

**PROCUREMENT OF CIVIL WORKS
THROUGH
REQUEST FOR QUOTATION
(RFQ)/SHOPPING PROCEDURES**

*(Lump sum and percentage rate tender)
(Two-Envelope with e-Procurement)
(For Contracts valued less than the equivalent of US \$ 100,000
each)*

**RFQ No: WBMIFMP/DPIU-RBI/NCB/21-22/01 (2nd Call)
issued on 15.01.2022**

Name of work:-

**“Special Repair of Inspection Bungalow, office building
and repair of S.D.O. type quarter for Project
Management Consultancy Office under Right Bank
Irrigation Division, Sonamukhi, Bankura, I&W
Directorate, Govt. of West Bengal”**

at the office of

**The Executive Engineer, Right Bank
Irrigation Division, DPIU-RBI,
WBMIFMP, Sonamukhi, Bankura**

REQUEST FOR QUOTATIONS

Procurement of Works under RFO/Shopping Procedures

E-Procurement Notice

(Two-Envelope with e-Procurement Bidding Process)

Project: West Bengal Major Irrigation and Flood Management Project (WBMIFMP)

Contract title: —Special Repair of Inspection Bungalow, office building and repair of S.D.O. type quarter for Project Management Consultancy Office under Right Bank Irrigation Division, Sonamukhi, Bankura, Govt. of West Bengal.

RFQ No: WBMIFMP/DPIU-RBI/NCB/21-22/01(2nd Call)

Date: 15/01/2022

Applicable Procurement Guidelines/Regulations Date: —Procurement Regulations for IPF Borrowers, July 2016 Revised August 2018 and November 2018 (—Procurement Regulations)

1. Government of India has received/has applied for/intends to apply for financing from the World Bank towards the cost of the **West Bengal Major Irrigation and Flood Management Project (WBMIFMP)** Project and intends to apply part of the proceeds of this credit to eligible payments under the contract for which this request for quotations is issued. The **The Executive Engineer, Right Bank Irrigation Division, DPIU-RBI, WBMIFMP** (*implementing agency*) invites quotations electronically from eligible bidders for construction of the following works.

Brief Description of the Works	Approximate value of Works (Rs.)	Period of Completion
Special Repair of Inspection Bungalow, office building and repair of S.D.O. type quarter for Project Management Consultancy Office under Right Bank Irrigation Division, Sonamukhi, Bankura, Govt. of West Bengal.	Rs. 6437241.29 (Rupees Sixty-Four Lakh Thirty Seven Thousand Two Hundred & Forty One and Paise Twenty-Nine Only)	9 (Nine) Months including all seasons

2. This e-Procurement notice includes the following documents¹ to facilitate preparation and submission of quotations, criteria for qualification, evaluation, and for award of contract; and relevant forms to be filled by the bidders. Implementing Agency has not issued a separate RFQ document for this purchase. The e-Procurement notice including the various documents and forms to be filled etc. can be downloaded free of cost by logging on to the website <https://wbtenders.gov.in>. The bidders would be required to register in the website which is free of cost.

- i. Layout Drawings of the works;
- ii. Structural Details;

¹ IA to modify the list of documents as required.

- iii. Detailed Bill of Quantities, with estimated rates and prices;
 - iv. Technical Specifications;
 - v. Instructions to Bidders;
 - vi. Qualification Information;
 - vii. Format for Submission of Quotation;
 - viii. Criteria for Evaluation and Award of Contract;
 - ix. Relevant Forms; and
 - x. Draft Contract Agreement format which will be used for finalizing the agreement for this Contract.
3. For submission of the bid, the bidder is required to have Digital Signature Certificate (DSC) from one of the Certifying Authorities authorised by Government of India for issuing DSC. Aspiring bidders who have not obtained the user ID and password for participating in e-procurement in this Project, may obtain the same from the website: <https://wbtenders.gov.in>.
- Any bidder not having the DSC may obtain the same from NIC on payment of requisite fees, before the bid submission deadline.
4. Quotations, both Technical Part and Financial Part shall be submitted on <https://wbtenders.gov.in> on or before 14:00 hours on 10/02/2022 (*date*). Any quotation or modifications to quotation received outside e-procurement system will not be considered. The electronic bidding system would not allow late submission of quotations. The Technical Part² of the Quotations will be opened online on 10/02/2022 (*date*) after 15:00 hours, this can also be viewed by the bidders online. The electronic summary of quotation opening of technical part will be generated and uploaded online.
5. If the implementing agency's office happens to be closed on the date of opening of the Quotations as specified, the Technical Part² of the Quotations will be opened on the next working day at the same time. The Financial Parts of the Quotations shall remain unopened in the e-procurement system, until the subsequent online opening, following the evaluation of the Technical Parts of the Quotations.
6. Other details can be seen in the RFQ document. The implementing agency shall not be held liable for any delays due to system failure beyond its control. A Bidder requiring any clarification of the RFQ document may notify the Implementing agency online or may visit the office of the implementing agency at the address given below.

The address for communication is as under:

- (a) *Name & Designation of Officer:* **The Executive Engineer, Right Bank Irrigation Division, DPIU-RBI, WBMIFMP, I & W Directorate, Government of West Bengal**
- (b) *Official Address:* **Sonamukhi, Bankura, West Bengal**
- (c) *Email:* rbidivn@gmail.com, (d) *Telephone:* 03244- 275237

² Should be the same as for the deadline for receipt of quotations or promptly thereafter.

GOVERNMENT OF WEST BENGAL

PROJECT : West Bengal Major Irrigation and Flood Management Project (WBMIFMP)

NATIONAL OPEN COMPETITIVE PROCUREMENT

**(Two – Envelope Quotationing Process with e-procurement)
(For Lump Sum and Percentage Rate Tender in Civil Works)**

Name of Work: — Special Repair of Inspection Bungalow, office building and repair of S.D.O. type quarter for Project Management Consultancy Office under Right Bank Irrigation Division, Sonamukhi, Bankura, I&W Directorate, Govt. of West Bengal.

PERIOD OF DOWNLOADING OF QUOTATIONING DOCUMENT ONLINE	From 15/01/2022 (10 :00 hours IST) to 10/02/2022 (14 :00 hours IST)
LAST DATE AND TIME FOR RECEIPT OF CLARIFICATION BY QUOTATIONERS	24/01/2022 upto 16 :00 hours (IST)
TIME AND DATE OF PRE-QUOTATION MEETING AT THE OFFICE OF THE EXECUTIVE ENGINEER, RIGHT BANK IRRIGATION DIVISION	27/01/2022 at 14 :00 hours (IST)
START DATE AND TIME FOR SUBMISSION OF QUOTATION	31/01/2022 at 15 :00 hours (IST)
LAST DATE AND TIME FOR RECEIPT OF QUOTATION	10/02/2022 upto 14 :00 hrs (IST)
*TIME AND DATE OF OPENING OF QUOTATION- TECHNICAL PART	10/02/2022 after 15 :00 hrs (IST)
VALIDITY REQUIRED FOR BANK GUARANTEE FOR QUOTATION SECURITY	Atleast upto 31/07/2022
TIME AND DATE OF OPENING OF QUOTATION- FINANCIAL PART	The firms that qualify technically shall be notified subsequently for opening of the financial part of their bids.
PLACE OF OPENING OF QUOTATION	Office of the Executive Engineer, Right Bank Irrigation Division, DPIU- RBI, WBMIFMP, Sonamukhi, Bankura. P.O.-Sonamukhi, P.S.-Sonamukhi, Pin Code:- 722207, Country- India.
OFFICER INVITING BID	Office of the Executive Engineer, Right Bank Irrigation Division, DPIU- RBI, WBMIFMP, Sonamukhi, Bankura.

***Should be the same as the deadline for submission of quotations or promptly thereafter.** The firms that qualify technically shall be notified subsequently for opening of the financial part of their quotations.

Instructions to Bidders

SECTION - A

1. Scope of Works

The **Executive Engineer, Right Bank Irrigation Division, DPIU-RBI, WBMIFMP** (*implementing agency & Employer*) invites quotations for the construction of works as detailed in the table given below

Brief Description of the Works	Approximate value of Works (Rs.)	Period of Completion
Special Repair of Inspection Bungalow, office building and repair of S.D.O. type quarter for Project Management Consultancy Office under Right Bank Irrigation Division, Sonamukhi, Bankura, Govt. of West Bengal	Rs. 64,37,241.29 (Rupees Sixty-Four Lakh Thirty Seven Thousand Two Hundred & Forty One and Paise Twenty-Nine Only)	9 (Nine) Months including all seasons

The successful bidder will be expected to complete the works by the intended completion date specified above.

2. Qualification of the bidder

Qualification Information to be provided by the Bidder: the bidder shall provide information on his qualification which shall include: -

- (a) Total monetary value of works executed by him for each year of the last 3 years;
- (b) List of works (similar to the works described in Para 1) completed satisfactorily as a prime contractor during the last 3 years, enclosing certificates from the respective Employers in support of experience claimed along with the Employers' contact numbers;
- (c) Report on his financial standing, along with last 3 years' financial statements/Profit and Loss Statements; and
- (d) Details of any litigation, during the last 3 years in which the bidder is involved, the parties concerned, and disputed amount or award in each case (Give details of both completed and pending cases).

Qualification Criteria: to qualify for award of the contract the bidder:-

- (a) Should have satisfactorily completed as a prime contractor at least one similar work of value not less than Rs. 52 Lakhs (Fifty Two Lakhs) in the last three years;

[IA should insert value equivalent to 80% of the estimated cost of the Work.]

- (b) Should possess required valid license for executing the water supply/sanitary works (in the event of the works being sub-contracted, the sub-contractor should have the necessary license);

3. Eligibility – Conflict of Interest: A Bidder (a) shall not participate in more than one Quotation; (b) should not have been (i) temporarily suspended or debarred by the World Bank Group in compliance with the Bank's Anti-Corruption Guidelines and its Sanctions Framework.

4. Clarifications & Amendments: If the Employer receives any request for clarification of this RFQ document, it will upload its response together with any amendment to this document, on the e-procurement portal for information of all Bidders. Bidders should check on the e-procurement system, for any amendments to this RFQ document.

5. Quotation Prices

- a) The quotation shall be for construction of the whole works as described in the Bill of quantities, drawings and technical specifications. Corrections, if any, in the quotation shall be carried out by editing the information before electronic submission on e-Procurement Portal.
- b) All duties, taxes and other levies payable by the contractor under the contract shall be included in the total price.
- c) The rates quoted by the bidder shall be fixed for the duration of the contract and shall not be subject to adjustment on any account.
- d) The rates should be quoted in Indian Rupees only.
- e) **Bid security @ 2% of works value to be physically submitted in the form of Bank Guarantee from any scheduled bank in prescribed proforma in favour of Executive Engineer, Right Bank Irrigation Division, Sonamukhi, Bankura, within the last date of Bid Submission i.e 10/02/2022 upto 14:00 Hours (IST) otherwise the Bid will be cancelled.**

6. Preparation of Quotations

The bidder is advised to visit the site of works at his own expense and obtain all information that may be necessary for preparing the quotation.

Each bidder shall submit only one quotation. Bidders shall not contact other Bidders on matters relating to this quotation.

The quotation shall comprise two Parts, namely the Technical Part and the Financial Part. Both Parts shall be submitted online simultaneously.

The Technical Part of Quotation shall comprise the following:

- (a) **Letter of Quotation – Technical Part** as per Format given in Section B;
- (b) **Authorization:** Power of Attorney of signatory of Quotation (Paragraph 1.1 of Qualification Information);
- (c) **Annual Turnover:** Confirmation showing Annual Turnover in civil engineering construction works of similar nature in the last three financial years. [ITB Clause 2.1 (a)];
- (d) **Qualifications:**
 - (i) Qualification information and supporting documents relating to similar nature of works executed and payments received. (ITB Clause 2.1 (b) and paragraph 1.3 of Qualification Information);
 - (ii) Details of proposed sub-contractors; (Paragraph 1.4 of Qualification Information); and
 - (iii) Other details listed in Paragraphs 1.6 and 1.7 of the Qualification Information Form;
- (e) **Complete address** and contact details of the Bidder having the following information:

Name of Firm
Address for communication
Telephone No(s): Office
Mobile No.
Facsimile (FAX) No.
Electronic Mail Identification (E-mail ID)
- (f) The Technical Part of Quotation shall not include any financial information related to the Quotation price. Where material financial information related to the Quotation price is contained in the Technical Part of Quotation, the Quotation shall be declared non-responsive.

The Financial Part of Quotation shall comprise the following:

- (a) **Letter of Quotation - Financial Part;**
- (b) **Priced Bill of Quantities:** (using the BOQ uploaded with the RFQ document) wherein the rates shall be entered online.

Signing of Quotations: The name and position held by each person signing the quotation and related documents must be typed or printed below the signature.

Deadline for Submission of Quotations: Quotations must be uploaded online no later than the deadline for submission of quotations viz. time 14:00 (hours) and date 10/02/2022 (day, month, year), as per server time. A Bidder may modify its Quotation any number of times by using the appropriate option on the e-Procurement Portal, before the deadline for submission of Quotations.

Validity of Quotation: Quotation shall remain valid for a period not less than 45 days after the deadline date specified for submission.

7. Quotation Submission:

- (a) The Letter of Quotation – Technical Part, and Letter of Quotation – Financial Part shall be filled, signed and scanned copies shall be uploaded along with the Priced Bill of Quantities that shall be entered using the Forms available online, without any alterations. All blank spaces shall be filled in with the information requested. Scanned copies of all other documents shall also be uploaded on the e-procurement website.
- (b) All documents are required to be signed digitally by the Bidder. The System generates a Unique Quotation Identification Number, time stamped as per server time, as an acknowledgement for Quotation submission. Detailed guidelines for viewing and submission of Quotations online are given in the website.

8. Online Opening and Evaluation of Technical Parts of Quotations: The Technical Part of the Quotations will be opened online on the specified date and time. This can also be viewed by the bidders online, and electronic summary of quotation opening of technical part will be generated and uploaded online. The Financial Parts of the Quotations shall remain unopened in the e-procurement system, until the subsequent online opening, following the evaluation of the Technical Parts of the Quotations.

- (a) The Employer shall examine the technical part of the quotation to determine whether the quotation (a) has been properly signed (Clause 6.6); (b) meets the eligibility criteria (Clause 3); (c) is substantially responsive to the requirements of the RFQ document; and (d) meets the qualification criteria specified in ITB Clause 2.
- (b) Only Quotations that are both substantially responsive to the RFQ document, and meet all Qualification Criteria shall qualify for opening of the Financial Parts of their Quotations at the second online opening.
- (c) Employer shall notify in writing those Bidders who have failed to meet the Qualification Criteria or whose Quotations were considered non-responsive to the requirements in the RFQ document, advising them that their Technical Part of Quotation failed to meet the requirements of the RFQ document; and that their Financial Part of the Quotation shall not be opened.
- (d) Simultaneously Employer shall notify in writing those Bidders whose Technical Parts of Quotations have been evaluated as substantially responsive and meeting the Qualification Criteria that their Quotation has been evaluated as substantially responsive to the RFQ document and that their Financial Part of Quotation will be opened online at Date and time.

9. Online Opening and Evaluation of Financial Parts of Quotations: The Financial Part of the Quotations will be opened online on the specified date and time. This can also be viewed by the bidders online, and electronic summary of quotation opening of financial part will be generated and uploaded online.

- (a) The Employer shall examine and confirm that Letter of Quotation – Financial Part and Priced Bill of Quantities are in accordance with the requirements specified in the RFQ document. If any of these documents or information is missing, the offer shall be rejected.
- (b) During the evaluation of Financial Parts of Quotation, the substantial responsiveness of the Quotations will be further determined with respect to those RFQ conditions that were not examined in evaluation of Technical Parts of Quotations.

10. Award of contract

The Employer will award the contract to the bidder whose quotation has been determined to be substantially responsive and who has offered the lowest evaluated quotation price and who meets the specified qualification criteria.

Not with standing the above, the Employer reserves the right to accept or reject any quotations and to cancel the bidding process and reject all quotations at any time prior to the award of contract.

The bidder whose quotation is accepted will be notified of the award of contract by the Employer prior to expiration of the quotation validity period.

