it is not possible to use impermeable sheeting, the Contractor shall keep the exposed surfaces continuously wet by means of a water spray or by covering with a water absorbent material which is kept wet, unless this method conflicts with Clause 7.9.3.

Water used for curing shall be of the same quality as that used for mixing as stated in Clause 7.3.7. Formed surfaces may be cured by retaining the formwork in place for the required curing period.

If the use of the foregoing methods is inappropriate, surfaces which will not have further concrete bonded to them and which are not to receive an application of a finish may be cured by the application of a curing compound having an efficiency index of at least 90 per cent when tested in accordance with Test A9 in Appendix B. Curing compounds shall contain a fugitive dye to enable the extent of the spread to be seen easily.

Curing compound used on surfaces exposed to the sky shall if instructed by the Employer's Representative, contain sufficient finely divided flake aluminium in suspension to produce a complete coverage of the surface with a metallic finish when applied at the rate recommended by the manufacturer.

Curing compounds shall become stable and impervious to the evaporation of water from the concrete surface within 60 minutes of application. The material shall not react chemically with the concrete and shall not crack, peel or disintegrate within three weeks after application.

If instructed by the Employer's Representative, the Contractor shall, in addition to the curing provisions set out above provide a suitable form of shading to prevent the direct rays of the sun reaching the concrete surfaces for at least the first four days of the curing period.

1.9.3 Limitation of Temperature Differentials

The Contractor shall limit the development of temperature differentials in concrete after placing by any means appropriate to the circumstances as accepted by the Employer's Representative which shall include the following:-

- a. Limiting concrete temperatures at placing as set out in Clause 7.11.2;
- b. Use of low heat cement, subject to the agreement of the Employer's Representative;
- c. Insulation of exposed concrete surfaces by insulating blankets. Such blankets shall have a thermal conductance C value less than $1.0 \text{ W/m}^2 \text{ } ^\circ\text{C}$;
- d. Leaving formwork in place during the curing period. Steel forms shall be suitably insulated on the outside;

- e. Preventing rapid dissipation of heat from surfaces by shielding from wind;
- f. Avoiding the use of water sprays when such use would cause rapid cooling of the surface;

1.10 Protection of Fresh Concrete

Freshly placed concrete shall be protected from rainfall and from water running over the surface until it is sufficiently hard to resist damage from this cause.

No traffic shall be allowed on any concrete surface until such time as it is hard enough to resist damage by such traffic.

Concrete placed in the Permanent Works shall not be subjected to any structural loading until it has attained at least its minimum average strength as defined in Clause 7.4.

If the Contractor desires to impose structural loads on newly-placed concrete, he shall make at least three test cubes and cure them in the same conditions as the concrete they represent. These cubes shall be tested singly at suitable intervals in order to estimate the time at which the minimum average strength is reached.

1.11 Concreting in Hot Weather

1.11.1 General

The Contractor shall prevent damage to concrete arising from exposure to extreme temperatures, and shall maintain in good working order all plant and equipment required for this purpose.

In the event that conditions become such that even with the use of the equipment the requirements cannot be met, concrete placing shall immediately cease until such time as the requirements can again be met.

1.11.2 Concrete Placing in Hot Weather

During hot weather the Contractor shall take all measures necessary to ensure that the temperature of concrete at the time of placing in the Permanent Works does not exceed 30°C and that the concrete does not lose any moisture during transporting and placing. Such measures may include but are not necessarily limited to the following:

- a. Shielding aggregates from direct sunshine.
- b. Sun shields on mixing plants and transporting equipment.
- c. Cooling the mixing water. If ice is used for this purpose it shall be in flake form. Lump ice shall not be allowed to enter the tank supplying the mixer drum.
- d. Covering skips closely with polythene sheet so that the latter is in contact with the concrete.
- e. Painting all equipment and sunshields white.

- f. Night work, provided that the Employer's Representative has no other reason for refusing permission for nightwork.

