WEST BENGAL LIVESTOCK DEVELOPMENT CORPORATION LIMITED
(A Govt. Of West Bengal Undertaking)
LB-2, Sector-III, Salt Lake City, Kolkata – 700 106
Telefax: (033)-2335 5298 E-mail: info@wbldc.in
Website: www.wbldc.in Toll Free No. 18001208243

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NIT No: WBARD/WBLDC/NIT-BD-001/2023-24 **Date of Issue: 05/04/2023**

SET OF TENDER DOCUMENTS
For

Upgradation of the Mother Dairy Calcutta (MDC) Plant at Dunkuni , Hooghly-712310, West Bengal for 2023-24.

Each Set Contains:-

1. Notice Inviting e-Tender.
2. General Instruction to Bidders.
3. Eligibility Criteria for Participation in the Tender.
4. Evaluation of Tender.
5. Tender Terms & Conditions.
6. Scope of Work / Job Schedule
7. Forms-I, II, III, IV, V & Check List - VI.

DATE OF PUBLICATION OF e-TENDER (ONLINE): 05/04/2023 FROM 06:55 P.M.

STARTING OF BID SUBMISSION (ONLINE): 05/04/2023 FROM 06:55 P.M.

PRE BID MEETING (Mandatory) TO BE HELD ON 20/04/2023 at 2:00 P.M., H.Q.
SITE VISIT : FROM 17.04.2023 to 18.04.2023 (from 12.30 P.M. to 4.30 P.M.)

LAST DATE FOR ON LINE SUBMISSION OF TENDER: 29/04/2023 UP TO 06:55 P.M.

OPENING OF TECHNICAL BID: 02/05/2023 FROM 11:30 A.M. onwards.

OPENING OF FINANCIAL BID: TO BE NOTIFIED LATER ON.
TENDER FEES: NIL

ESTIMATED TENDER VALUE PUT TO TENDER: Rs. 22,63,70,000/-
(including GST, Cess, other taxes & all other charges)

EARNEST MONEY DEPOSIT: 2% OF THE ESTIMATE

(Dr. Gouri Shankar Koner)
Managing Director
W.B.L.D.C. Ltd.

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NOTICE INVITING e-TENDER

The Managing Director, West Bengal Livestock Development Corporation Ltd., LB-2, Sector-III, Salt Lake City, Kolkata–700106 invites on line bids (in two bid system) from reputed resourceful, bonafide State level working agencies, having adequate experience and expertise in similar nature of work specially in Govt./Semi Govt./ Public sector Undertakings, registered under the relevant laws in India and fulfilling requisite eligibility criteria as stated in the e-NIT for ***"e -Tender on* Upgradation of the Mother Dairy Calcutta (MDC) Plant at Dunkuni , Hooghly-712310, West Bengal for 2023-24"**

1) Earnest Money **2% (Two percent) of the amount put to tender** only is to be remitted online through Govt. of West Bengal e-Tender portal (https://wbtenders.gov.in). The payment transaction slip / receipt in pdf format is to be uploaded along with the statutory documents for tender submission.
2) In case bidder wants to be exempted from EMD submission, a valid Exemption certificate is to be scanned & uploaded along with the statutory documents in the e-tender portal for participation in the tender.
3) After publication of e-tender Notice in the Medias, detailed terms & conditions, BOQ (Bill of Quantities) may be obtained from the website https://wbtenders.gov.in at free of cost. Submission of tender by the bidder can be made with the help of Class- 3DSC (Digital Signature Certificate) in this website https://wbtenders.gov.in. Notice inviting e-tender will **only be viewed** in the Corporations website www.wbldc.in simultaneously.
4) Tenders should normally be floated in two parts one Technical Bid (BID-A) and other Financial Bid (BID-B).
5) Tender must be supported by:

A. TECHNICAL BID : 'BID-A'

(a) STATUTORY COVER containing the following documents:

PART 1 (SINGLE FILE MULTIPLE PAGES SCANNED):