11. Performance Security

Within 15 days of receiving letter of acceptance, the successful bidder shall deliver to the The **Executive Engineer, Right Bank Irrigation Division, DPIU-RBI, WBMIFMP** (Employer) the performance security (either a bank guarantee or a bank draft in favour of the Employer) for an amount equivalent of 3 % of the contract price. The Performance Security shall be valid till the expiry of the period of maintenance of the work, specified in Clause 12. Failure of the successful Bidder to furnish performance security and to sign the agreement within the period stipulated shall constitute sufficient grounds for annulment of award and debarring the bidder from participation in bidding for works by the Employer for a period of one year, in which case the Employer may make the award to the next lowest evaluated bidder or seek quotations afresh.

12. Period of Maintenance:

The Period of Maintenance for the work is six months from the date of taking over possession or one full monsoon season whichever occurs later. During the period of maintenance, the contractor will be responsible for rectifying any defects in construction free of cost to the Employer.

- 13.** Supply of all construction materials including cement and steel as per the specifications (ISI certification marked goods wherever available) shall be the responsibility of the contractor. Employer will not issue any material/equipment.

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SECTION - B

- 1. Format for Qualification Information.**
- 2. Format for Submission of Quotation.**
- 3. Format of Letter of Acceptance.**

QUALIFICATION INFORMATION

1 For Individual Bidders

Principal place of business: _____

Power of attorney of signatory of Quotation.

[Attach copy]

Total value of Civil Engineering	2016-17	_____
construction work performed in the last	2017-18	_____
five years (in Rs. Lakhs)	2018-19	_____
	2019-20	_____
	2020-21	_____

Work performed as prime contractor (in the same name) on works of a similar nature over the last three years.

<u>Project Name</u>	<u>Name of Employer</u>	<u>Description of work</u>	<u>Contract No.</u>	<u>Value of contract (Rs. Lakhs)</u>	<u>Date of issue of work order</u>	<u>Stipulated period of completion</u>	<u>Actual date of completion*</u>	<u>Remarks explaining reasons for delay and work completed</u>
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Existing commitments and on-going works:

Description of Work	Place & State	Contract No. & Date	Value of Contract (Rs. Lakhs)	Stipulated period of completion	Value of works* remaining to be completed (Rs. Lakhs)	Anticipated date of completion
(1)	(2)	(3)	(4)	(5)	(6)	(7)

* *Enclose a certificate from the Engineer concerned for completion as well as value of pending works.*

Proposed subcontracts and firms involved.

Sections of the works	Value of Sub-contract	Sub-contractor (name & address)	Experience in similar work
*	*	*	*
	*	*	
*	*	*	*
	*	*	
*	*	*	*
	*	*	

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

Name, address, and telephone, telex, and fax numbers of the Bidders' bankers who may provide references if contacted by the Employer.

Information on litigation history in which the Bidder is involved.

Name of the work	Agreement number/date	Name & address of Employer	Contract Value in Rs	Cause of dispute	Amount Disputed	Remarks showing present status

Letter of Quotation–Technical Part

The Bidder must prepare the Letter of Quotation on stationery with its letterhead clearly showing the Bidder's complete name and address. The italicized text is for Bidder's guidance in preparing these forms and shall be deleted from the final products.

Description of the Works*: —**Special Repair of Inspection Bungalow, office building and repair of S.D.O. type quarter for Project Management Consultancy Office under Right Bank Irrigation Division, Sonamukhi, Bankura, Govt. of West Bengal.**

RFQ No.: **WBMIFMP/DPIU-RBI/NCB/21-22/01 (2nd Call)**

Our Reference: No..... Dated.....

To: **The Executive Engineer,
Right Bank Irrigation Division,
DPIU-RBI, WBMIFMP
I & W Directorate, Government of West Bengal
Sonamukhi, Bankura, West Bengal**

Subject: —**Special Repair of Inspection Bungalow, office building and repair of S.D.O. type quarter for Project Management Consultancy Office under Right Bank Irrigation Division, Sonamukhi, Bankura, Govt. of West Bengal.**

Reference : Letter No.....dated.....from.....

Sir,

1. We, the undersigned, hereby submit our Quotation in two parts, namely:

- (a) Technical Part; and
- (b) Financial Part

2. In submitting our Quotation, we make the following declarations:

- (a) **No reservations:** We have examined and have no reservations to the RFQ document;
- (b) **Conformity:** We offer to execute the subject work in conformity with the RFQ document and in accordance with the Period of Completion specified in Section A.;
- (c) **Quotation Validity Period:** Our Quotation shall be valid for the period of 45 days, from the deadline fixed for the Quotation submission;
- (d) **Eligibility:** We meet the eligibility requirements and have no conflict of interest, we are not participating in more than one quotation in this bidding process, and we have not been temporarily suspended or debarred by the World Bank.
- (e) **Fraud and Corruption:** We hereby certify that we have taken steps to ensure that no person acting for us or on our behalf will engage in any type of corrupt, fraudulent, collusive, coercive, or obstructive practices.

- (f) **ESHS/GBV Compliance:** We hereby undertake to comply with (i) the applicable Laws/ Rules/ Regulations for protection of environment, public health and safety; (ii) the regulatory authority conditions (if any) attached to any permits or approvals for the project; and (iii) the Management Strategies and Implementation Plan (MSIP) to manage the Environmental, Social (including sexual exploitation and abuse (SEA) and gender based violence (GBV)), Health and Safety (ESHS) risks, and ESHS Code of Conduct, (if any prescribed by the Employer), that will apply to us, our employees and all subcontractors.

Yours faithfully,

Authorized Signature : Date: _____

Name & Title of Signatory : _____

In the capacity of *[insert legal capacity of person signing the Letter of Quotation]*

Name of Bidder : _____

Address : _____

Dated on _____ day of _____, _____ *[insert date of signing]*

* ***To be filled in by the Employer before issue of the Letter of Invitation.***

** ***To be filled in by the Bidder, together with his particulars and date of submission at the bottom of this Form.***

Letter of Quotation–Financial Part

The Bidder must prepare the Letter of Quotation on stationery with its letterhead clearly showing the Bidder's complete name and address. The italicized text is for Bidder's guidance in preparing these forms and shall be deleted from the final products.

Description of the Works*: — **Special Repair of Inspection Bungalow, office building and repair of S.D.O. type quarter for Project Management Consultancy Office under Right Bank Irrigation Division, Sonamukhi, Bankura, Govt. of West Bengal**
RFQ No.: **WBMIFMP/DPIU-RBI/NCB/21-22/01 (2nd Call)**

Our Reference: No..... Dated.....

To: **The Executive Engineer,
Right Bank Irrigation Division,
DPIU-RBI, WBMIFMP
I & W Directorate, Government of West Bengal
Sonamukhi, Bankura, West Bengal**

Subject: —**Special Repair of Inspection Bungalow, office building and repair of S.D.O. type quarter for Project Management Consultancy Office under Right Bank Irrigation Division, Sonamukhi, Bankura, Govt. of West Bengal**

Sir,

1. We, the undersigned, hereby submit the second part of our Quotation, the Financial Part including the Quotation Price and Bill of Quantities. In submitting our Financial Part we make the following additional declarations:

- (a) **Validity:** Our Quotation shall be valid for the period of 45 days from the deadline fixed for the Quotation submission;
- (b) **Quotation Price:** The total price of our Quotation including any unconditional discounts, offered in accordance with the Conditions of Contract is at percentage above / below the estimated rates, i.e., for a total Contract Price of –

Rs.** _____ [in figures]

Rs. _____ [in words];

- (c) **Commissions, gratuities and fees:** We have paid, or will pay the following commissions, gratuities, or fees with respect to the Bidding process or execution of the Contract: *[insert complete name of each Recipient, its full address, the reason for which each commission or gratuity was paid and the amount and currency of each such commission or gratuity. If none has been paid or is to be paid, indicate "none."]*

Yours faithfully,

Authorized Signature

Name & Title of Signatory _____

In the capacity of *[insert legal capacity of person signing the Letter of Quotation]*

Name of Bidder _____

Address _____

Dated on _____ day of _____, _____ *[insert date of signing]*

To be filled in by the Employer before issue of the Letter of Invitation.

**** *To be filled in by the Bidder, together with his particulars and date of submission at the bottom of this Form.***

**LETTER OF ACCEPTANCE
CUM NOTICE TO PROCEED WITH THE WORK**

(LETTERHEAD OF THE EMPLOYER)

Dated: _____

To: _____ [Name and address of the Contractor]

Dear Sirs,

This is to notify you that your quotation dated _____ for execution of the
_____ for the contract price of
Rupees _____ [amount in words and figures], is
hereby accepted by us.

You are hereby requested to furnish performance security for an amount of Rs.
_____ (equivalent to 3% of the contract price) within 15 days of the receipt of the
letter. The Performance Security in the form of Bank guarantee or a Bank draft in favour
of..... (Employer) shall be valid till the expiry of the period of maintenance i.e. up to
_____. Failure to furnish the Performance Security will entail cancellation of
the award of contract.

You are also requested to sign the agreement form and proceed with the work not later than
_____ under the instructions of the Engineer,
_____ and ensure its completion within the contract period.

With the issuance of this acceptance letter and your furnishing the required Performance
Security, the contract, for the above said work, stands concluded.

Yours faithfully,

Authorized Signature
Name and title of Signatory of Employer

Draft Contract Agreement form for Construction through National Shopping

ARTICLES OF CONTRACT AGREEMENT

1.0 This deed of agreement is made in the form of agreement on _____ day _____ month _____ 20____, between the _____ (Employer) or his authorized representative (hereinafter referred to as the first party) and _____ (Name of the Contractor), S/O _____ resident of _____ (hereinafter referred to as the second party), to execute the work of construction of _____ (hereinafter referred to as works) on the following terms and conditions.

2.0 Contract Price

The total Contract Price for the works (hereinafter referred to as the -total price) is Rs. _____ as reflected in Annexure - 1.

Payments under its contract:

Payments to the second party for the construction work will be released by the first party in the following manner:-

The Contractor shall submit to the Project Manager monthly statements of the estimated value of the work executed less the cumulative amount certified previously for a minimum value of executed works of INR 5.00 Lakhs.

The Project Manager shall check the Contractor's monthly statement and certify the amount to be paid to the Contractor.

The value of work executed shall be determined by the Project Manager.

The value of work executed shall comprise the value of the quantities of work in the Bill of Quantities that have been completed.³

The value of work executed shall include the valuation of Variations and Compensation Events.

The Project Manager may exclude any item certified in a previous certificate or reduce the proportion of any item previously certified in any certificate in the light of later information.

If the Contractor was, or is, failing to perform any ES obligations or work under the Contract, the value of this work or obligation, as determined by the Project Manager, may be withheld until the work or obligation has been performed, and/or the cost of rectification or replacement, as determined by the Project Manager, may be withheld until rectification or replacement has been completed. Failure to perform includes, but is not limited to the following:

- (a) failure to comply with any ES obligations or work described in the Works' Requirements which may include: working outside site boundaries, excessive dust, failure to keep public roads in a safe usable condition, damage to offsite vegetation,

³

In lump-sum contracts, replace this paragraph with the following: "The value of work executed shall comprise the value of completed activities in the Activity Schedule."

pollution of water courses from oils or sedimentation, contamination of land e.g. from oils, human waste, damage to archaeology or cultural heritage features, air pollution as a result of unauthorized and/or inefficient combustion;

- (b) failure to implement remediation as instructed by the Project Manager within the specified timeframe (e.g. remediation addressing non-compliance/s).

Payments shall be adjusted for deductions for advance payments, retention, other recoveries in terms of contract and taxes to be deducted at source (TDS) as per applicable law. The proportion of payments retained (Retention Money) shall be 6% from each bill subject to the maximum of 5% of final contract price. The Employer shall pay the Contractor the amounts certified by the Project Manager within 28 days of the date of each certificate. If the Employer makes a late payment, the Contractor shall be paid interest on the late payment in the next payment. Interest shall be calculated from the date by which the payment should have been made up to the date when the late payment is made at the prevailing rate of interest for commercial borrowing for

On signing of agreement	:	10% of total cost, as interest free advance against receipt of an unconditional bank guarantee from the Contractor for an equivalent amount valid up to the Intended Completion Date, in the format attached.
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Payments at each stage will be made by the first party:

- (a) on the second party submitting an invoice for an equivalent amount;
- (b) on certification of the invoice (except for the first installment) by the engineer nominated by the first party with respect to quality/quantity of works executed in the format in Annexure - 2; and
- (c) upon proper and justified utilization of at least 50 % of the previous installment and 100 % of any prior installment.
- (d) Payments shall be adjusted for deductions for advance payments, recoveries if any in terms of the contract, and taxes at source, as applicable under the law.
- (e) The advance (if availed by the contractor) shall be repaid with percentage deductions from the interim payments, commencing with the next Interim Payment at the rate of 20 percent of the amounts of all Interim Payment Certificates until the advance has been repaid, provided that the advance shall be completely repaid prior to the expiry of the Intended Completion Date. The Bank Guarantee shall remain effective until the advance payment has been fully repaid.

4.0 Notice by Contractor to Engineer

The second party, on the works reaching each stage of construction, issue a notice to the first party or the Engineer nominated by the first party (who is responsible for supervising the contractor, administering the contract, certifying the payments due to the contractor, issuing and valuing variations to the contract, awarding extensions of time etc.), to visit the site for certification of stage completion. Within 15 days of the receipt of such notice, the first party or the engineer nominated by it, will ensure issue of stage completion certificate after due verification.

5.0 Completion time

The works should be completed in **Nine Months** from the date of this Agreement. In exceptional circumstances, the time period stated in this clause may be extended in writing by mutual consent of both the parties.

If any of the compensation events mentioned below would prevent the work being completed by the intended completion date, the first party will decide on the intended completion date being extended by a suitable period:

- a) The first party does not give access to the site or a part thereof by the agreed period.
- b) The first party orders a delay or does not issue completed drawings, specifications or instructions for execution of the work on time.
- c) Ground conditions are substantially more adverse than could reasonably have been assumed before issue of letter of acceptance and from information provided to second party or from visual inspection of the site.
- d) Payments due to the second party are delayed without reason.
- e) Certification for stage completion of the work is delayed unreasonably.

7.0 Any willful delay on the part of the second party in completing the construction within the stipulated period will render him liable to pay liquidated damages. @ Rs. * _____ per day which will be deducted from payments due to him. The first party may cancel the contract and take recourse to such other action as deemed appropriate once the total amount of liquidated damages exceeds 3 % of the contract amount.

(Note: The amount of liquidated damages per day should be determined between 0.05 to 0.1% of the contract value of the works per day and indicated here).

Duties and responsibilities of the first party

The first party shall be responsible for providing regular and frequent supervision and guidance to the second party for carrying out the works as per specifications. This will include written guidelines and regular site visit of the authorized personnel of the first party, for checking quality of material and construction to ensure that it is as per the norms.

The first party shall supply 3 sets of drawings, specifications and guidelines to the second party for the proposed works.

Possession of the site will be handed over to the second party within 10 days of signing of the agreement.

The Engineer or such other person as may be authorized by the first party shall hold meeting once in a fortnight/month *(Choose one option)* where the second party or his representative at site will submit the latest information including progress report and difficulties if any, in the execution of the work. The whole team may jointly inspect the site on a particular day to take stock of activities.

The Engineer shall record his observations/instructions at the time of his site visit in a site register maintained by the second party. The second party will carry out the instructions and

promptly rectify any deviations pointed out by the engineer. If the deviations are not rectified, within the time specified in the Engineer's notice, the first party as well as the engineer nominated by it, may instruct stoppage or suspension of the construction. It shall thereupon be open to the first party or the engineer to have the deviations rectified at the cost of the second party.

Duties and responsibilities of the second party

The second party shall:

- a) take up the works and arrange for its completion within the time period stipulated in Clause 5;
- b) employ suitable skilled persons to carry out the works;
- c) regularly supervise and monitor the progress of work;
- d) abide by the technical suggestions/direction of supervisory personnel including engineers etc. regarding building construction;
- e) be responsible for bringing any discrepancy to the notice of the representative of the first party and seek necessary clarification;
- f) ensure that the work is carried out in accordance with specifications, drawings and within the total of the contract amount without any cost escalation;
- g) keep the first party informed about the progress of work;
- h) be responsible for all security and watch and ward arrangements at site till handing over of the building to the first party; and
- i) maintain necessary insurance against loss of materials/cash, etc. or workman disability compensation claims of the personnel deployed on the works as well as third party claims.
- j) Pay all duties, taxes and other levies payable by construction agencies as per law under the contract (First party will effect deduction (TDS) from running bills in respect of such taxes as may be imposed under the law).