Areas in which concrete is to be placed shall be shielded from direct sunshine and rock or concrete surfaces shall be thoroughly wetted if instructed by the Employer's Representative to reduce absorption of water from the concrete placed on or against them.

After concrete in any part of an area has been placed, the specified curing process shall be commenced as soon as possible. If any interval occurs between completion of placing and start of curing, the concrete shall be closely covered during the interval with polythene sheet to prevent loss of moisture.

The Employer's Representative shall have power to order the suspension of concrete production and/or laying when the shade temperature exceeds 30°C if he is not satisfied that the precautions being taken or intended by the Contractor are adequate to prevent the temperature of the concrete rising above 30°C. The possession of this power by the Employer's Representative shall not relieve the Contractor of any of his responsibilities.

1.11.3 No Additional Payment

Under no circumstances will the Contractor be entitled to receive any additional payment for complying with the requirements of this Clause of the Specification.

1.12 Finishes on Free Surfaces

Horizontal or nearly horizontal surfaces which are not cast against formwork shall be finished to the class shown on the Drawings and defined hereunder.

1.12.1 U1 Finish

All surfaces on which no higher class of finish is called for on the Drawings or instructed by the Employer's Representative shall be given a U 1 finish.

The concrete shall be levelled and screeded to produce a uniform plain or ridged surface, surplus concrete being struck off by a straightedge immediately after compaction.

1.12.2 U2 Finish

The surface shall first be treated as a Class U 1 finish and after the concrete has hardened sufficiently, it shall be floated by hand or machine sufficient only to produce a uniform surface free from screed marks.

1.12.3 U3 Finish

This is hard trowelled surface for use where weather resistance or appearance is important, or which is subject to high velocity water flow. The surface shall be floated as for a U2 finish but to the tolerance stated below. When the moisture film has disappeared and the concrete has hardened sufficiently to prevent laitance

from being worked to the surface, it shall be steel-trowelled under firm pressure to produce a dense, smooth uniform surface free from trowel marks.

.12.4 U4 Finish

The requirement is similar to a U3 finish but the permissible tolerances are smaller

1.12.5 U5 Finish

The concrete surface shall firstly be prepared as a U2 finish and then lightly brushed with a stiff brush to produce a textured finish . The brush used, once approved , shall be kept for the brushed finish only and not used for any other purpose.

1.12.6 Tolerances

The permissible tolerances are on free surfaces shall not exceed the values given in Table 7.2

Table 7.2

Surface Tolerances

Class of Finish	Tolerance in mm See notes		
	A	B	C
U1	Not applicable	10	+20 or -10
U2	Nil	10	+20 or -10
U3	Nil	5	+12.5 or -7.5
U4	Nil	2	+6 or -4

Notes :

1. Col. A is the maximum allowable value of any sudden change of level in the surface
2. Col.B is the maximum allowable value of any gradual irregularity of the surface, as indicated by the gap between the surface and a three metre long straightedge or correctly shaped template placed on the surface
3. Col.C is the maximum allowable value of the difference in level or position between a straightedge or correctly shaped template placed on the surface and the specified level or position of that surface.

Where dimensional tolerances are given on the Drawings or elsewhere in the Specification they shall take precedence over those given in Table 7.2.

1.13 Construction Joints

Whenever concrete is to be bonded to other concrete which has hardened, the surface of contact between the sections shall be deemed a construction joint.

Where construction joints are shown on the Drawings, the Contractor shall form such joints in those positions. The location of joints which the Contractor requires to make for the purpose of construction shall be subject to the agreement of the Employer's Representative and details shall be submitted with the Programme of Works required by the Conditions of Contract.

The exact location of all construction joints shall be submitted to the Employer's Representative at least four weeks prior to the start of construction of the relevant part of the works. Construction joints shall be in vertical or horizontal planes except in sloping slabs where they shall be normal to the exposed surface or elsewhere where the Drawings require a different arrangement.