1	Upload NIT with Seal and Signature on every pages.
2	Upload Scanned Application in the prescribed format (Form - I)
3.	Upload Declaration by the Tenderer (Form - II)
4.	Upload Certificate from Chartered Firm in the official pad (Form - III)
5.	Upload Affidavit Proforma (Form - IV), Working (Credential) Format (Form-V), Scanned Check List in the prescribed format (Form-VI)
6.	Upload **Plant Layout, Technical Brochure** as well as Design / Drawing of Dairy Plant ***(as per Scope of Work***.) must be provide / upload by the intending bidder(s).
7.	Upload All Documents / Certificates

(b) NON-STATUTORY COVER/MY SPACE containing the following documents:

Sl. No.	Category	Sub Category Description
1	CERTIFICATES – ✓ All valid up to date. ✓ All certificates are to be furnished in English Vernacular ✓ Affidavit are not valid ✓ Scanned original copy	✓ PAN Card of the authorized signatory ✓ Prof. Tax clearance certificate with challan valid up to **31/03/2023.** ✓ GST Registration certificate. ✓ IT returns of 2022– 2023 Financial year. ✓ Trade License valid upto31/03/2023. ✓ Valid documentary proof of: ✓ The agency / company should have minimum annual turnover of Rs. 300 lakh ✓ Certificate of updated Income tax Return ✓ Audited balance sheet for the last 3 years. √ Work experience including work of Government of West Bengal in last Five years.(as per Form-V). ✓ P.F. & E.S.I. Registration / Declaration
2	COMPANY DETAILS (valid up to Date), scanned original copy	i) Registration Certificate under Company Act. (if any). ii) Registered Deed of partnership Firm, Trade License / Article of Association & Memorandum. iii) In Case Proprietorship & Partnership Firms, the Tax Audited Report in 3CD Form along with Balance Sheet & Profit and Loss A/c. for the last 3 (three) years (year just preceding the current Financial Year will be considered as year-1). The balance sheet, Profit & Loss account should be in favor of applicant's name only. iv) Power of Attorney (For Partnership Firm/ Private Limited Company, if any). v) List of Technical staffs along with structure & organization.
3	Credential	(i) Intending tenderers ***should produce*** credentials of a ***similar nature of work (both Civil & Mechanical)*** of the minimum value of 40% of the estimated amount put to tender during 5 (five) years prior to the date of issue of this tender notice; Or, (ii) Intending tenderers should produce credentials of 2 (two) similar nature of work ***(both Civil & Mechanical)*** each of the minimum value of 30% of the estimated amount put to tender during 5 (five) years prior to the date of issue of this tender notice; Or, (iii) Intending tenderers should produce credentials of one single running work of similar nature of work ***(both Civil & Mechanical)*** which has been completed on the extent of 80% or more and value of which is not less than the desired value at (i) above; In case of running works, only those tenderers who will submit the certificate of satisfactory running work under Govt. department / Govt. sponsored Organization / Govt. Undertaking or equivalent competent authority will be eligible for the tender. In the required certificate it should be clearly stated that the work is in

		progress satisfactorily and also that no penal action has been initiated against the executed agency, i.e., the tenderer. (iv) The joint venture of Civil and electrical Agency is allowed and may participate in the tender, provided civil agency must fulfill the eligibility criteria i.e. 40% of the estimated amount of civil works put to tender and electrical agency also must fulfill the eligibility criteria (30% of the estimated amount of electrical works put to tender) ***N.B:- Estimated amount, tendered amount, date of commencement, date of completion of project and details communicational address of the client (within West Bengal if any also) must be indicated in the Credential Certificate.***
4	The Bidder shall not be under a Declaration of Ineligibility for corrupt or fraudulent practices or blacklisted with any of the Government Agency.	Declaration in this regard by the authorized signatory of the bidder.