Variations / Extra Items

The works shall be carried out by the second party in accordance with the approved drawings and specifications. However, if, on account of site conditions or any other factors, variations are considered necessary, the following procedure shall be followed:-

- a) The second party shall provide the Engineer with a quotation for carrying out the Variation when requested to do so by the Engineer. The Engineer shall assess the quotation, which shall be given within seven days of the request before the Variation is ordered.

- b) If the quotation given by the second party is unreasonable, the Engineer may order the Variation and make a change to the Contract Price which shall be based on Engineer's own forecast of the effects of the Variation on the Contractor's costs.
- c) The second party shall not be entitled to additional payment for costs which could have been avoided by giving early warning.

11.0 Securities

The Performance Security (Bank Guarantee from a Nationalized or Scheduled Bank in India in the format attached) shall be provided to the Employer no later than the date specified in the Letter of Acceptance and shall be issued in an amount and form and by a bank or surety acceptable to the Employer. The Performance Security shall be valid until a date 28 days from the date of issue of the Certificate of Completion in the case of a Bank Guarantee.

Termination

The Employer may terminate the Contract if the other party causes a fundamental breach of the Contract.

Fundamental breaches of Contract include, but shall not be limited to the following:

- (a) the contractor stops work for 28 days and the stoppage has not been authorized by the Engineer;
- (b) the Contractor has become bankrupt or goes into liquidation other than for a reconstruction or amalgamation;
- (c) the Engineer gives Notice that failure to correct a particular Defect is a fundamental breach of Contract and the Contractor fails to correct it within a reasonable period of time determined by the Engineer;
- (d) the Contractor does not maintain a security which is required;
- (e) the Contractor has delayed the completion of the Works by the number of days for which the maximum amount of liquidated damages can be paid, as defined in the Clause 7 of this agreement

Notwithstanding the above, the Employer may terminate the Contract for convenience.

If the Contract is terminated the Contractor shall stop work immediately, make the Site safe and secure, and leave the Site as soon as reasonably possible.

Payment upon Termination

If the Contract is terminated because of a fundamental breach of Contract by the Contractor, the Engineer shall issue a certificate for the value of the work done less advance payments received up to the date of the issue of the certificate, less other recoveries due in terms of the contract, less taxes due to be deducted at source as per applicable law.

If the Contract is terminated at the Employer's convenience, the Engineer shall issue a certificate for the value of the work done, the reasonable cost of removal of Equipment, repatriation of the Contractor's personnel employed solely on the Works, and the

Contractor's costs of protecting and securing the Works and less advance payments received up to the date of the certificate, less other recoveries due in terms of the contract and less taxes due to be deducted at source as per applicable law.

14.0 Dispute settlement

If over the works, any dispute arises between the two parties, relating to any aspects of this Agreement, the parties shall first attempt to settle the dispute through mutual and amicable consultation.

In the event of agreement not being reached, the matter will be referred for arbitration by a Sole Arbitrator not below the level of retired Superintending Engineer, PWD to be appointed by the first party. The Arbitration will be conducted in accordance with the Arbitration and Conciliation Act, 1996. The decision of the Arbitrator shall be final and binding on both the parties. The Arbitrator shall give his award/decision within 60 days of start of proceedings.

The Priced Bill of Quantities (Annexure 1), Format of Certificate (Annexure 2) and Specification and Drawings (Annexure 3) are attached.

Signed and delivered by Sri. _____ for and on behalf of the Contractor

In the presence of the Witness:

i)

ii)

SIGNATURE

Signed and delivered by Sri _____ Deputy Executive Engineer/Executive Engineer/Superintending Engineer _____ of _____ for an on behalf of the Government.

In the presence of the Witness:

i)

ii)

SIGNATURE

BILL OF QUANTITIES

Name of work: Special Repair of Inspection Bungalow, office building and repair of S.D.O. type quarter for Project Management Consultancy Office under Right Bank Irrigation Division, Sonamukhi, Bankura, Govt. of West Bengal.

SI No	Description of Item	Quantity	Unit	Estimated Cost		Amount (in Rupees)
				In figure (Rs.)	In Words (Rupees)	
1.00	Dismantling all types of plain cement concrete works, stacking serviceable materials at site and removing rubbish as directed within a lead of 75 m. In ground floor including roof. (a) upto 150 mm. thick	11.90	Cu. M.	1062.20	INR One Thousand & Sixty-Two and Paise Twenty Only	12640.18
2.01	Dismantling all types of masonry excepting cement concrete plain or reinforced, stacking serviceable materials at site and removing rubbish as directed within a lead of 75 m. a) In ground floor including roof.	5.67	Cu. M.	505.65	INR Five Hundred & Five and Paise Sixty-Five Only	2867.04
2.02	c) Extra rate for careful dismantling and recovering at least 150 nos of useable bricks per cu.m.	1.80	Cu. M.	64.48	INR Sixty-Four and Paise Forty-Eight Only	116.06
3.00	Labour for scraping and picking up old dilapidated mortar / plaster (Cement / Surki / Lime mortar) from the surface of old Brick faces including cleaning the frog without damaging the Brick and stacking the Bricks at Site / Stacking yard as per direction of Engineer-in-charge including removing all debris rubbish from site complete.	270.00	1000 Nos	1074.64	INR One Thousand & Seventy-Four and Paise Sixty-Four Only	290.15
4.00	Dismantling R.C. floor, roof, beams etc. including cutting rods and removing rubbish as directed within a lead of 75 m. including stacking of steel bars. (a) In ground floor including roof.	6.02	Cu. M.	2212.63	INR Two Thousand Two Hundred & Twelve and Paise Sixty-Three Only	13320.03
5.00	Dismantling carefully terraced floor only (including floor finish if any) or lime terracing in ground floor roof and removing rubbish as directed within a lead of 75 m. a) In ground floor including roof.	46.00	Cu. M.	835.96	INR Eight Hundred & Thirty-Five and Paise Ninety-Six Only	38454.16

SI No	Description of Item	Quantity	Unit	Estimated Cost		Amount (in Rupees)
				In figure (Rs.)	In Words (Rupees)	
6.00	Dismantling artificial stone flooring up to 50 mm. thick by carefully chiseling without damaging the base and removing rubbish as directed within a lead of 75 m. a) In ground floor including roof.	40.00	Sq. M.	56.56	INR Fifty-Six and Paise Fifty-Six Only	2262.40
7.00	Stripping off worn out plaster and raking out joints of walls, celings etc. upto any height and in any floor including removing rubbish within a lead of 75m as directed.	915.84	Sq.M.	21.49	INR Twenty-One and Paise Forty-Nine Only	19681.40
8.00	Surface Dressing of the ground in any kind of soil including removing vegetation inequalities not exceeding 15 cm depth and disposal of the rubbish within a lead upto 75 m as directed.	1265.56	Sq.M.	11.31	INR Eleven and Paise Thirty-One Only	14313.48
9.00	Earth work in excavation of foundation trenches or drains, in all sorts of soil (including mixed soil but excluding laterite or sandstone) including removing, spreading or stacking the spoils within a lead of 75 m. as directed. The item includes necessary trimming the sides of trenches, levelling, dressing and ramming the bottom, bailing out water as required complete. (a) Depth of excavation not exceeding 1,500 mm.	86.97	%Cu.M.	13491.82	INR Thirteen Thousand Four Hundred &Ninety-One and Paise Eighty-Two Only	11733.84
10.00	Earth work in filling in foundation trenches or plinth with good earth, in layers not exceeding 150 mm. including watering and ramming etc. layer by layer complete. (Payment to be made on the basis of measurement of finished quantity of work) (a) With earth obtained from excavation of foundation.	10.87	%Cu.M.	8771.32	INR Eight Thousand Seven Hundred &Seventy-One and Paise Thirty-Two Only	953.44
11.00	(A) Filling in foundation or plinth by silver sand in layers not exceeding 150 mm as directed and consolidating the same by thorough saturation with water, ramming complete including the cost of supply of sand. (Payment to be made on measurement of finished quantity)	15.91	%Cu.M.	42443.76	INR Forty-Two Thousand Four Hundred &Forty-Three andPaise Seventy-Six Only	6752.80
12.00	Single Brick Flat Soling of picked jhama bricks including ramming and dressing bed to proper level and filling joints with	47.15	Sq.M.	332.57	INR Three Hundred &Thirty-Two and Paise Fifty-Seven	15680.68

SI No	Description of Item	Quantity	Unit	Estimated Cost		Amount (in Rupees)
				In figure (Rs.)	In Words (Rupees)	
	local sand.				Only	
13.00	Brick work with 1st class bricks in cement mortar (1:4)					
13.00	Brick work with 1st class bricks in cement mortar (1:4)					
13.01	(a) In foundation and plinth	52.07	Cu.M.	5400.35	INR Five Thousand Four Hundred and Paise Thirty-Five Only	281196.22
13.02	(b) In superstructure, ground floor	14.01	Cu.M.	5652.61	INR Five Thousand Six Hundred & FiftyTwo and Paise Sixty-One Only	79193.07
14.00	125 mm. thick brick work with 1st class bricks in cement mortar (1:4) in ground floor.	69.50	Sq.M.	707.00	INR Seven Hundred & Seven Only	49136.50
15.00	Ordinary Cement concrete [Mix 1:2:4] with graded stone chips(20 mm.size) excluding shuttering and reinforcement, if any, in ground floor.as per relevant IS codes. d)With local hard blackstone verity chips (crusher broken)	29.84	Cu.M.	4771.40	INR Four Thousand Seven Hundred & Seventy One and Paise Forty Only	142378.58
16.00	Ordinary Cement concrete [Mix 1:1.5:3] with graded stone chips(20 mm.size) excluding shuttering and reinforcement, if any, in ground floor. as per relevant IScodes. iv)With local hard blackstone variety chips (crusher broken)	25.56	Cu.M.	5529.31	INR Five Thousand Five Hundred & Twenty Nine and Paise Thirty One Only	141329.16
17.00	Hire and labour charges for shuttering with centreing and necessary staging upto 4 m. using approved stout props and thick hard wood planks of approved thickness with required bracing for concrete slabs, beams, columns, lintels curved or straight including fitting, fixing and striking out after completion of works. (upto roof of ground floor) (a) 25 mm. to 30 mm. thick wooden shuttering as per decision & direction of Engineer-in-charge.	139.83	Sq.M.	363.12	INR Three Hundred & Sixty Three and Paise Twelve Only	50775.07

SI No	Description of Item	Quantity	Unit	Estimated Cost		Amount (in Rupees)
				In figure (Rs.)	In Words (Rupees)	
18.00	<p>Reinforcement for reinforced concrete work in all sorts of structures including distribution bars, stirrups, binders etc. , initial straightening and removal of loose rust (if necessary), cutting to requisite length, hooking and bending to correct shape, placing in proper position and binding with 16 gauge black annealed wire at every inter-section, complete as per drawing and direction.</p> <p>(a)For works in foundation, basement and upto roof of ground floor upto 4m.</p> <p>"(i) Tor steel/Mild steel I) SAIL/TATA/RINL"</p>	0.474	MT	62305.36	INR Sixty Two Thousand Three Hundred & Five and Paise Thirty Six Only	29532.74
19.00	<p>"Artificial stone in floor, dado, staircase etc with cement concrete (1:2:4) with stone chips, laid in panels as directed with topping made with ordinary or white cement (as necessary) and marble dust in proportion (1:2) including smooth finishing and rounding off corners including raking out joints or roughening of concrete surface and application of cement slurry before flooring works using cement @ 1.75 kg/sq.m all complete including all materials and labour.</p> <p>In ground floor. 3 mm. thick topping (High polishing grinding on this item is not permitted with ordinary cement).</p> <p>Using grey cement"</p>					
19.01	(ii) 25 mm. thick	9.00	Sq.M.	294.11	INR Two Hundred & Ninety Four and Paise Eleven Only	2646.99
20.01	<p>"Plaster (to wall, floor, ceiling etc.) with sand and cement mortar including rounding off or chamfering corners as directed and raking out joints or roughening of concrete surface, including throating, nosing and drip course where necessary (ground floor) [Excluding cost of chipping over concrete surface]</p> <p>(i)With 1:4 cement mortar,</p>	509.53	Sq.M.	195.44	INR One Hundred & Ninety Five and Paise Forty Four Only	99582.54

SI No	Description of Item	Quantity	Unit	Estimated Cost		Amount (in Rupees)
				In figure (Rs.)	In Words (Rupees)	
	(a)20 mm. thick plaster"					
20.02	(b)15 mm. thick plaster"	1047.03	Sq.M.	169.68	INR One Hundred & Sixty Nine and Paise Sixty Eight Only	177660.05
20.03	(c)10 mm. thick plaster"	170.14	Sq.M.	138.01	INR One Hundred & Thirty Eight and Paise One Only	23481.02
21.00	Neat cement punning about 1.5 mm. thick in wall, dado, window, sills, floor, drain etc.	441.22	Sq.M.	38.46	INR Thirty Eight and Paise Forty Six Only	16969.32
22.00	<p>–Supplying, fitting and fixing windows and ventilators with or without integrated grills conforming to IS 1038-1975 and manufactured from rolled steel sections conforming to IS 7452-1974 with non-friction projecting type, box type hinges, glazing clips, lugs locking bracket, handle plate etc, including hoisting in position, straightening if required, fixing lugs in cement concrete (1:2:4) with stone chips 20 mm down cutting holes and mending good damages to match with existing surface complete in all respect excluding glazing.</p> <p>In Ground floor</p> <p>(b) Openable steel windows as per IS sizes with side hung shutters and horizontal glazing bars. [The extra rate admissible for the openable portion only]. —</p>	6.70	Sq.M.	1881.19	INR One Thousand Eight Hundred & Eighty One and Paise Nineteen Only	12603.97
23.00	(A) Supplying fitting and fixing door frame with M.S. angle as per drawing & direction of required section. The holes for counter sunk machine screw & nuts will be such as to fit 8 to 10 mm Iron screw. The counter sunk nut to be welded . The nuts are to be welded after careful checking with screw. All welding spots should be properly filed or rounded smooth including cost of welding hinges for hinge cleats , lugs for hasp bolt, socket bolt etc. and necessary M.S. clamps of 25mm x 6mm flat 225mm long as per direction welded to the frame fitted and fixed in position excluding cost of concrete.	3.45	Kg	89.36	INR Eighty Nine and Paise Thirty Six Only	308.29

SI No	Description of Item	Quantity	Unit	Estimated Cost		Amount (in Rupees)
				In figure (Rs.)	In Words (Rupees)	
24.00	Supplying 1.5mm thick M.S. sheet fitted and fixed on one or both faces of M.S./ W.I. gate etc. with point welding at not more than 150mm apart complete in all respect as per design including cost of all labour and materials.	5.46	Sq.M.	1105.18	INR One Thousand One Hundred & Five and Paise Eighteen Only	6034.28
25.00	<p>"Supplying & laying as per IRC-SP:063-2004 paver unit of any shade of approved quality as per relevant IS code, laid in pattern as directed in pavement, footpath, driveway (paver block only), etc including necessary underlay complete in all respect with all labour and material.</p> <p>[Border concrete if necessary to be paid separately].</p> <p>Note: Sub-grade CBR should not be less than 5.</p> <p>(c)60 mm thick interlocking designer concrete paver block M-35 grade for light-traffic zone,commercial & office complex,tourist resort as per IS: 15658-2006 (over 20-40 mm medium sand bed on 250mm thk WBM/ WMM base course & 250 mm thk bound granular /granular sub-base course including cost of sand for sand bed but excluding cost of base,sub-base course & sub grade preparation.)</p> <p>ii) Coloured Decorative"</p>	600.00	Sq.M.	1459.25	INR One Thousand Four Hundred & Fifty Nine and Paise Twenty Five Only	875550.00
26.00	Supplying best Indian sheet glass panes set in putty and fitted and fixed with nails and putty complete(in all floors for internal wall & upto 6m height for external wall). (i) 3 mm. thick (weighing 7.4 kg./sq.m.)	47.75	Sq.M.	539.58	INR Five Hundred & Thirty Nine and Paise Fifty Eight Only	25764.95
27.00	<p>Wood work in door and window frame fitted and fixed in position complete including a protective coat of painting at the contact surface of the frame excludingcost of concrete, Iron Butt Hinges and M.S clamps. (The quantum should be corrected upto three decimals).</p> <p>(d) Sal : Local.</p>	1.325	Cu.M	82525.56	INR Eighty Two Thousand Five Hundred & Twenty Five and Paise Fifty Six Only	109346.37
28.00	Panel shutters of door and window, as per design (each panel consisting of single plank without joint), including fitting and fixing the same in position but excluding the cost of hinge and other fittings. In ground floor. (In case of non-	26.87	Sq.M.	1506.76	INR One Thousand Five Hundred & Six and Paise Seventy Six Only	40486.64