Construction joints shall be so arranged as to reduce to a minimum the effects of shrinkage in the concrete after placing, and shall be placed in the most advantageous positions with regard to stresses in the structures and the desirability of staggering joints.

Feather edges of concrete at joints shall be avoided and any feather edges which may have formed where reinforcing bars project through a joint shall be cut back until sound concrete has been reached.

The intersections of horizontal or near horizontal joints and exposed faces of concrete shall appear as straight lines produced by use of a guide strip fixed to the formwork at the top of the concrete lift, or by other means acceptable to the Employer's Representative.

Construction joints formed as free surfaces shall not exceed a slope of 20 per cent from the horizontal. The surface of the fresh concrete in horizontal or near horizontal joints shall be thoroughly cleaned and roughened by means of high pressure water and air jets when the concrete is hard enough to withstand the treatment without the leaching of cement. The surface of vertical or near vertical joints shall be similarly treated if circumstances permit the removal of formwork at a suitable time.

Where concrete has become too hard for the above treatment to be successful, the surface whether formed or free is to be thoroughly scabbled by mechanical means or wet sand blasted and then washed with clean water. The indentations produced by scabbling shall be not less than 10 mm deep and shall not extend closer than 40 mm to a finished face.

If instructed by the Employer's Representative the surface of the concrete shall be thoroughly brushed with a thin layer of mortar complying with Clause 7.17, all as set out in Clause 7.7.2 immediately prior to the deposition of fresh concrete. The mortar shall be kept just ahead of the fresh concrete being placed and the fresh layer of concrete shall be thoroughly and systematically vibrated to full depth to ensure complete bond with the adjacent layer.

No mortar or concrete may be placed in position on or against a construction joint until the joint has been inspected and passed by the Employer's Representative.

1.14 Expansion and Contraction joints

Expansion and contraction joints are discontinuities in concrete designed to allow for thermal or other movements in the concrete.

Expansion joints are formed with a gap between the concrete faces to permit subsequent expansion of the concrete. Contraction joints are formed to permit initial contraction of the concrete and may include provision for subsequent filling.

Expansion and contraction joints shall be formed in the positions and in accordance with the details shown on the Drawings or elsewhere in the Specification.

1.15 Records of Concrete Placing

Records, in a form agreed by the Employer's Representative, shall be kept by the Contractor of the details of every pour of concrete placed in the Permanent Works. These records shall include class of concrete, location of pour, date of pour, ambient temperature and concrete temperature at time of placing, moisture contents of aggregates, details of mixes, batch numbers, cement batch number, results of all tests undertaken, location of test cube sample points and details of any cores taken.

The Contractor shall supply to the Employer's Representative four copies of these records each week covering work carried out the preceding week. In addition he shall supply to the Employer's Representative monthly histograms of all 28 day cube strengths together with accumulative and monthly standard deviations and any other information which the Employer's Representative may require concerning the concrete placed in the Permanent Works.

1.16 Mortar

This clause covers mortar for use ahead of concrete placing, and other uses not covered elsewhere in the Specification.

Mortar shall be composed of fine aggregate complying with Clause 7.3.3 and the type of cement specified in Section 2.0. The mix proportions shall be as stated on the Drawings or if not stated shall be one part of cement to two parts of fine aggregate by weight.

Small quantities of mortar may hand mixed but for amounts over 0.5m³ a mechanical mixer shall be used. The water content of the mortar shall be as low as possible consistent with the use for which it is required but in any case the water/cement ratio shall not be more than 0.5.

Mortar which is specified as 'dry pack' shall be mixed with sufficient water for the mix to become cohesive but not plastic when squeezed in the hand. Dry pack mortar shall be rammed into the cavity it is required to fill, using a hand rammer with sufficient force to ensure full compaction.

1.17 Concrete for Non Structural Purposes

Non-structural concrete (NS concrete) shall be used only for non-structural purposes where shown on the Drawings.