SI No	Description of Item	Quantity	Unit	Estimated Cost		Amount (in Rupees)
				In figure (Rs.)	In Words (Rupees)	
	supply of single plank, penal rate of reduction of 20% will be made). (iv) 25mm thick shutters with 12mm thick panel of size 30 to 45 cm. (c) Other Local Wood.					
29.00	Anodised aluminium butt hinges of approved quality manufactured from extruded section conforming to I.S. specification (I.S. 205/66) and fitted and fixed with cadmium plated screws: vi) 125 x 63 x 3.2mm. (Add extra 30% for oxidised fittings)	164.00	Each	87.10	INR Eighty Seven and Paise Ten Only	14284.40
30.00	Anodised aluminium barrel / tower / socket bolt (full covered) of approved manufactured from extruded section conforming to I.S. 204/74 fitted and fixed with cadmium plated screws: (vi) 200 mm long x 10mm dia bolt.	50.00	Each	88.23	INR Eighty Eight and Paise Twenty Three Only	4411.50
31.00	"ii) Brass hasp bolt of approved quality fitted and fixed complete (oxidised) with 16mm dia rod with centre bolt and round fitting." (a) 300 mm long.	14.00	Each	743.20	INR Seven Hundred & Forty Three and Paise Twenty Only	10404.80
32.00	Supplying, fitting and fixing M.S. clamps for door and window frame made of flat bent bar, end bifurcated with necessary screws etc. by cement concrete(1:2:4) as per direction. (Cost of concrete will be paid separately) (b) 40mm X 6mm, 200mm Length	94.00	Each	28.28	INR Twenty Eight and Paise Twenty Eight Only	2658.32
33.00	"Supplying, fitting & fixing granite tiles 10mm to 12mm. thick in columns, wall, fascia etc. with 15 thick [avg] cement mortar (1:2) including making suitable arrangements to hold the stones properly by brass / copper hooks including pointing in cement mortar (1:2) (1 white cement : 2 marble dust) with admixture of pigment matching the stone shades all complete as per direction of the Engineer-in-charge including cost of all materials, labours, scaffolding, staging, curing and roughening of concrete surface complete.	9.81	Sq.M.	1973.94	INR One Thousand Nine Hundred & Seventy Three and Paise Ninety Four Only	19364.35

SI No	Description of Item	Quantity	Unit	Estimated Cost		Amount (in Rupees)
				In figure (Rs.)	In Words (Rupees)	
	<p>[Using cement slurry at back side of tiles@ 4.4 kg/sq.m & white cement slurry for joint filling @ 1.8 kg/sq.m]</p> <p>Area of each slab upto 0.2 Sq.m"</p>					
34.00	<p>Supplying and laying true to line and level Anti-Skid, Full Body, Homogeneous & Granular finish Vitrified Tiles conforming to IS:15622-2006 & IS 4457-2007 and testing shall be made in accordance with IS:13630 [Non- modular sizes for tiles with Skid resistance > 0.5, Mohr's hardness > 5.0, Staining resistance: Class-1, Water Absorption: E < 0.5%], MOR > 35 N/sq.mm in Internal area of building e.g. Toilet Block, Passage, Corridor, Accessible Open Terrace etc. set in 20 mm sand cement mortar (1:4) and 2 mm thick cement slurry at back side of tiles using cement @ 2.91 Kg./Sqm or using Polymerised Adhesive (6 mm thick layer applied directly over finished artificial stone floor/ Mosaic etc without any backing course) laid after application slurry using 1.75 Kg of cement per Sqm below mortar only. Joints grouted with admixture of white cement and colouring pigment to match with colour of tiles/ epoxy grout materials of approved make as directed and removal of wax coating of top surface of tiles with warm water and polishing the tiles using soft and dry cloth upto mirror finish complete including the cost of materials, labour and all other incidental charges complete true to the manufacturer's specification and direction of Engineer-in-Charge. (White cement, synthetic adhesive and grout material to be supplied by the contractor).</p>					
34.01	<p>b) In Ground Floor: Sizes-600 mm x600mm x10 mm with breaking strength > 1500 N</p>	124.13	Sq.M.	1797.48	INR One Thousand Seven Hundred & Ninety Seven and Paise Forty Eight Only	223121.19
35.00	<p>"Supplying, fitting & fixing 1st quality Ceramic tiles in walls and floors to match with the existing work & 4 nos. of key stones (10mm) fixed with araldite at the back of each tile & finishing the joints</p>	235.80	Sq.M.	833.69	INR Eight Hundred & Thirty Three and Paise Sixty Nine Only	196584.10

SI No	Description of Item	Quantity	Unit	Estimated Cost		Amount (in Rupees)
				In figure (Rs.)	In Words (Rupees)	
	<p>with white cement mixed with colouring oxide if required to match the colour of tiles including roughening of concrete surface, if necessary or by synthetic adhesive & grout materials etc. (B) Wall With Sand Cement Mortar (1:3) 15 mm thick & 2 mm thick cement slurry at back side of tiles using cement @ 2.91 Kg/Sq.m & joint filling using white cement slurry @ 0.20kg/Sq.m.</p> <p>(a) Area of each tile upto 0.09 Sq.m</p> <p>i) Coloured decorative"</p>					
36.00	<p>"Supplying, fitting & fixing 1st quality Ceramic tiles in walls and floors to match with the existing work & 4 nos. of key stones (10mm) fixed with araldite at the back of each tile & finishing the joints with white cement mixed with colouring oxide if required to match the colour of tiles including roughening of concrete surface, if necessary or by synthetic adhesive & grout materials etc. (A) Floor With Sand Cement Mortar (1:4) 20 mm thick & 2 mm thick cement slurry at back side of tiles using cement @ 2.91 Kg/Sq.m & joint filling using white cement slurry @ 0.20kg/Sq.m.</p> <p>(a) Area of each tile upto 0.09 Sq.m (ii) Other than Coloured decorative including white"</p>	143.22	Sq.M.	779.40	INR Seven Hundred & Seventy Nine and Paise Forty Only	111625.67
37.00	<p>Supplying, fitting and fixing white vitreous china best quality approved make wash basin with C.I. brackets on 75 mm X 75 mm wooden blocks, C.P. waste fittings of 32 mm dia., one approved quality brass C.P. pillar cock of 15 mm dia., C.P. chain with rubber plug of 30 mm dia., approved quality P.V.C. waste pipe with C.P. nut 32 mm dia., 900 mm long approved quality P.V.C. connection pipe with heavy brass C.P. nut including mending good all damages and painting the brackets with two coats of approved paint.</p>					
37.01	<p>(ii) 550 mm X 400 mm size</p>	10.00	Each	2497.69	INR Two Thousand Four Hundred & Ninety Seven and Paise Sixty Nine Only	24976.90

SI No	Description of Item	Quantity	Unit	Estimated Cost		Amount (in Rupees)
				In figure (Rs.)	In Words (Rupees)	
37.02	(iii) 630 mm X 450 mm size	1.00	Each	3687.71	INR Three Thousand Six Hundred & Eighty Seven and Paise Seventy One Only	3687.71
38.00	Supplying, fitting and fixing stainless steel sink complete with waste fittings and two coats of painting of C.I. brackets.					
38.01	"(a) Sink only (ii) 630 mm X 550 mm X 180 mm"	3.00	Each	4284.99	INR Four Thousand Two Hundred & Eighty Four and Paise Ninety Nine Only	12854.97
39.00	"Supplying, fitting and fixing E.W.C. in white glazed vitreous chinaware of approved make complete in position with necessary bolts, nuts etc." (a) With 'P' trap	9.00	Each	1607.44	INR One Thousand Six Hundred & Seven and Paise Forty Four Only	14466.96
40.00	Supplying, fitting and fixing Closet seat of approved make with lid and C.P. hinges, rubber buffer and brass screws. (a) E.W.C., (ii) Plastic (hallow type) white	11.00	Each	429.86	INR Four Hundred & Twenty Nine and Paise Eighty Six Only	4728.46
41.00	Suppling, fitting and fixing Wall mounted water closet of white glazed vitreous chinaware of approved make and brand in position complete with necessary nut and boalts (Equivalent to Code No. 20061 or 92065 & Model Studio or Rubbic of Hindware or equivalent.)	3.00	Each	4511.23	INR Four Thousand Five Hundred & Eleven and Paise Twenty Three Only	13533.69
42.00	Supplying, fitting and fixing Squatting plate with integral flushing in white vitreous chinaware of approved make in cement concrete (6:3:1) with jhama chips complete. (Payment of concrete will be paid separately. (i) 450 mm X 350 mm	3.00	Each	996.59	INR Nine Hundred & Ninety Six and Paise Fifty Nine Only	2989.77
43.00	Supplying, fitting and fixing 10 litre P.V.C. low-down cistern conforming to I.S. specification with P.V.C. fittings complete, C.I. brackets including twocoats of painting to bracket etc.	12.00	Each	1148.17	INR One Thousand One Hundred & Forty Eight and Paise Seventeen Only	13778.04

SI No	Description of Item	Quantity	Unit	Estimated Cost		Amount (in Rupees)
				In figure (Rs.)	In Words (Rupees)	
44.00	Supplying, fitting and fixing 32 mm dia.Flush pipe of approved make with necessary fixing materials and clamps complete. i) Polythene Flush pipe	12.00	Each	175.34	INR One Hundred & Seventy Five and Paise Thirty Four Only	2104.08
45.00	Supplying, fitting and fixing approved brand P.V.C. CONNECTOR white flexible, with both ends coupling with heavy brass C.P. nut, 15 mm dia. (ii) 450 mm long	17.00	Each	92.76	INR Ninety Two and Paise Seventy Six Only	1576.92
46.00	Supplying, fitting and fixing approved brand 32 mm dia.P.V.C. waste pipe, with PVC coupling at one end fitted with necessary clamps. (iii) 900 mm long	16.00	Each	84.84	INR Eighty Four and Paise Eighty Four Only	1357.44
47.00	Supplying, fitting and fixing bib cock or stop cock.					
47.01	(a) (i) Chromium plated Bib Cock short body (Equivalent to Code No. 511 & Model - Tropical / Sumthing Special of ESSCO or similar brand).	27.00	Each	609.72	INR Six Hundred & Nine and Paise Seventy Two Only	16462.44
47.02	(b) (i) Chromium plated Stop Cock (Equivalent to Code No. 513(A) & 513(B) & Model - Tropical / Sumthing Special of ESSCO or similar.	27.00	Each	557.68	INR Five Hundred & Fifty Seven and Paise Sixty Eight Only	15057.36
47.03	"(e) PTMT (Polytetra Bib Cock / Stop Cock (Prayag or equivalent) 15 mm““	14.00	Each	174.20	INR One Hundred & Seventy Four and Paise Twenty Only	2438.80
47.04	"(a)(ii) Chromium plated Bib Cock long body with wall flange with aerator (Equivalent to Code No. 512 & Model - Tropical / Sumthing Special of ESSCO or similar brand)““	2.00	Each	745.46	INR Seven Hundred & Forty Five and Paise Forty Six Only	1490.92
48.00	Supplying, fitting and fixing towel rail with two brackets. "(a) C.P. over brass. (ii) 25 mm dia. and 600 mm long"	14.00	Each	486.42	INR Four Hundred & Eighty Six and Paise Forty Two Only	6809.88
49.00	Supplying, fitting and fixing glass shelf with aluminium guard rails.(a) Ordinary type with 5.5 mm sheet glass(i) 450 mm X 125 mm	7.00	Each	385.74	INR Three Hundred & Eighty Five and Paise Seventy	2700.18

SI No	Description of Item	Quantity	Unit	Estimated Cost		Amount (in Rupees)
				In figure (Rs.)	In Words (Rupees)	
					Four Only	
50.00	Supplying, fitting and fixing best quality Indian make mirror 5.5 mm thick with silvering as per I.S.I. specifications supported on fibre glass frame of any colour, frame size 550 mm X 400 mm	14.00	Each	693.43	INR Six Hundred & Ninety Three and Paise Forty Three Only	9708.02
51.00	Removing sludge from septic tank, soak well etc. by methor labour including disposal of the same outside the compound as directed. a) Upto 20 users, (ii) Beyond a lead of 150 metre and outside the Municipal limit.	8.00	Each	2442.26	INR Two Thousand Four Hundred & Forty Two and Paise Twenty Six Only	19538.08
52.00	"Construction of septic tank of different capacities as per approved drawing with 1st class brick work in cement mortar (1:4) including two 560 mm dia. R.C.C. manhole cover (heavy type)of approved make supplied, fitted and fixed in the 100mm thick R.C.C (1:1.5:3) top slab with necessary fittings, 20mm thick cement plaster (4 : 1) with neat cement finish to the internal surfaces and 15 mm thick cement plaster (4 : 1) to outside wall upto 200 mm below G.L floor finished with 25 mm thick grey artificial stone over 100 mm thick R.C.C(1:1.5:3) bottom slab including supplying, fitting and fixing all necessary specials, fittings, S.W. tees, C.I. foot rest etc. including excavation earth in all sorts of soil, shoring, bailing out and pumping out water as necessary, ramming, dressing the bed and fefilling the sides of the tanks with earth, removing spoils, filling up the chamber with clear water, removing foreign materials from the chamber and including constructing attached inspection pit as per approved drawing and connecting all necessary pipes, joints etc. with internal plaster work and artificial stone flooring is to be done with admixture of water proofing compound @ 0.5% by weight of cement with all costs of labour and materials. Note:- (i) Finished level of Septic Tank should be 400 mm. from Ground Level. (ii) Height of 50 mm. Ventilation pipe &Mosquito proof mesh, should be followed as per IS:2470, Part-I. Payment will be made separately on the basis of	3.00	Each	37543.40	INR Thirty Seven Thousand Five Hundred & Forty Three and Paise Forty Only	112630.20

SI No	Description of Item	Quantity	Unit	Estimated Cost		Amount (in Rupees)
				In figure (Rs.)	In Words (Rupees)	
	actual height based on relevant I.S.Code. (i) For 10 users A) With Pakur variety. (OTHER MANUFACTURERS NOT SPECIFIED)"					
53.00	"Construction of circular soak well 2.5 metre deep in all types of sandy soils with dry brick work upto 1.6 metre from the bottom having 150 mm intermediate cement brick work (1:4) band all round and cement brick work (1:4) upto 0.90 metre from top with 20mm thick cement plastering (1:4) to inside face upto the depth of cement brick work, 15mm thick cement plaster (1:4) on outer face from top of the well upto G.L. and 6 mm thick cement plaster (1:4) on top of the R.C.C. cover slab including filling bottom 1.00 metre of inside of the well with brick metal (50 mm to 63 mm size) including R.C.C. cover slab of 100 mm thick with cement conc (1:1.5:3) with stone chips with necessary reinforcement and shuttering including one 560 mm dia. R.C.C. manhole cover (heavy type)of approved make supplied, fitted and fixed in the cover slab with necessary fittings, making necessary arrangements for pipe connections, excavation of well including shoring, dewatering and removing the excess earth from the premises as per direction complete in all respect with all costs of labour and materials. Other than SAIL/TATA/RINL. With 250 mm thick dry brick work and 250 mm thick cement brick work (1:6) and 1.00m inside dia."					
53.01	"With 250 mm thick dry brick work and 250 mm thick cement brick work (1:6) and 1.00m inside dia. (For-OTHER MANUFACTURERS NOT SPECIFIED)"	4.00	Each	17733.82	INR Seventeen Thousand Seven Hundred & Thirty Three and Paise Eighty Two Only	70935.28
54.00	Supplying, fitting and fixing shower of approved brand and make.					