NS concrete shall be composed of aggregates complying with all-in aggregate within the grading limits of Table 3 of BS 882, Clause 7.3.3 and the type of cement specified in Section 2.0 or on the Drawings.

The weight of cement mixed with 0.3 cubic metres of combined or all-in aggregate shall not be less than 50 kg. The mix shall be proportioned by weight or by volume. The maximum aggregate size shall be 40 mm nominal.

The concrete shall be mixed by machine or by hand to a uniform colour and consistency before placing. The quantity of water used shall not exceed that required to produce a concrete with sufficient workability to be placed and compacted where required. The concrete shall be compacted by hand or by mechanical vibration.

1.18 Grouting of Pockets and Holes and Underpinning of Baseplates

Pockets and holding-down bolt holes shall be thoroughly cleaned out using compressed air and water jet. Holes drilled by a diamond bit shall be roughened. The pockets and holes shall be filled with grout consisting of cement and clean fresh water mixed in proportion of two parts by weight of cement to one part by weight of water. The pouring of liquid grout shall cease as soon as each hole is filled and any excess grout on the surface of the concrete foundation shall be completely removed and the surface dried off before the next operation proceeds.

The space between the top surface of foundation concrete and the underside of baseplates shall be filled with a special mortar made up in the following proportions:-

Portland cement	50 kg
Fine aggregate.....	50 kg

An additive acceptable to the Employer's Representative shall be added to counteract shrinkage in proportions recommended by the manufacturer.

The special mortar shall be mixed with the lowest water-cement ratio which will result in a consistency of mix of sufficient workability to enable maximum compaction to be achieved.

The special mortar shall then be well rammed in horizontally below the baseplate and from one edge only until it is extruded from the other three sides. The mortar which has extruded shall then be rammed back to ensure complete support without voids.

1.19 Protection of Concrete

Surfaces of concrete which are to be buried shall be protected by an asphaltic material coat approved by the Employer's Representative and applied in accordance with the manufacturers instructions.

1.20 Hand Mixed Concrete

Concrete for structural purposes shall not be mixed by hand. Where non-structural concrete is required, hand mixing may be carried out subject to the agreement of the Employer's Representative. The mixing shall be done on a hard impermeable surface. The materials shall be turned over not less than three times dry, water shall then be sprayed on and the materials again turned over not less than three times in a wet condition and worked together until a mixture of uniform consistency is obtained.

For hand mixed concrete not more than 0.5 cubic metre shall be mixed at one time. During windy weather efficient precautions shall be taken to prevent cement from being blown away during the process of gauging and mixing.

1.21 Protection of Buried Concrete

1.21.1 Materials

- (a) Plastic sheeting where specified shall be polythene sheeting 250 microns minimum thickness to BS 743 to the approval of the Employer's Representative. The Contractor shall provide suitable samples for approval before any concreting works shall begin.

All joints in the plastic sheeting shall be made with an approved polythene based adhesive tape. This tape shall also be used where tailoring of the sheeting to complicated shapes is necessary, e.g gullies, pipe ducts, etc.

- (b) Bitumen coating shall consist of one priming coat and one finishing coat of an approved bitumen based high build asbestos filled liquid coating.

1.21.2 Concrete in Contact with Ground

Where directed by the Employer's Representative or shown on the Drawings concrete work which will be placed directly against rock or soil or which will subsequently have backfill placed against it will be protected in the following way from the aggressive action of salts contained in rock, soil or groundwater:

- a. Concrete placed directly against cut-face shall be protected by a layer of plastic sheeting laid over the area to be concreted . All laps shall be at least 300mm wide and sufficient surplus sheeting shall be left to enable a margin of at least 300 mm width to project above the ground/concrete interface to be sealed onto the adjacent finished concrete surface with the bitumen coating. Special care shall be taken to avoid damage to the plastic sheeting during concreting.
- b. Formed or free concrete surfaces against which backfill will subsequently be placed will be protected by the application of bitumen coating.

No protection will be applied to surfaces against which concrete will subsequently be placed, except as described in the following sub-clause.

1.21.3 Ground Floor Slabs

A layer of plastic sheeting will be laid over the blinding concrete and below the ground floor slab. Laps in the plastic sheeting shall not be less than 300mm and adjacent sheets shall be securely taped down to prevent movement during concreting operations. Care shall be taken to avoid damage to the plastic sheeting during concreting. In the case of ground floor slabs no protection shall be applied to the underside of the blinding layer.

SAMPLE

PART 3 – Conditions of Contract and Contract Forms

SAMPLE

Section VI. General Conditions of Contract

The General Conditions of Contract (GCC) applicable for this procurement is available on the web site of the Procurement Policy Office ppo.govmu.org under Ref. No. **W/GCC10/05-14** dated **06 May 2014**

The GCC can be used for both admeasurement contracts and lump sum contracts.

SAMPLE

Section VII. Particular Conditions of Contract

Except where otherwise indicated, all PCC should be filled in by the Employer prior to issuance of the Bidding Documents. Schedules and reports to be provided by the Employer should be annexed.

These clauses should be read in conjunction with the General Conditions of Contract

A. General	
GCC 1.1 (r)	<p>The Employer is The Beach Authority</p> <p>Street: 2A, Falcon ,</p> <p>Floor number: 6th Floor, Peninsula Building</p> <p>City: Port-Louis</p> <p>Country: Mauritius</p> <p>Telephone: 212-0059/70</p> <p>Facsimile number: 212-0060</p> <p>Electronic mail address: beachauthority@intnet.mu</p> <p>Authorised Representative : The Project Manager</p>
GCC 1.1 (v)	<p>The Intended Completion Date for the whole of the Works shall be – 60 days as from start date.</p>
GCC 1.1 (y)	<p>The Project Manager is The Technical Manager of the Beach Authority</p> <p>Street: 2A, Falcon,</p> <p>Floor number: 6th Floor, Peninsula Building</p> <p>City: Port-Louis</p> <p>Country: Mauritius</p> <p>Telephone: 212-0059/70</p> <p>Facsimile number: 212-0060</p> <p>Electronic mail address: beachauthority@intnet.mu</p>
GCC 1.1 (aa)	<p>The Sites are located at</p> <ul style="list-style-type: none"> (i) Pte aux Piments Public Beach (ii) Bain Boeuf Public Beach

	<ul style="list-style-type: none"> (iii) Grand Gaube Public Beach (iv) Roches Noires Public Beach (v) Poste Lafayette Public Beach (vi) Quatre Soeurs Public Beach (vii) Providence Public Beach (viii) Baie du Cap Public Beach (ix) La Pointe Cassis Le Morne Village Public Beach (x) Bois des Amourettes Public Beach
GCC 1.1 (dd)	The Start Date shall be 45 days from the date of signature of contract.
GCC 1.1 (hh)	The Works consist of Provision of Lighting System through PV Solar Panels on Public Beaches
GCC 2.2	Sectional Completions are: Not Applicable
GCC 2.3(i)	The following documents also form part of the Contract: <i>[list documents]</i>
GCC 3.1	The language of the contract is English The law that applies to the Contract is the law of Mauritius.
GCC 5.1	The Project manager may delegate any of his duties and responsibilities.
GCC 8.1	Schedule of other contractors: NOT applicable
GCC 13.1	<p>Except for the cover mentioned in (d)(i) hereunder, the other insurance covers shall be in the joint names of the Contractor and the Employer and the minimum insurance amounts shall be:</p> <ul style="list-style-type: none"> (a) for the Works, Plant and Materials: Rs 5 million (b) for loss or damage to Equipment: Rs 5 million (c) for loss or damage to property (except the Works, Plant, Materials, and Equipment) in connection with Contract <i>for an amount representing the value of the properties that are exposed to the action of the contractor in the execution of the works. It will extend to the property of the Procuring Entity as well).</i> (d) for personal injury or death: <ul style="list-style-type: none"> (i) of the Contractor's employees: Rs 5 million (ii) of other people: Rs 5 million (e) for loss or damage to materials on-site and for which payment have been included in the Interim Payment Certificate, where applicable.