SI No	Description of Item	Quantity	Unit	Estimated Cost		Amount (in Rupees)
				In figure (Rs.)	In Words (Rupees)	
54.01	b) Chromium plated Rose shower with revolving joint and 150 mm long shower arm (Equivalent to Code No. 5489 & Model - Florentine of Jaquar or similar brand).	3.00	Each	1597.25	INR One Thousand Five Hundred & Ninety Seven and Paise Twenty Five Only	4791.75
54.02	(iii) Chromium plated shower arm 240 mm long (Equivalent to Code No. 536(A) & Model - Tropical / Sumthing Special of ESSCO or similar brand).	3.00	Each	349.54	INR Three Hundred & Forty Nine and Paise Fifty Four Only	1048.62
54.03	(f) Hand Shower(Health Faucet) with 1mtr Flexible Tube with Wall Hook (Equivalent to Code No.573 & Model - ALLIED of Jaquar or similar).	12.00	Each	1415.13	INR One Thousand Four Hundred & Fifteen and Paise Thirteen Only	16981.56
54.04	(d) Chromium plated Hand shower with Flexible Tube & fittings (Equivalent to Code No. Hsh-1937 & (Equivalent to Code No. 5037 & Model - Florentine of Jaquar or similar).	3.00	Each	2703.57	INR Two Thousand Seven Hundred & Three and Paise Fifty Seven Only	8110.71
55.00	"Supplying, fitting and fixing PVC pipes of approved make of Schedule 80 (medium duty) conforming to ASTM D - 1785 and threaded to match with GI Pipes as per IS : 1239 (Part - I). with all necessary accessories, specials viz. socket, bend, tee, union, cross, elbow, nipple, long screw, reducing socket, reducing tee, short piece etc. fitted with holder bats clamps, including cutting pipes, making threads, fitting, fixing etc. complete in all respect including cost of all necessary fittings as required, jointing materials and two coats of painting with approved paint in any position above ground. (Payment will be made on the centre line measurements of total pipe line including all specials. No separate payment will be made for accessories, specials. Payment for painting will be made separately)" "(a) For Exposed Work PVC Pipes "					
55.01	a) (Dia) 15 mm	100.00	Mtr.	114.25	INR One Hundred & Fourteen and Paise Twenty Five Only	11425.00
55.02	b) (Dia) 20 mm	120.00	Mtr.	145.92	INR One Hundred & Forty	17510.40

SI No	Description of Item	Quantity	Unit	Estimated Cost		Amount (in Rupees)
				In figure (Rs.)	In Words (Rupees)	
					Five and Paise Ninety Two Only	
55.03	c) (Dia) 25 mm	100.00	Mtr.	200.22	INR Two Hundred and Paise Twenty Two Only	20022.00
56.00	"Supplying, fitting and fixing PVC pipes for underground work of approved make of Schedule 80 (medium duty) conforming to ASTM D - 1785 and threaded to match with GI Pipes as per IS : 1239 (Part - I). with all necessary accessories, specials viz. socket, bend, tee, union, cross, elbow, nipple, long screw, reducing socket, reducing tee, short piece etc. fitted including cost of all materials, jointing materials, cutting pipes, making threads, cutting trenches upto 1.5 metre below surface in all sorts of soil and refilling the same as directed complete in all respect. (Payment will be made on the centre line measurement of the total pipeline including all specials No separate payment will be made for accessories, specials.) PVC Pipes (Dia)"					
56.01	20mm	45.00	Mtr.	161.76	INR One Hundred & Sixty One and Paise Seventy Six Only	7279.20
56.02	25mm	110.00	Mtr.	216.06	INR Two Hundred & Sixteen and Paise Six Only	23766.60
56.03	40mm	50.00	Mtr.	351.80	INR Three Hundred & Fifty One and Paise Eighty Only	17590.00
57.00	Supplying, fitting and fixing gunmetal wheel valve of approved brand and make tested to 21 kg per sq. cm. (for water lines only).					
57.01	(v) 40 mm dia	4	Each	1798.61	INR One Thousand Seven Hundred & Ninety Eight and Paise Sixty One Only	7194.44

SI No	Description of Item	Quantity	Unit	Estimated Cost		Amount (in Rupees)
				In figure (Rs.)	In Words (Rupees)	
57.02	(vii) 25 mm dia	12	Each	880.07	INR Eight Hundred & Eighty and Paise Seven Only	10560.84
57.03	(vii) 20 mm dia	13	Each	683.24	INR Six Hundred & Eighty Three and Paise Twenty Four Only	8882.12
58.00	Supplying, fitting and fixing fiber reinforced polymer (FRP) Composite door frame as per approved section with glass fiber reinforced plastic molded skins and a special sandwich core, so as to impart monolithic composite structure as per approved technology of Department of Science and Technology (DST) to satisfy IS: 4020 door testing performance criteria.					
	(i) 66mm x 90mm	20.00	Mtr.	562.21	INR Five Hundred & Sixty Two and Paise Twenty One Only	11244.20
59.00	"Supplying, fitting & fixing fibre reinforced polymer (FRP) Composite door shutters as per approved design with glass fibre reinforced plastic moulded skins and a special sandwich core, so as to impart monolithic composite structure as per approved technology of Department of Science and Technology (DST) to satisfy IS:4020 door testing performance criteria. In ground floor. (i) 32 mm thick"	6.30	Sq.m	3125.51	INR Three Thousand One Hundred & Twenty Five and Paise Fifty One Only	19690.71
60.00	Collapsible gate with 40mm x 40mm x 6mm Tee as top and bottom guide rail, 20mm x 10mm x 2mm vertical channels 100mm apart in fully stretched position 20mm x 5mm M.S. flats as collapsible bracings properly rivetted and washered including 38mm steel rollers including locking arrangements, fitted and fixed in position with lugs set in cement concrete and including cutting necessary holes, chasing etc. in walls, floors etc. and making good damages complete. In ground floor.	14.18	Sq.M.	3848.340	INR Three Thousand Eight Hundred & Forty Eight and Paise Thirty Four Only	54569.46

SI No	Description of Item	Quantity	Unit	Estimated Cost		Amount (in Rupees)
				In figure (Rs.)	In Words (Rupees)	
61.00	(b) Rendering the surface of walls and ceiling with white cement based Water Proof wall putty of approved make and brand(1.5mm thick)	1902.33	Sq.M.	138.01	INR One Hundred & Thirty Eight and Paise One Only	262540.56
62.00	"Applying Exterior grade Acrylic primer of approved quality and brand on plastered or concrete surface old or new surface to receive decorative textured (matt finish) or smooth finish acrylic exterior emulsion paint including scraping and preparing the surface throughly, complete as per manufacturer's specification and as per direction of the EIC." In Ground Floor:a) One Coat	2285.90	%Sq.M.	3551.97	INR Three Thousand Five Hundred & Fifty One and Paise Ninety Seven Only	81194.48
63.00	Protective and Decorative Acrylic exterior emulsion paint of approved quality, as per manufacturer's specification and as per direction of Engineer-in-Charge to be applied over acrylic primer as required. The rate includes cost of material, labour, scaffolding and all incidental charges but excluding the cost of primer. In Ground floor (Two Coat) b) Premium 100% Acrylic Emulsion.	2285.90	Sq.M.	95.02	INR Ninety Five and Paise Two Only	217206.22
64.00	Acrylic distemper to interior wall, ceiling with a coat of solvent based interior grade acrylic primer[as per manufacturer's specification] including cleaning and smoothing of surface. Two coats.	2572.37	Sq.M.	79.18	INR Seventy Nine and Paise Eighteen Only	203680.26
65.00	(B) Painting with superior quality aluminium paint of approved make and brand including smoothening surface by sand papering etc. on steel surface (a) Two coats	451.31	Sq.M.	64.48	INR Sixty Four and Paise Forty Eight Only	29100.47
66.01	a) Priming one coat on steel or other metal surface with synthetic oil bound primer of approved quality including smoothening surfaces by sand papering etc.	14.49	Sq.M.	32.80	INR Thirty Two and Paise Eighty Only	475.27
66.02	(b) Priming one coat on timber or plastered surface with synthetic oil bound primer of approved quality including smoothening surfaces by sand papering etc.	85.92	Sq.M.	42.99	INR Forty Two and Paise Ninety Nine Only	3693.70

SI No	Description of Item	Quantity	Unit	Estimated Cost		Amount (in Rupees)
				In figure (Rs.)	In Words (Rupees)	
67.00	"Painting with best quality synthetic enamel paint of approved make and brand including smoothening surface by sand papering etc. including using of approved putty etc. on the surface, if necessary: " (a) On timber or plastered surface, With other than hi-gloss of approved quality" (iv) Two coats (with any shade except white)	169.80	Sq.M.	84.84	INR Eighty Four and Paise Eighty Four Only	14405.83
68.00	"Supplying 'Godrej' mortice lock chromium plated with latch and keys 4 levers, including fitting and fixing complete" Door	19.00	Each	1222.83	INR One Thousand Two Hundred & Twenty Two and Paise Eighty Three Only	23233.77
69.00	Polishing only of old marble or terrazo work with oxalic acid powder using 33 gms/ sq.m. by manual labour / machine where necessary	170.68	Sq.M.	42.99	INR Forty Two and Paise Ninety Nine Only	7337.53
70.00	Grinding to marble / mosaic floor including remaining stone, if necessary, after cutting with manual labour / machine, where necessary.	170.68	Sq.M.	22.62	INR Twenty Two and Paise Sixty Two Only	3860.78
71.00	18 mm. to 22 mm. thick, kota stone slab set in 20 mm thick (avg) cement mortar (1:4) in floor, stair & lobby including pointing in cement slurry with admixture of pigment matching the stoneshade, including grinding & polishing as per direction of Engineer - in - charge to match with the existing work. [Slurry for bedding @ 4.4 kg/Sq.m and pointing @ 2.0kg/Sq.m]	43.45	Sq.M.	1131.20	INR One Thousand One Hundred & Thirty One and Paise Twenty Only	49150.64
72.00	Supplying P.V.C. water storage tank of approved quality with closed top with lid (Black) - Multilayer					
72.01	(a) 500 litre capacity.	2.00	Each	2923.02	INR Two Thousand Nine Hundred & Twenty Three and Paise Two Only	5846.04
72.02	(b) 1000 lit capacity	2.00	Each	5800.79	INR Five Thousand Eight Hundred and Paise Seventy Nine Only	11601.58

SI No	Description of Item	Quantity	Unit	Estimated Cost		Amount (in Rupees)
				In figure (Rs.)	In Words (Rupees)	
73.00	"Labour for hoisting plastic water storage tank. (i) Upto 1500 litre capacity. (a) Upto 1st story from G.L."	4.00	Each	108.60	INR One Hundred & Eight and Paise Sixty Only	434.40
74.00	Labour for punching hole in plastic water storage tank upto 50 mm dia.	12.00	Each	21.49	INR Twenty One and Paise Forty Nine Only	257.88
75.00	supplying, fitting, Fixing Fly / Mosquito proof nylon net on any type of window, door shutter frame with necessary fixing arrangements complete.	11.16	Sq.M.	943.42	INR Nine Hundred & Forty Three and Paise Forty Two Only	10528.57
76.00	25mm. thick damp proof course with cement concrete with stone chips (1:1.5:3) [with graded stone aggregate 10 mm nominal size] and admixture of water proofing compound as per manufacturer's specification followed by two coat of polymer based paint, (1st coat after 4 to 5 days of concrete laying and 2 nd coat just before brick masonry work) as directed (cost of water proofing compound & polymer based paint to be paid separately).(Chequering not required over concrete or painted surface).	3.85	Sq.M.	211.53	INR Two Hundred & Eleven and Paise Fifty Three Only	814.39
77.00	"Supplying and laying Polythene Sheet (150gm / sq.m.) over damp proof course or below flooring or roof terracing or in foundation or in foundation trenches."	68.92	Sq.M.	27.15	INR Twenty Seven and Paise Fifteen Only	1871.18
78.00	"Supplying,fitting & fixing of 2-Track / 3-Track Aluminium sliding Window of all Aluminium sections viz. window frame (top,bottom & side frame), shutter (top, bottom, side & interlock member) made of aluminium alloy extrusions conforming to IS 733-1983 & IS 1285-1975, annodised conforming to IS 1868-1983, fitted with all other accessories viz. PVC roller, EPDM gasket, maruti lock, screws etc. including labour chargesfor fitting & fixing of aluminium 2-track/3-track sliding window with fixing of glass (excluding cost of glass) all complete as per architectural drawings and direction of Engineer-in-charge.10-12 Micron thickness Annodizing film Natural white .For 2-Track window : Members for Bottom frame @ 0.875 Kg per Mtr. and for Top and Side frame @ 0.778 Kg per Mtr. and for shutter Bottomand Top member @ 0.472 Kg per Mtr., Style side member @ 0.493 Kg per Mtr. and Interlock member	151.80	Kg	506.78	INR Five Hundred & Six and Paise Seventy Eight Only	76929.20

SI No	Description of Item	Quantity	Unit	Estimated Cost		Amount (in Rupees)
				In figure (Rs.)	In Words (Rupees)	
	@ 0.612 Kg per Mtr.[Note : for estimate purpose construction wing may consider weight of 2- track Aluminium window @ 5.5 Kg per Sq.M.and 3-track Aluminium window @ 6.5 Kg per Sq.M]"					
79.00	Supplying solid flush type doors of deluxe decorative (both side) quality, conforming to I:S 2202 timber frame consisting of top and bottom rail and side styles of well seasoned timber 65mm wide each and the entire frame fitted with 27.5mm wide battens places both ways in order to made the door of solid core and internal lipping with teak, mahogany or rose wood approved decorative veneers using phenol formaldehyde as glue etc. complete, including fitting, fixing the shutters in position but excluding the cost of hinges and other fittings in ground floor(a) 35mm thick shutters (single leaf)	27.09	Sq.M.	4473.90	INR Four Thousand Four Hundred & Seventy Three and Paise Ninety Only	121197.95
80.00	(i) Door Stopper (Brass)	18.00	Each	132.35	INR One Hundred & Thirty Two and Paise Thirty Five Only	2382.30
81.00	ii) Godrej Hydraulic door closer fitted and fixed complete. (b) Medium type	10.00	Each	1883.45	INR One Thousand Eight Hundred & Eighty Three and Paise Forty Five Only	18834.50
82.00	"Anodised aluminium decorative handle (hexagonal / fluted) of approed quality fitted and fixed completei) 150mm plate x 10mm dia rod x 12mm hexagonal/fluted."	21.00	Each	98.41	INR Ninety Eight and Paise Forty One Only	2066.61
83.00	Supplying and laying chequered tiles of any shade & of approved quality with (1:1½:3) cement concrete laid in panels or patterns as directed in pavement, footpath etc. including necessary underlay 25 mm thick [avg] cement mortar (1:3)complete in all respect with all labour and materials. [Using cement slurry @ 4.4 kg/Sq.m at back side and @2.4 kg/Sq.m for joint filling]Red Variety (i) 25 mm. thick	171.54	Sq.M.	515.83	INR Five Hundred & Fifteen and Paise Eighty Three Only	88485.48

SI No	Description of Item	Quantity	Unit	Estimated Cost		Amount (in Rupees)
				In figure (Rs.)	In Words (Rupees)	
84.00	(a) Applying 2 coats of bonding agent with synthetic multi-functional rubber emulsion having adhesive and water proofing properties by mixing with water in proportion (1 bonding agent: 4 water : 6 cement) as per Manufacturer's specification.	314.41	Sq.M.	99.55	INR Ninety Nine and Paise Fifty Five Only	31299.52
85.00	Extra rate for using water proofing and plasticising admixture @ 0.2% by weight of cement (or at manufacturer's specified rate) for concrete of various grades.	16.70	Kg	134.61	INR One Hundred & Thirty Four and Paise Sixty One Only	2247.99
86.00	a) M.S. or W.I. Ornamental grill of approved design joints continuously welded with M.S, W.I. Flats and bars of windows, railing etc. fitted and fixed with necessary screws and lugs in ground floor.(i) Grill weighing above 10 Kg./sq.mtr and up to 16 Kg./sq. mtr.	3.37	Quintal	8187.63	INR Eight Thousand One Hundred & Eighty Seven and Paise Sixty Three Only	27592.31
87.01	"Supplying, fitting & fixing UPVC pipes A- Type and fittings conforming to IS:13592-1992 with all necessary clamps nails, including making holes in walls, floor etc. cutting trenches in any soil through masonry concrete structures etc if necessary and mending good damages including joining with jointing materials (Spun Yarn, valamoid/ Bitumen/ M-Seal etc) complete. A) UPVC Pipes: (ii) 110 mm. Dia."	116.0	Mtr.	283.93	INR Two Hundred & Eighty Three and Paise Ninety Three Only	32935.88
87.02	"B) UPVC Fittings: c) Bend 87.5 degree (ii) 110 mm. Dia."	18.00	Each	180.99	INR One Hundred & Eighty and Paise Ninety Nine Only	3257.82
88.00	"(B) Stitching crack in brick wall by carefully cutting out face brick 250 mm. long, 75 mm. thick and 125 mm deep into the wall, cleaning the gap and filling up the same with sound new brick, carefully set in cement mortar (1:3) including mending good damages and finishing the surface to match with adjacent areas complete as per direction."	70.00	Each	42.99	INR Forty Two and Paise Ninety Nine Only	3009.30
89.00	Removing old scales, blisters etc. of interior surface of walls, ceiling by scraping etc. and preparing smooth and even surface with rendering or cement mortar (1:2) (as necessary), to make the surface suitable for receiving distemper.	1340.55	%Sq.M.	1140.25	INR One Thousand One Hundred & Forty and Paise Twenty Five Only	15285.62

SI No	Description of Item	Quantity	Unit	Estimated Cost		Amount (in Rupees)
				In figure (Rs.)	In Words (Rupees)	
	(Payment against this item will be made only when this has been done on the specific direction of the Engineer-in-charge).					
90.00	Removal of rubbish, earth etc. from the working site and disposal of the same beyond the compound, in conformity with the Municipal / Corporation Rules for such disposal, loading into truck and cleaning the site in all respect as per direction of Engineer in charge.	29.63	Cu. M	187.78	INR One Hundred & Eighty Seven and Paise Seventy Eight Only	5563.92
91.00	Supplying and laying true to line and level Double Charge Vitrified Tiles of approved brand conforming to IS 15622: 2006 (Group B I a) and tested as per IS 13630:2006 (relevant parts) [Non-modular sizes for tiles with Water Absorption (av.) ≤ 0.08 %] in floor, skirting etc. using polymerised adhesive of 6mm thick layer applied directly over finished artificial stone floor/Mosaic etc without any backing course and joints grouted with admixture of white epoxy grout materials of approved brand including spacer -2mm as directed and removal of wax coating of top surface of tiles with warm water and polishing the tiles using soft and dry cloth upto mirror finish complete including the cost of materials, labour and all other incidental charges complete as per direction of Engineering- Charge. (Note: This work should not be executed without specific permission of Superintending Engineer)					
91.01	(a) In Ground Floor:(size not less than 600mmX 600 mm X 9.5 mm thick)	102.65	Sq.M.	1771.46	INR One Thousand Seven Hundred & Seventy One and Paise Forty Six Only	181840.37
92.00	Supplying, fitting and fixing clear visioned, Insulated Double Glazed two track sliding Aluminium window (U-value < 3.2W/m ² K) made up with 6 mm thick toughened glass (wt > 15kg/m ²) with 12 mm air gap in between, containing perforated Al/ structural foam spacer filled with moisture absorbant dessicant at all sides duly sealed with primary sealant (polyisobutylene) and affixed inside multi cellular/ multi chamber profiles of required section made of Alluminium alloy extrusions	19.58	Sq.M.	8479.48	INR Eight Thousand Four Hundred & Seventy Nine and Paise Forty Eight Only	166028.22

SI No	Description of Item	Quantity	Unit	Estimated Cost		Amount (in Rupees)
				In figure (Rs.)	In Words (Rupees)	
	conforming to IS:733-1983 and IS:1285-2002 annodised/powder coated with (required film thickness and specified colour /natural) matt finished conforming to IS: 1868-2006/ IS: 13871-2002 measured as per IS:6012-1992, and sealed appropriately with secondary (polysulphide/silicon) sealant all junctions complete in all respect as per direction and satisfaction of Engineer-in-Charge including all incidental charges. (Payment shall be made on finished size of Aluminium window including frame.)					
93.00	Supplying, fitting & fixing of partly glazed partly panelled or fully glazed single leaf Aluminium swing door of all aluminium sections viz door frame (top and side frame), shutter(top rail, bottom rail, lock rail, door vertical) , glazing clip made of Aluminium Alloy Extrusions conforming to IS: 733-1983 and IS: 1285-1975, annodized conforming to IS:1868- 1983, fitted with all other accessories viz. EPDM gasket,cleat, angle "screws etc. including labour charges for fitting and fixing of aluminium door with door spring,/ aluminium hinges, glass / Panel board all complete as per architectural drawings and direction of Engineer-in charge.(Excluding cost of glass/ panel board, door spring/ Al hinges, door closer, door stoper, handle, tower bolt and locking arrangement etc)10-12 Micron thickness Annodizing film Natural white"	150.26	Kg	435.51	INR Four Hundred & Thirty Five and Paise Fifty One Only	65439.73
94.00	Supplying, fitting and fixing 18 mm thick marble partition slab with chawdkoongri marbel square cut, both sides polished with two front corners rounded and edges polished.	2.00	Sq.M.	1613.09	INR One Thousand Six Hundred & Thirteen and Paise Nine Only	3226.18
95.00	Supplying, fitting and fixing low-down cistern parts. (i) Internal fittings for cistern complete of approved make.	2.00	Each Sets	321.26	INR Three Hundred & Twenty One and Paise Twenty Six Only	642.52
96.00	Supplying, fitting and fixing complete Bottle waste trap (Heavy Quality) (b) PTMT Bottle trap 32 mm with connecting pipe (Prayag or equivalent).	3.00	Each	501.12	INR Five Hundred & One and Paise Twelve Only	1503.36

SI No	Description of Item	Quantity	Unit	Estimated Cost		Amount (in Rupees)
				In figure (Rs.)	In Words (Rupees)	
97.00	"Supplying, fitting and fixing pillar cock of approved make. a) (i) CP Pillar Cock - 15 mm. (Equivalent to Code No. 507 & Model - Tropical / Sumthing Special of ESSCO or similar brand)."	2.00	Each	627.82	INR Six Hundred & Twenty Seven and Paise Eighty Two Only	1255.64
98.00	Supplying, fitting and fixing C.I. round grating. (i) 100 mm	3.00	Each	70.13	INR Seventy and Paise Thirteen Only	210.39
99.00	Supplying, fitting and fixing soap holder. (a) PTMT (Prayag or equivalent)	5.00	Each	152.71	INR One Hundred & Fifty Two and Paise Seventy One Only	763.55
100.00	"Supplying, fitting and fixing Flat back urinal (half stall urinal) in white vitreous chinaware of approved make in position with brass screws on 75 mm X 75 mm X 75 mm wooden blocks complete. (i) 635 mm X 395 mm X 420 mm"	2.00	Each	3245.41	INR Three Thousand Two Hundred & Forty Five and Paise Forty One Only	6490.82
101.00	Jaffri brick work 125 mm. thick with 1st class bricks in cement mortar (1:4) bincluding 15 mm. thick cement plaster (1:4) in all faces in ground floor.	16.50	Sq.M.	740.94	INR Seven Hundred & Forty and Paise Ninety Four Only	12225.51
102.00	Supplying of HITACHI ESOG518HDEA 1.5 TON 5S INVERTER SPLIT A.C. I/D. (As per attached rate.)	6.00	Each	43228.00	INR Forty Three Thousand Two Hundred & Twenty Eight Only	259368.00
103.00	Supplying water Cooler Model "20/20FSS" VOLTAS (Full Stainless Steel Body) Cooling Capacity 20 Litre /Hr. Storage Capacity 20 Litre/Hr. including transportation and installation. As per attached rate.	1.00	Each	25623.70	INR Twenty Five Thousand Six Hundred & Twenty Three and Paise Seventy Only	25623.70
104.01	a) Supply of Adriana Single Bed. (As per attached rate)	4.00	Each	22559.58	INR Twenty Two Thousand Five Hundred & Fifty Nine and Paise Fifty Eight Only	90238.32
104.02	b) Supply of Alice Coffee Table (As per attached rate)	2.00	Each	15843.79	INR Fifteen Thousand Eight Hundred & Forty Three and Paise Seventy Nine Only	31687.58

SI No	Description of Item	Quantity	Unit	Estimated Cost		Amount (in Rupees)
				In figure (Rs.)	In Words (Rupees)	
104.03	c) Supply of Storwel Plain 4SH for bungalow. (As per attached rate)	7.00	Each	23410.53	INR Twenty Three Thousand Four Hundred & Ten and Paise Fifty Three Only	163873.71
104.04	d) Supply of Parto Sofa 3 Seater (As per attached rate)	1.00	Each	29500.63	INR Twenty Nine Thousand Five Hundred and Paise Sixty Three Only	29500.63
104.05	e) Supply of Finesse Table-5026+ ERU-3616(Dimensions:- Table- 1500W x 7500 x 740H, ERU1050W x 4500 x 705H)mm. (As per attached rate)	2.00	Each	34504.99	INR Thirty Four Thousand Five Hundred & Four and Paise Ninety Nine Only	69009.98
104.06	f) Supply of Computer Table Model-Companion C2. (As per attached rate)	3.00	Each	10181.55	INR Ten Thousand One Hundred & Eighty One and Paise Fifty Five Only	30544.65
104.07	g) Supply of Bravo High Back 9U01R Chair. (As per attached rate)	5.00	Each	9731.05	INR Nine Thousand Seven Hundred & Thirty One and Paise Five Only	48655.25
104.08	h) Supply of Bravo Visitor 9U12R Chair. (As per attached rate)	12.00	Each	7713.33	INR Seven Thousand Seven Hundred & Thirteen and Paise Thirty Three Only	92559.96
105.01	i) Supply of Kutchina Stanza Excel Chimney Set. (As per attached rate)	1.00	Each	18180.00	INR Eighteen Thousand One Hundred & Eighty Only	18180.00
105.02	ii) Supply of Sony 32R202G LED Set (As per attached rate)	2.00	Each	17069.01	INR Seventeen Thousand & Sixty Nine and Paise One Only	34138.02
105.03	iii) Supply of Whirlpool 215 IMPRO PRM 4S INV STEEL ONYX REFREGERATOR. (As per attached rate)	1.00	Each	14948.01	INR Fourteen Thousand Nine Hundred & Forty Eight and Paise One Only	14948.01

SI No	Description of Item	Quantity	Unit	Estimated Cost		Amount (in Rupees)
				In figure (Rs.)	In Words (Rupees)	
105.04	iv) Supply of KENT PEARL Water Purifier Set. (As per attached rate)	1.00	Each	16867.00	INR Sixteen Thousand Eight Hundred & Sixty Seven Only	16867.00
106.01	Supply of Kurl on Mattress size (78" x 42") (As per attached rate)	4.00	Each	6464.00	INR Six Thousand Four Hundred & Sixty Four Only	25856.00
106.02	Supply of 60" x 90" Bed cover (As per attached rate)	8.00	Each	328.25	INR Three Hundred & Twenty Eight and Paise Twenty Five Only	2626.000
106.03	Supply of Pillow 25" x 17" (As per attached rate)	8.00	Each	429.25	INR Four Hundred & Twenty Nine and Paise Twenty Five Only	3434.00
106.04	Supply of Pillow (As per attached rate)	8.00	Each	70.70	INR Seventy and Paise Seventy Only	565.60
106.05	Supply of Floor Mat (As per attached rate)	2.00	RM	454.50	INR Four Hundred & Fifty Four and Paise Fifty Only	909.00
106.06	Supply of Monti Kurl-on Blanket (As per attached rate)	4.00	Each	1717.00	INR One Thousand Seven Hundred & Seventeen Only	6868.00
106.07	Supply of Mosquito Net 7' x 3.5' size (As per attached rate)	3.00	Each	530.25	INR Five Hundred & Thirty and Paise Twenty Five Only	1590.75
106.08	Supply of Door Curtain (As per attached rate)	8.00	Each	429.25	INR Four Hundred & Twenty Nine and Paise Twenty Five Only	3434.00
106.09	Supply of Window Curtain (As per attached rate)	12.00	Each	479.75	INR Four Hundred & Seventy Nine and Paise Seventy Five Only	5757.00

SI No	Description of Item	Quantity	Unit	Estimated Cost		Amount (in Rupees)
				In figure (Rs.)	In Words (Rupees)	
106.10	Supply of Steel Pipe wooden socket with making charge (As per attached rate)	20.00	Each	378.75	INR Three Hundred & Seventy Eight and Paise Seventy Five Only	7575.00
106.11	Supply of Havells Geyser (15 Ltr.) (As per attached rate)	1.00	Each	8989.00	INR Eight Thousand Nine Hundred & Eighty Nine Only	8989.00
106.12	Supply of Bajaj Induction Oven (Magnifique) (As per attached rate)	1.00	Each	3080.50	INR Three Thousand & Eighty and Paise Fifty Only	3080.50
106.13	Supply of Prestige cooker induction com (5 Ltr.) (As per attached rate)	1.00	Each	2045.25	INR Two Thousand & Forty Five and Paise Twenty Five Only	2045.25
106.14	Supply of Bajaj Non-Stick set (As per attached rate)	1.00	Each	1742.25	INR One Thousand Seven Hundred & Forty Two and Paise Twenty Five Only	1742.25
106.15	Supply of Laopola Diva 6 pcs Dinner set 60" x 90" Bed cover (As per attached rate)	1.00	Each	762.55	INR Seven Hundred & Sixty Two and Paise Fifty Five Only	762.55
106.16	Supply of Laopola cup plate set 6 pcs. (As per attached rate)	1.00	Each	503.99	INR Five Hundred & Three and Paise Ninety Nine Only	503.99
106.17	Supply of Pasabahel 6 (As per attached rate)	1.00	Each	883.75	INR Eight Hundred & Eighty Three and Paise Seventy Five Only	883.75
106.18	Supply of Milton Thermosteel Flask (As per attached rate)	1.00	Each	803.96	INR Eight Hundred & Three and Paise Ninety Six Only	803.96
106.19	Supply of Milton Casserole (As per attached rate)	1.00	Each	723.16	INR Seven Hundred & Twenty Three and Paise Sixteen Only	723.16

SI No	Description of Item	Quantity	Unit	Estimated Cost		Amount (in Rupees)
				In figure (Rs.)	In Words (Rupees)	
106.20	Supply of Laopola Dinner Set 27 pcs. (As per attached rate)	1.00	Each	3257.25	INR Three Thousand Two Hundred & Fifty Seven and Paise Twenty Five Only	3257.25
107.01	a) Supply of Storwel Plain 4SH for bungalow. (As per attached rate)	2.00	Each	23410.53	INR Twenty Three Thousand Four Hundred & Ten and Paise Fifty Three Only	46821.06
107.02	b) Supply of Bravo Visitor 9U12R Chair. (As per attached rate)	5.00	Each	7713.33	INR Seven Thousand Seven Hundred & Thirteen and Paise Thirty Three Only	38566.65
107.03	c) Supply of Enterprise Table 1500 Without CPU Hanger. (As per attached rate)	3.00	Each	22438.02	INR Twenty Two Thousand Four Hundred & Thirty Eight and Paise Two Only	67314.06
Gross Total Estimated Cost: Rs						6437241.29

We agree to execute the works in accordance with the approved drawings and technical specifications at percentage above/below the estimated rates, i.e., for a total Contract Price of Rs. (amount in figures) (Rs. amount in words).

Signature of Contractor

(Where there is a discrepancy between the amount in figures and words, the amount in words will prevail)

Annexure - 2

Format of certificate

Certified that the works up to ----- stage (as defined in Clause 3.1 of the Agreement) in respect of construction of ----- at -----
----- have been executed satisfactorily in accordance with the terms and conditions of the agreement and as per approved drawings and technical specifications

Signature
Name & Designation
(Official address)

Place:
Date:

Office seal

Specification and Drawings

1. Preamble to the BOQ

1.0 INTRODUCTION

The Bill of Quantities (BOQ) shall be read in conjunction with the Instructions to Bidders, Technical Specifications and Drawings. The rates quoted shall be inclusive of cost of all materials, transportation and carriage of material upto works site, labour, plant and equipment, tools and tackles, safety gadgets, incidentals etc. as may be required for that particular item in the BOQ which is to be read in conjunction in the specification.

The quantities given in the Bill of Quantities are estimated and provisional and are given to provide a common basis for bidding. The basis of payment will be on the actual quantities of work ordered and carried out, as measured by the Contractor and verified by the Engineer and valued at the rates and prices tendered in the priced Bill of Quantities. If such rates are not available in the Bill of Quantities, this will be treated as extra work and such rates and prices will be fixed by the Engineer / Project Manager as per the terms of the Contract.

Mode of measurement, if not specified elsewhere shall be followed as per available codes of practice published by the Bureau of Indian Standards (BIS).