	The Contractor shall choose to take the insurance covers indicated above as separate covers or a combination of the Contractor's All Risks coupled with the Employer's liability and First Loss Burglary, after approval of the Employer. All insurance covers shall be of nil or the minimum possible deductibles at sole expense of the contractor.
GCC 14.1	N/A
GCC 20.1	The Site Possession Date(s) shall be <i>within forty-five (45) days after signature of contract.</i>
GCC 23.1 & GCC 23.2	Appointing Authority for the Adjudicator: No Adjudicator shall be appointed for this Contract.
GCC 24.	<p>In case a dispute of any kind arises between the Employer and the Contractor in connection with, or arising out of, the contract or the execution of works or after completion of works and whether before or after repudiation or other termination of Contract, including any dispute as to any opinion, instruction, determination, certificate or valuation of the Employer's Representative, the matter in dispute shall, in the first place, be referred in writing to the employer's representative, with a copy to the other party.</p> <p>The Employer and the Contractor shall make every effort to resolve the dispute amicably by direct informal negotiation. If, after twenty-eight (28) days, the parties have failed to resolve their dispute or difference by such mutual consultation, then either the Public Body or the Contractor may give notice to the other party of its intention to refer the matter to:</p> <p style="text-align: center;">“ the competent courts of Mauritius”</p>
GCC 24.3	Hourly rate and types of reimbursable expenses to be paid to the Adjudicator: Not applicable.
GCC 24.4	Not Applicable
B. Time Control	
GCC 25.1	The Contractor shall submit for approval a Program for the Works within seven (7) days from the date of the Letter of Acceptance.
GCC 25.3	The period between Program updates is fourteen (14) days.
C. Quality Control	
GCC 33.1	The Defects Liability Period is: 365 days.
GCC 39.7	Interim Payment for Plant and Material on sites are not applicable.
D. Cost Control	
GCC 41.1 (l)	Adverse weather conditions are rainy weather (at least 10mm rainfall for any welding and painting works), torrential rain and cyclonic

	<p>weather.</p> <p>If however, during the execution of the Works the Contractor encounters any adverse weather conditions the contractor shall forthwith give notice thereof to the Project Manager. On receipt of such notice, the Project Manager shall, if in his opinion such conditions could not have been reasonably foreseen by an experienced contractor, determine any extension of time to which the Contractor is entitled and shall notify the Contractor accordingly.</p> <p>Such determination shall take account of any instruction which the Project Manager may issue to the Contractor in connection therewith, and any proper and reasonable measures acceptable to the Project Manager which the Contractor may take in the absence of specific instructions from the Project Manager.</p>
GCC 43.1	The currency of the Employer's country is: Mauritian Rupees.
GCC 44.1	The Contract <i>is not</i> subject to price adjustment in accordance with GCC Clause 44.
GCC 45.1	The proportion of payments retained is: 10 percent.
GCC 46.1	<p>The liquidated damages for the whole of the Works are 0.1% of the contract amount per day.</p> <p>The maximum amount of liquidated damages for the whole of the Works is 10 percent of the contract amount.</p>
GCC 47.1	The Bonus for the whole of the Works is <i>Not Applicable</i>
GCC 48.1	The Advance Payments shall be: <i>Not Applicable</i>
GCC 49.1	The Performance Security amount is <i>Not Applicable</i>
E. Finishing the Contract	
GCC 55.1	Not Applicable
GCC 55.2	Not Applicable
GCC 57.2 (g)	Not Applicable
GCC 59.1	The percentage to apply to the value of the work not completed, representing the Employer's additional cost for completing the Works, is fifteen (15) percent of the contract value.

Section VIII - Contract Forms

This Section contains forms which, once completed, will form part of the Contract. The forms for Performance Security and Advance Payment Security, when required, shall only be completed by the successful Bidder after contract award.

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Letter of Acceptance

[on letterhead paper of the Employer]

..... *[date]*

To: *[name and address of the Contractor]*

Subject: *[Notification of Award Contract No]*

This is to notify you that your Bid dated *[insert date]* for execution of the
.....*[insert name of the contract and identification number, as given in the Appendix to Bid]* .
..... for the Accepted Contract Amount of the equivalent of*[insert amount in numbers and words and name of currency]*, as corrected and modified in accordance with the Instructions to Bidders is hereby accepted by *(insert name of Public Body)*.

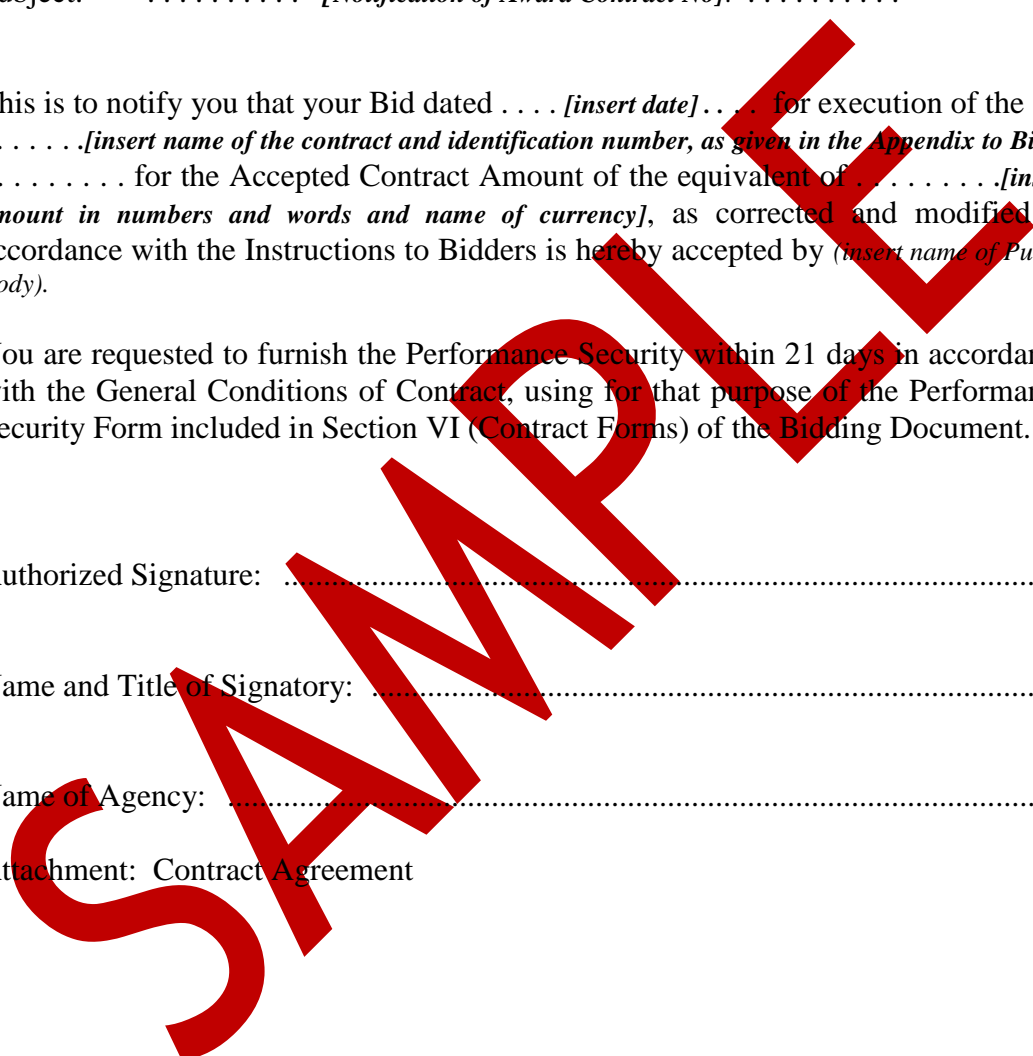
You are requested to furnish the Performance Security within 21 days in accordance with the General Conditions of Contract, using for that purpose of the Performance Security Form included in Section VI (Contract Forms) of the Bidding Document.