The rates and prices tendered in the priced Bill of Quantities shall, except in so far as it is otherwise provided under the contract, include all temporary facilities, access, notices to maintain traffic prevailing in an accessible manner, as far as possible for similar flow existing and also including all construction of plant, labour, supervision, materials, erection, maintenance, insurance, overhead, profit, taxes and duties together with all general risk, liabilities and obligation set out or implied in the contract.

General directions and descriptions of work and materials are not necessarily repeated or summarized in the Bill of Quantities. The Bidder must refer to the relevant sections of the bid documents including specifications, data sheets and drawings before quoting rates in the Bill of Quantities.

The amount kept under this head is as decided by the Project Manager. The Contractor shall not change this figure or quote of his own. The amount is subject to variation as per requirement of project with approval of the Project Manager.

The Team Leader of the Project Management Consultant (PMC) – WBMIFMP will be engaged as the Project Manager. For the purpose of this contract, the Project Manager or Engineer or Engineer – In – Charge will have the same meaning and connotation.

GENERAL

General Basis for Pricing,

The Bidder shall be deemed to have read and examined the Bid Documents as well as inspected the project site thoroughly to conceive the work in totality to quote against each item of work as given in the BOQ.

The Bidder shall be deemed to be fully conversant with the site conditions and the nature and complexity of the work to be undertaken and taking into account all eventualities which can arise before, during and after project execution.

It is to be expressly understood that the measured work is to be taken net (not withstanding any system or practice to the contrary) according to the actual quantities finished according to the drawings or as may be ordered from time to time by the Engineer and the cost calculated for the respective prices. Necessary manpower will have to be provided by the Contractor during measurement of works and setting out alignment of the works, for which no extra payment will be made.

Unless otherwise stated, all items shall be measured as executed as per drawing and specification and no allowance will be made for wastage, working space, bulking or shrinkage, and the like.

The quoted rates and prices shall also be inclusive of communication system vehicles for movement at site etc. No extra cost against such items will be paid.

Miscellaneous

Temporary power connections, telephones, construction and drinking water shall be arranged by the Contractor at his own cost and shall be deemed to be included in their quoted rates. Alternative power arrangement shall be made by Contractor without any extra charge.

All underground and over ground utility items shall have to be suitably supported during the construction phase by the Contractor so that the existing utility services are not damaged. No extra payment will be made on this account.

The Contractor shall keep plumbers, technicians and electricians ready for repair/ shifting of existing underground/ over ground utilities and for crisis management.

During progress of work, convenient access to adjacent premises shall be made by the Contractor. No extra payment will be made on this account.

For speedy progress of work in case of exigency, Contractor may have to do work round the clock at the instance of the Engineer/Project Manager. Arrangement for lighting and other safety requirements shall have to be done for night working. No extra payment shall be made to the Contractor except the items provided in the BOQ.

The rates quoted by the Contractor shall, unless otherwise specified, also include compliance of/ supply of the following:

i) General works such as setting out, clearance of site before setting out and clearance of works after completion.

ii) A detailed programme for the construction and completion of the work.

iii) Samples of various materials proposed to be used on the work for conducting tests thereon as required as per the provisions of the Contract.

iv) Any other item of work which is not specially provided in the Bill of Quantities (BOQ) but which is necessary for complying with the provisions of the Contract.

v) All temporary works, formwork and false work.

vi) Arrangement of a laboratory with facilities for testing and testing of various items of works as specified in relevant clauses.

vii) Cost of in-built provisions for Quality Assurance.

viii) Cost of labour hutment, site office.

Extra items of work – If during the progress of work any extra items need to be carried out, which in the opinion of the Engineer/ Project Manager is essentially required to be executed, then the extra item shall be analyzed as follows:

i) Derived from rates of similar items of works stated in the tendered offer

ii) In the event an extra item of work that cannot be derived from (i) above, then the following shall be applicable.

iii) The actual cost of materials based on documentation including labour, transportation, overhead and profit as per State USoR (I&WD), SOR (Building Works) (PWD), SOR (S & P Works) (PWD).

iv) If not specifically indicated in the items themselves, the rates appearing in this schedule are inclusive of cost of all supply, carriage, handling, fitting, fixing, toll charges, ferry charges etc. and all other incidental works involved in any floor, at any level including all necessary jointing materials, scaffolding to any height, hire charges of tools and plants, and all helping materials.

Scope of Work

The Government of India has received for financing from the World Bank toward the cost of the West Bengal Major Irrigation and Flood Management Project (WBMIFMP) Project and intends to apply part of the proceeds toward eligible payments under the contract for construction of works as detailed below.

Name: - —Special Repair of Inspection Bungalow, office building and repair of S.D.O. type quarter for Project Management Consultancy Office under Right Bank Irrigation Division, Sonamukhi, Bankura, Govt. of West Bengal

Project Background:

The Damodar River originates from the Chhotanagpur Plateau at Latehar district in Jharkhand and flows through the districts of Latehar, Hazaribagh in Jharkhand and enters Purulia District in West Bengal which is the lowermost riparian State in Damodar Basin. Five reservoirs have been built on the Damodar and its tributaries in Jharkhand to moderate floods in the lower basin area in West Bengal and for irrigation. These are operated by Damodar Valley Corporation (DVC). The Damodar river bifurcates into two main branches, i.e, Mundeswari and Lower Damodar (Amta channel) near the border of Burdwan and Hooghly districts, and both the channels traverse through the districts of Hooghly and Howrah, and ultimately meet River Hooghly, which debouches into Bay of Bengal.

The irrigation network downstream of the Durgapur Barrage (West Bengal) was developed more than 6 decades ago and is now degraded. Dilapidated hydraulic infrastructure, loss of irrigation water due to seepage and silted distribution networks have reduced the system's efficiency and led to water scarcity, particularly at the tail reaches. As a result, the gap between irrigation potential created vis-à-vis utilized is increasing, despite adequate water availability (around 1,40,000 hectare-meter (ha-m) for 3,32,000 hectares (ha) of command area under Kharif irrigation on an average). This is only 20% of the total water availability at the barrage during monsoon. Tail end farmers are compelled to abstract groundwater, which increases the costs of cultivation. This trend increases when rainfall is erratic or insufficient.

Project Area

The overall Project area considering both irrigation and flood management aspects is as follows:

Irrigation

Northern Boundary: River Ajoy at Purulia, Block Katwa-I, Dist.Burdwan (Latitude 23°38'51" N)

Southern Boundary: Outfall of Nabinbabur Khal at Block Amta-I, District Howrah (Latitude 22°35'47" N)

Western Boundary: Durgapur Barrage on river Damodar at Block Barjora, District Bankura (Longitude 87°18'31" E)

Eastern Boundary: Howrah Burdwan Main Line of Eastern Railway at Nityanandapur, Block Balagarh, District Hooghly (Longitude 88°25'17" E)

Flood Management

Northern Boundary: Bifurcation point of river Damodar into Mundeswari River and Amta channel at Beguahan, Block Jamalpur, District Burdwan (Latitude 23088.34 N)

Southern Boundary: Outfall of Amta channel in river Hooghly, Block Shyampur-I, District Howrah (Latitude 222059.76 N)

Western Boundary: Ichhapur at Block Khanakul-I, District Hooghly (Longitude 87450.43 E)

Eastern Boundary: River Saraswati at Eklakhi, Block Chanditala - II, District Hooghly (Longitude 881663.89 E)

The schematic drawing, brief project outlay, location and other particulars are available on the website www.wbiwd.gov.in in the link –WBMIFMP||

Project Objectives

WBMIFMP is a World Bank (WB) assisted Major Irrigation & Flood Management Project in association with Irrigation & Waterways Department (IWD), Government of West Bengal and Asia Infrastructure Investment Bank (AIIB) with an initiative to rejuvenate six decades old Damodar Valley Project (DVC) Canal System and moderate flooding through the Rivers Mundeswari and Damodar (Amta channel) in the districts of Paschim Bardhaman, Purba Bardhaman, Bankura, Hooghly and Howrah.

WBMIFMP aims to improve the existing irrigation network in the Damodar Valley Command Area (DVCA) within the State of West Bengal, to optimize conjunctive and sustainable use of ground and surface water across the DVCA in different irrigation seasons, and to reduce flooding in the Lower Damodar Sub-Basin (LDSB) in West Bengal.

Key Activities under the Contract

- a) Special Repair of Single storied Inspection Bungalow within the premises of D.V.C Colony under Right Bank Irrigation Division at Sonamukhi, Bankura.
- b) Special Repair of Office Building within the premises of D.V.C Colony under Right Bank Irrigation Division at Sonamukhi, Bankura.
- c) Special Repair of S.D.O type quarters within the premises of D.V.C Colony under Right Bank Irrigation Division at Sonamukhi, Bankura.

Duration of contract: Nine (9) months

Specifications

The Works shall be executed in accordance with these Specifications which comprises the following Sections:

- | | | |
|------|--------------------|---|
| I. | Section A - | General Specifications (Building Works) |
| II. | Section B - | Technical Specifications (Building Works) |
| III. | Section C- | EHS i.e. Environmental, Health and Safety |

SECTION A - GENERAL SPECIFICATIONS **(BUILDING WORKS)**

(INCLUDING MODES OF MEASUREMENT)

MATERIALS

GENERAL:

All materials to be used in works shall conform to Indian Standards Specification as published by B.I.S from time to time (and in the absence thereof as approved by the Engineer-in-Charge). Unless specifically mentioned otherwise the following modes of measurements shall be adopted. In general, the mode of measurement of the civil engineering works shall be guided by I.S.I.CodeNo.:1200-1964 (Revised) for Indian Standard Method of measurement of Building work.

A-1: Bricks

All bricks shall be of approved quality of standard specifications, made of good brick earth, uniform deep red, cherry or copper colour, thoroughly burnt in kiln (machine made) without being vitrified, regular in shape and size, sound, hard, homogeneous in texture, true to shape and of standard dimension and shall be free from cracks, chips, flaws, stones or humps of any kind and shall not show appreciable signs of efflorescence either dry or subsequent to soaking in water. The size of bricks shall be $9\frac{3}{4} \times 4\frac{3}{4} \times 2\frac{3}{4}$ (conventional). 190x90x 90mm (modular). The Bricks shall emit a clear ringing sound on being struck and have minimum crushing strength of 105kg/sq.cm. All the bricks which absorb water more than 20% of their own dry weight after 24 hours immersion in cold water shall be rejected.

Coarse Aggregates for Cement Concrete Works:

Stone chips or stone ballast for cement concrete (plain or reinforced) shall be hard, of uniform and fine texture. free from faults or planes of weakness and free from weathered faces. The ballast or chips must be free from loam, clay or any surface coating, free from organic matter or other impurities and screened, free of dust. Stone of black and hard variety as is generally available from quarries in Pakur areas will be normally used. Stone aggregates from other sources may also be used provided the same is found suitable in the opinion of the Engineer-in-Charge. The opinion of Engineer-in-Charge must be recorded in writing. The ballast or chips shall be obtained by breaking from large blocks and must be more or less cubical in shape.

Size of Coarse Aggregates: For any of the following nominal sizes of graded coarse aggregates, grading shall be in conformity with the requirements laid down in the Indian Standards Specification IS:383-1963 as shown below in Table 1.

TABLE– 1

IS.Sieve Designation	Percentage passing for graded aggregate of nominal size			
	40mm	20mm	16mm	12.5mm
1	2	3	4	5
80mm	100			
63mm				
40mm	95-100	100		
20mm	30-70	95-100	100	100
16mm			90-100	
12.5mm.				90-100
10mm.	10-35	25-55	30-70	40-85
4.75mm.	0-5	0-10	0-10	0-10
2.36mm.				

When coarse aggregates brought to the site is ungraded, single size coarse aggregates of different nominal sizes, conforming to there requirements vide **Table II** given below, shall be mixed at site with the other ingredients of concrete either directly in the mixture or on the platform in the proportion indicated in **Table III** below:

TABLE–II

IS.Sieve Designation	Percentage passing for single sized aggregate of nominal size					
	63mm	40mm	20mm	16mm	12.5mm	10mm
1	2	3	4	5	6	7
80mm	100					
63mm	85-100	100				
40mm	0-30	85-100	100			
20mm	0-5	0-20	85-100	100		
16mm				85-100	100	
12.5mm.					85-100	100
10mm.	0-5	0-5	0-20	0-30	0-45	85-100
4.75mm.			0-5	0-5	0-10	0-20
2.36mm.						0-5

TABLE– III

Sl. No .	Cement concrete mix	Nominal size of aggregate	Parts of aggregate of size 50mm.	Parts of aggregate of size 40mm.	Parts of aggregate of size 20mm	Parts of aggregate of size 12.5mm	Parts of aggregate of size 10mm.
1	2	3	4	5	6	7	8
1.	C.C1:6:12	63mm	9		3		
2.	C.C.1:6:12	40mm		9	3		
3.	C.C.1:5:10	63mm	7½		2½		
4.	C.C. 1:5:10	40mm		7½	2½		
5.	C.C.1:4:8	63mm		6	2		
6.	C.C.I:4:8	40mm		6	2		
7.	CC. 1:3:6	63mm	4½		1½		
8.	CC. 1:3 :6	40mm		4½	1½		
9.	CC. 1:3:6	20mm			4½		1½
10.	C.C.1:2:4	40mm		2½	1		1½
11.	C.C.1:2:4	20mm			3		1
12.	C.C.1:2:4	12.5mm				3	1
13.	C.C. 1:½:3	20mm			2		1

Notes: The Proportions indicated in **Table III** above are by volume. These proportions may be varied somewhat by Engineer-in-Charge after making sieve analysis of the aggregates brought to the site, when considered necessary for obtaining better density and strength of concrete, void ratio in the tune 0-25

All-in-aggregates: If combined aggregates are available, they need not be separated into fine and coarse. But necessary adjustment may be made in the grading by the addition of single sized aggregates. The grading of the all-in-aggregate when analysed as described in IS:2386 (Part I) shall be in accordance with **Table IV**.

TABLE- IV

I.S. Seive Designation	Percentage passing for all-in-aggregate	
	40mm Nominal size	20mm Nominal size
1	2	3
80mm	100	
40mm	95-100	100
20mm	45-75	95-100
4.75mm	25-45	30-50
600 micron	8-30	10-35
150 micron	0-6	0-6

- i) Gravel, for use as coarse aggregates in cement concrete work must be hard, absolutely free from surface coating and on being broken, the fractured surface must indicate a uniform and fine texture free from laminations or planes. It shall be thoroughly washed and free from any foreign elements.

- (iii) Jhama chips for cement concrete work shall be obtained by breaking good quality Jhama bats, must not be spongy or with any coating of foreign materials and should be homogeneous in texture. The chips shall be more or less cubicle in shape.

All coarse aggregates for concrete works .These shall be screened for removal of dust and if so necessary in the opinion of the Engineer-in-Charge, shall be washed at the cost and expenses of the contractor.

A—3 Sand

All sand shall be clean sharp and free from clay, loam, organic or any other foreign matter, shall be obtained from approved source. The contractor shall get the sample of sand to be used in different kinds of works approved by the Engineer-in-Charge before using the same in work. Sand which in the opinion of the Engineer- in-Charge or his representative is dirty, must be washed to his satisfaction at the cost and expenses of the contractor.

- (i) Sand for all cement concrete work must be coarse. The sand shall pass through a mesh,4.75mm. square measured in the clear. Sand shall not be used for concrete works if it contains more than 10% of fine grains passing through a 76 mesh sieve as used for cement test, nor should the fineness modulus be less than 2.00 unless specific permission is obtained from the Engineer-in-Charge.
- (ii) Medium sand may be used for cement mortar, for masonry, plaster etc. fineness modulus shall be between 2 and 1.8.
- (iii) Sand filling in plinth or foundation where specified may be done with fine sand or Silver sand.

A—4 Cement:

No cement except those supplied by the department or approved by Engineer-in-Charge shall be used in work or brought to site by contractor. Cement bags must be stored in a water-tight shed having wooden floor or platforms raised at least 50mm. from ground as approved by the Engineer-in-Charge. Cement which is partially set or which is lumpy or caked is to be treated as damaged and shall be removed from the site immediately.

For list of relevant IS Code for Cement to be used in work Page-B-64-65 of Volume-I & Clause 2.1.4 (Page-9) of Volume-III of Combined PWD Schedule and mandatory tests before use of Cement material in to works are given in clause 3.0 (Page 188, 189 & 190) Volume-III of Combined PWD Schedule, may be seen.

A—5 Steel:

All steel shall be clean and free from loose mill scales, dust, loose rust and coats of paints, oil or other coatings. Any scale or loose rust shall be removed before use, even though the same may have been supplied by the Department without any claim for extra charge for the same. No steel excepting those supplied by the Department or approved by the Engineer-in-Charge shall be used in work or brought to site by the contractor.

For list of relevant IS Code for reinforcement in concrete page-B-66 of Volume-I & for structural steel clause 2.1.7.5 (Page-12) of Volume-III may be seen. Mandatory tests before use of steel materials into works are given in clause 2.0 Steel/Iron (Page-185,186 & 187) Volume-III of Combined PWD Schedule, may be seen.

Timber:

All timber shall be of best quality well-seasoned and / or well-treated for preservation and protection against decay etc. It shall be uniform in substance, straight in fibre, free from large or dead knots, sap, flaws, sun- cracks, shakes or blemishes of any kind. Any insect damage or splits across the grain shall not be permissible. The colour of the timber shall be uniform throughout, firm and shining with a silky luster when planed and shall not emit dull sound when struck.

Glass:

All glasses shall be of the specified type, colour visibility and sound and shall be free from cracks, flaws, spick bubbles and blemishes and shall not weigh less than 7.4 kg/sqm unless otherwise specified.

Timber Doors, Windows etc. and their Fittings:

- (i) Door and window work shall be carried out as per detailed drawings or as directed by the Engineer-in-Charge, Specified timber shall be used, and it shall be sawn in the direction of the grains and be straight and square.
- (ii) Fittings shall be of iron, brass, and aluminium or as specified. These shall be well made, reasonably smooth and free from sharp edges, corners, flaws and other defects. Screw holes shall be counter sunk to suit the head of specified wood screws. Iron fittings shall be finished bright or black enameled or copper oxidised. Brass fitting shall be finished bright or (brass) oxidised chromium plated (etc treated) & aluminium fittings shall be finished bright or anodized or as specified. Fittings shall be got approved by the Engineer-in-Charge before fixing. In case of renewal works, the new fitting shall, as far as possible, match with the existing ones. Screws shall **be driven home with screw driver and not hammered** in.

Fibre Reinforced Polymer (FRP)door shutter/ frame:

The Polymer shall be either thermo plastic or thermo set resin, such as polyester, Isopolyester, Vinylester, epoxy or Phenolic base. The fibre moulded skins may be of glass or other synthetic (Carbon or aramid) or natural (jute or Coir) or other reinforcing materials.

The sand with core to impart monolithic composite structures approved by Department of Science & Technology or similar competent Authority.

Testing: As per IS 4020 door testing performance criteria.

Frame without Core: Frames shall have intermittent stiffness for rigidity and will have provision for hinge fixing, including anchors.

Frame with Core: Such Composite frames will be filled with inner Core in addition to all the features mentioned for frame without Core.

Paint etc.:

All paints shall be delivered in strong containers, marked with the colour of the paint, brand, volume of paint content in litres and of the best quality of approved make and brand as approved by the Engineer-in-Charge. Under no circumstances shall the paint be diluted with Linseed oil or otherwise. Any paint or enamel although of approved brand, which so hardens in the container that it cannot be readily broken up with a tirror to a smooth uniform painting consistency, shall be rejected. Any paint or enamel too thick for proper brush application shall be rejected.

SECTION B - TECHNICAL SPECIFICATIONS (BUILDING WORKS)

EXECUTION

GENERAL: All works shall be carried out in proper manner. Items of works not covered by the following shall be carried out as per best practice according to directions of the Engineer-in-Charge and to his satisfaction. Unless otherwise specified in this section or in the description of item, the cost of all stages of works mentioned here under shall be deemed to have been included in the rates of items provided in the Schedule.

B—1(a) Excavations of Foundation and Filling up Trenches:

(i) Foundation when excavated to the level shown in the drawing will be shown to the Engineer-in- Charge and if on account of bad ground or for any reason whatsoever he decides to go deeper with the foundation, the contractor shall excavate further to the depths required by the Engineer-in-Charge. In no case shall the foundation soling or concrete be laid prior to receiving orders to that effect from the Engineer-in-Charge or his authorized representative.

(ii) Excavating shall include throwing the excavated earth at least one metre or half the depth of excavation, whichever is more, clear of the edge.

(iii) The excavated areas around the foundation of structures are to be filled up properly to the required levels with earth obtained from excavation or other materials as directed, well rammed with water and consolidated in layers not exceeding 150mm. at a time. The quantity for this item of work will be measured on the basis of quantity of excavation paid for less the volume occupied by the structure in foundation.

(b) Shoring:

(i) For loose earth and when the depth of excavation exceeds 3 metres, poling boards (vertical members) of 50 to 75mm. in thickness and 175 to 225mm. in width preferably of Sal-wood to be placed close together and to be driven about 300 mm. in ground below the bottom of the trench with intermediate sal- bullah piling of diameter not less than 100mm. at the rate of 900 to 1000mm. center to center to be placed in between the vertical surface of trench and the poling boards and double struts of sal-bullah of not less than 100mm. in diameter between two wallings (horizontal member) of 250 mm. in width and 75 mm. in thickness held horizontally between them.

(ii) For medium clay and when the depth of excavation exceeds 2 metres but not exceeds 3 metres single struts will be provided and sal-bullah piling may not be placed. Other requirements are to be satisfied as (i) above.

(iii) For stiff clay or dry clay and when the excavation is within 2 metres, vertical poling boards will be placed at the rate of 600 to 1000 mm. apart with or without walling pieces; but single or double strutting will be provided. Other requirements are to be satisfied as per (i) above.

Cement concrete Works (Plain or Reinforced):

- (i) **Shuttering and Staging:** Wherever necessary, shuttering and staging must be provided. Unless otherwise stated no payment will be made for such shuttering or staging and the cost thereof will be deemed to have been covered by the rate for relevant finished item of

work. Where payment for shuttering has been specified, the rate shall be deemed to cover the cost of the necessary staging as well. Payment, if any, for shuttering will be on the basis of surface area of shuttering in actual contact with concrete.

Shuttering may be of approved dressed timber true to line, not less than 25mm. thick. Surface to be in contact with concrete are to be planed smooth except where otherwise stated. As an alternative, sufficiently rigid steel shuttering may be used. In every case, joints of the shuttering are to be such as to prevent the loss of liquid from concrete. In timber shuttering the joints must be perfectly closed and the entire shuttering surface shall be covered with polythene sheets of approved quality. In case of steel shuttering also the joints are to be similarly lined.

All shuttering and framing must adequately be stayed and braced to the satisfaction of the Engineer- in-Charge for properly supporting the concrete during the period of hardening. It shall be so constructed that it may be removed without shock or vibration to the concrete.

Before the concrete is placed, the shuttering shall, if considered necessary be coated with and approved preparation for preventing the adhesion of the concrete to the moulds, and it is to be of such a nature and so applied that the surface of the finished concrete is not stained. Care shall also be taken that such approved preparation shall be kept out of contact with the reinforcement.

In no circumstances shall forms be struck until the concrete reaches strength of at least twice the stress of which the concrete may be subjected at the time of striking.

Interior of all mould sand boxes must be thoroughly washed out with a hose pipe or otherwise so as to be perfectly clean and free from all extraneous matter prior to the deposition of concrete.

All form works shall be removed without shock or vibration. Before the formwork is stripped, the concrete surface shall be exposed where necessary in order to ascertain that the concrete has hardened sufficiently. In normal weather and with ordinary cement, vertical or side shuttering may be removed after three days and the bottom shuttering of horizontal members after fourteen days in case of slabs and twenty-one days in case of beams and cantilevers etc. from the date of placing the last portion of the concrete in the structure. The above are the minimum and may be extended if found necessary. Before stripping the shuttering of structural members, the contractor shall take prior permission of the Engineer- in-Charge or his representative.

No plugs, bolts, ties, hold fasts or any other appliances whatsoever for the purpose of supporting the shuttering are to be fixed in the structure or placed in such away that damage might result to the work in removing the same when the shuttering is struck.

- (ii) **Scaffolding:** The scaffolding must be strong and rigid stiffened with necessary cross bracers and always decked and boarded on the sills with close boarded veiling and swings to prevent any injury to persons or materials. The contractor shall have to allow other traders to make reasonable use of his scaffolding as and when directed by the Engineer-in-Charge.

If for the interest of the work contractors have to erect scaffolding in other's properties including local bodies or corporation, the arrangement for the same including the cost of licensing fees etc. shall have to be borne by the contractor and the department should be kept free from any liability on this account.

- (iii) **Mixing, Placing and Compacting:** The proportion specified is by volume in dry rodded condition of the different constituents.

Boxes of suitable sizes shall be used for measuring sand and aggregate. The unit of measurement for cement shall be bag of cement weighing 50Kg. and this shall be taken as 0.035 cubic metre while measuring the aggregate, shaking, ramming or hammering shall not be done. The proportioning of sand shall be on the basis of its dry volume and in case of damp sand allowances for bulking be made. **The aggregate in each batch of concrete are to be proportioned as to contain full bags of cement.**

Normally all structural concrete shall be mixed in mixture machine in appropriate proportion, shall have to be vibrated with suitable vibrator. Mixing shall be continued until there is uniform distribution of the materials and the mass is uniform in colour and consistency, but in no case mixing shall be done for less than two minutes. The rates appearing in the Schedule of Rates against such items are inclusive of hire and operational charges of such appliances. For a particular job the Engineer-in-Charge may allow hand mixing and or hand tapping of concrete. In case of hand mixing concrete, extra cement up to 10% over the standard requirement of cement for machine mix of particular mix shall have to be provided by the contractor at his own cost.

As the bulking of sand may vary from day to day and at different parts of the day on account of varying moisture content, frequent tests for bulking shall be carried out with the sand to be used and amount of bulking allowed for in the field mix so as to keep the actual proportion constant through-out.

Only such quantities as are required for immediate use are to be mixed at any one time. Sufficient water is to be added to obtain proper workability so that the mixture may flow readily round the reinforcement and into every part of the moulds. The workability shall be measured by the amount of slump.

The quantity of water to be used for each mix of 50kg cement to give the required consistency shall not be more than 34 litres for 1:3:6 mix, 32 litres for 1:2:4 mix, 30litres for 1:1 1/2:3 mix and 27 litres for 1:1:2 mix. In the case of vibrated concrete, the limit specified may be suitably reduced to avoid segregation.

Nominal Mix Concrete may be used for concrete of M20 or lower. The proportions of materials for nominal mix concrete shall be in accordance with the following table.

Proportions for Nominal Mix Concrete

Grade of Concrete	Total Quantity of Dry Aggregates by Mass per 50Kg of Cement, to be Taken as the Sum of the Individual Masses of fine and Coarse Aggregates. Kg. Max	Proportion of Fine Aggregate to Coarse Aggregate (by Mass)	Quantity of Water per 50 Kg of Cement, KG., Max
M5	800	Generally, 1:2 but subject to an upper limit of 1:1 1/2 and lower limit of 1:2 1/2	60
M7.5	625		45
M10	480		34
M15	330		32
M20	250		30

Note: The proportion of the aggregates should be adjusted from upper limit to lower limit progressively as the grading of the aggregates becomes finer and the maximum size of coarse aggregate become larger. Graded coarse aggregate shall be used.

Example: For an average of fine aggregate (that is, Zone II). The proportions shall be 1: 1/2, 1:2 and 1:2 1/2 for maximum size of aggregates 10 mm, 20mm and 40mm respectively.

The total water content in each batch of concrete shall always be kept constant as the amount previously determined by experiments. The quantity of water to be actually added may, therefore, vary depending on moisture content in the aggregates. In actual job, if the quantities of the ingredients remain constant, the amount of slump may be taken as a good guide indicating the total water content in the mixture. The consistency and consequently the water content of the concrete shall therefore be kept constant and checked from time to time as work proceeds, by means of standard slump test. The slump tests shall be carried out with concrete immediately after it has been mixed and before any initial set has commenced, the sample being taken preferably at the point where the concrete is being delivered for placing in the moulds.

The mould shall then be removed by rising vertically immediately after filling. The moulded concrete shall then be allowed to subside and the height of the specimen measured after coming to rest.

The consistency shall be recorded in terms of millimeters of the subsidence of the specimen during the test, which is known as slump.

The following slumps shall be adopted for different works.

Sl. No	Type of Work	SLUMPS	
		When vibrator are used	When vibrators Are not used
1.	Mass concrete in foundation footings, retaining wall and pavements	10 to 25 mm.	50 to 75 mm.
2	Mass concrete in RCC foundation, footing and retaining walls.	10 to 25 mm.	80 mm.

3.	Beams, slabs and columns simply reinforced	25 to 40 mm.	100 to 125 mm.
4.	Thin RCC section or section with congested steel	40 to 50 mm.	125 to 150 mm

I.S.: 456-2000 allows use of nominal mix of concrete upto grade M20 and may be allowed in works at the discretion of Engineer-in-Charge and will be guided by the provision of IS 456-2000. For grade of concrete above M20, design mix has to be adopted. For determination of mix proportion for design mix concrete, the target strength should be higher than the specified characteristic strength to ensure that characteristic strength is attained at 28 days at site. According to Explanatory Hand Book on IS 456-1978 (S.P. 24—1983):

Target Strength = Characteristic strength + 1.65 x standard deviation.

Standard deviation for different grades of concrete in absence of any test may be taken as per IS:456—2000 as follows:

Grade of Concrete	Assumed Standard Deviation N/mm ²
M10	3.5
M15	3.5
M20	4.0
M25	4.0
M30	5.0

Once the target strength of cube moulds with specific mix design is obtained in the laboratory, it may be inferred that the corresponding characteristic strength of concrete, prepared with the materials used in the test mould(s) cured under identical condition as that of the test specimen, shall be obtained at site at 28 days.

The Explanatory Hand Book on IS: 456—1978 (S.P.-24-1983) provides an approximate formula for expressing the strength of concrete at age 't' (in days), (Clause 5.2.1, Page-20)

$$f_t = [t/(a+b_t)] \times f_{28}$$

where f_{28} is the strength at 28 days. f_t = strength of concrete at any age

a & b are empirical constant

$a = 4.7$ and $b = 0.833$

t = time in days

BANK GUARANTEE FOR ADVANCE PAYMENT

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

Gentlemen:

In accordance with the provisions of the Conditions of Contract, sub-clause 3.1 of the above-mentioned Contract, _____ *[name and address of Contractor]* (hereinafter called "the Contractor") shall deposit with _____ *[name of Employer]* a bank guarantee to guarantee his proper and faithful performance under the said Clause of the Contract in an amount of _____ *[amount of guarantee]*¹ _____ *[in words]*.

We, the _____ *[bank or financial institution]*, as instructed by the Contractor, agree unconditionally and irrevocably to guarantee as primary obligator and not as Surety merely, the payment to _____ *[name of Employer]* on his first demand without whatsoever right of objection on our part and without his first claim to the Contractor, in the amount not exceeding _____ *[amount of guarantee]*⁴ _____ *[in words]*.

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

This guarantee shall remain valid and in full effect from the date of the advance payment under the Contract until _____ *[name of Employer]* receives full repayment of the same amount from the Contractor.

Yours truly,

Signature and seal: _____
Name of Bank/Financial Institution: _____
Address: _____
Date: _____

⁴An amount shall be inserted by the bank or financial institution representing the amount of the Advance Payment, and denominated in Indian Rupees.

PERFORMANCE BANK GUARANTEE
(To be given from a nationalized or scheduled bank in India)

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

WHEREAS _____ [name and address of Contractor]
(hereinafter called "the Contractor") has undertaken, in pursuance of 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 recognized bank for the sum specified therein as security for compliance with his obligations in accordance with the 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]¹ _____ [in words], such sum being payable in the types and proportions of currencies in which the Contract Price is payable, and we undertake to pay you, upon your first written demand and without cavil or argument, any sum or sums within the limits of _____ [amount of guarantee]¹ as aforesaid without your needing to prove or to show grounds or reasons for your demand for the sum specified therein.

We hereby waive the necessity of your 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 there under or of any of the Contract documents which may be made between you and the Contractor shall in any way release us from any liability under this guarantee, and we hereby waive notice of any such change, addition or modification.

This guarantee shall be valid until 28 days from the date of expiry of the Defects Liability Period.

Signature and seal of the guarantor _____
Name of Bank _____
Address _____
Date _____