Authorized Signature:

Name and Title of Signatory:

Name of Agency:

Attachment: Contract Agreement



Contract Agreement

THIS AGREEMENT made the day of,, between [name of the Employer]. (hereinafter “the Employer”), of the one part, and [name of the Contractor]. (hereinafter “the Contractor”), of the other part:

WHEREAS the Employer desires that the Works known as [name of the Contract]. should be executed by the Contractor, and has accepted a Bid by the Contractor for the execution and completion of these Works and the remedying of any defects therein,

The Employer and the Contractor agree as follows:

1. In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the Contract documents referred to.
2. The following documents shall be deemed to form and be read and construed as part of this Agreement. This Agreement shall prevail over all other Contract documents.
 - (a) the Letter of Acceptance
 - (b) the Bid
 - (c) the Addenda Nos [insert addenda numbers if any].
 - (d) the Appendix to the General Conditions of Contract
 - (e) the General Conditions of Contract;
 - (f) the Specification
 - (g) the Drawings; and
 - (h) the completed Schedules,
3. In consideration of the payments to be made by the Employer to the Contractor as indicated in this Agreement, the Contractor hereby covenants with the Employer to execute the Works and to remedy defects therein in conformity in all respects with the provisions of the Contract.
4. The Employer hereby covenants to pay the Contractor in consideration of the execution and completion of the Works and the remedying of defects therein, the Contract Price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.

IN WITNESS whereof the parties hereto have caused this Agreement to be executed in accordance with the laws of Mauritius on the day, month and year indicated above.

Signed by: _____
for and on behalf of the Employer

Signed by: _____
for and on behalf the Contractor

in the
presence of: _____
Witness, Name, Signature, Address, Date

in the
presence of: _____
Witness, Name, Signature, Address, Date

SAMPLE

Sample Form of Preference Security

**Form of Preference Security
(Bank Guarantee)**

To: _____ [*name of
Employer*]
_____ [*address of
Employer*]

WHEREAS _____ [*name and
addresses of the contractor*] (hereinafter called "the Contractor"), has undertaken in
pursuance to Contract No. _____ dated _____ to execute
_____ [*name of Contract and brief Description of
Works*], (hereinafter called "the Contract");

AND WHEREAS it has been stipulated by you in the said Contract that the
Contractor shall furnish you with a Bank Guarantee by a local commercial bank for the
sum specified therein as security for compliance with his obligation stated in Sub-Clause
49.2 of the Conditions of Contract;

AND WHEREAS we have agreed to give the Contractor such a Bank Guarantee;

NOW THEREFORE we hereby affirm that we are the Guarantor and responsible
to you, on behalf of the Contractor, up to a total of _____ [*amount
of Guarantee*]⁹, we undertake to pay you, upon your first written demand and without
your having to substantiate such demand any sum within the limit of
_____ [*amount of Guarantee*].¹

We hereby waive the necessity of demanding the said debt from the Contractor
before presenting us with the demand.

We further agree that no change or addition to or other modification of the terms
of the Contract or of the Works to be performed thereunder or of any of the Contract
documents which may be made between you and the Contractor shall in anyway release
us from liability under this guarantee, and we hereby waive notice of any such change,
addition or modification.

This guarantee is valid until the date of the Completion Certificate.

Signature and Seal of the Guarantor

Name of Bank _____
Address _____

Date _____

⁹ Amount to be inserted by the Guarantor in accordance with Sub-Clause 49.2 of the General Conditions of Contract