The vendor must fulfill the above eligibility criteria/ pre-qualification conditions. Technical bid of vendors fulfilling the pre-qualification conditions will only be evaluated by the duly constituted evaluation committee. Bid of vendors not fulfilling the pre-qualification conditions given above will be summarily rejected. Undertaking for subsequent submission of any of the above documents will not be entertained under any circumstances. The authority reserves the right to verify/confirm all original documentary evidence submitted by vendors in support of above mentioned clauses of eligibility criteria.

B. FINANCIAL BID : 'BID-B' (BOQ)

i) The Contractor is to quote the rate **on Turn-Key basis on Percentage BOQ format** of the components as specified in the BOQ. **The percent rate (less or excess from scheduled rate)** will be quoted in the BOQ in one cover (folder) encrypted in the B.O.Q. under Financial Bid.

ii) **Rate quoted shall be including GST, Cess, other taxes / all other charges.**

iii) **Scope of work As per NIT & BOQ**

iv) Only downloaded copy of the B.O.Q. is / are to be uploaded quoting the rate, virus scanned and digitally signed by the contractor.

N.B.: ALL STATUTORY & NON STATUTORY DOCUMENTS(S) ARE REQUIRED TO BE UPLOADED IN ORIGINAL. Neither Photocopy nor cyclostyled literature/Brochure will be accepted.

No Hard copy of bid documents will be entertained for consideration for selection of this tender. Bidders must have to participate the tender through online only at www.wbtenders.gov.in.

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NIT No: WBARD/WBLDC/NIT-BD-001/2023-24 **Date of Issue: 05/04/2023**

NAMW OF WORKS:-

Name of the work	Work Details	Estimated Amount put to Tender (Rs.)	Period of completion of the work.
1	2	3	4
e -Tender on **Upgradation of the Mother Dairy Calcutta (MDC) Plant at Dunkuni , Hooghly-712310, West Bengal for 2023-24.**	**Details of work *(both Civil & Mechanical)* schedule item-wise may be found in the Scope of works**	**22,63,70,000/- including GST, Cess, other taxes / all other charges.**	**240 (Two Hundred Forty) Days**

MANAGING DIRECTOR, W.B.L.D.C. LTD., RESERVES THE RIGHT TO CHANGE THE ABOVE SCHEDULE IN CASE OF ANY EXIGENCIES. No objection in this respect will be entertained raised by any Bidder. **Bidders or their authorized representatives need not to be present in the office of the undersigned at the time of opening of the Technical or Financial Bid (BID-B).Decision of Tender committee at every stages of evaluation shall be intimated and uploaded on the website (https://wbtenders.gov.in) portal.**

No informal bidder will be entertained in the bid further.

However, at any stage before awarding the contract, the Tender Selection Committee reserves the right to cancel the tender process due to unavoidable circumstances and no claim in this respect will be entertained.

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NIT No: WBARD/WBLDC/NIT-BD-001/2023-24 **Date of Issue: 05/04/2023**

A. GENERAL INSTRUCTION TO BIDDERS

1) Total work is to be completed positively ***within 240 (Two Hundred & Forty) Days*** or the time specified in the order from the date of issue of order.

2) The intending bidders are requested to submit their tender along with prescribed application form in e-tender portal https://wbtenders.gov.in . The software shall make automatic encryption of the Technical as well as Financial Bid and no one shall be allowed to open two Bids prior to the date and time earmarked for opening by the Tendering Authority.

3) After evaluation of Technical Bid, those who will qualify, their Financial Bid shall only be opened. The technical proposal (BID-A) will be opened on line **as per evaluation procedure**.

4) Evaluation summary report of technical evaluation will be uploaded online to the portal from the office of the undersigned immediately after committee arrives at a decision regarding the same.

5) **Intending Bidder(s) must have to attend Pre-Bid meeting held on 20.04.2023 at 2.00 PM at the office of the undersigned.**

6) **Intending bidder(s) must have to submit/upload site visit report (FORM-II) during participation (Site Visit contact : Mr.Sanjoy Das-SAE : 9007872759 / 9875633163).**

7) If any bidder fails to submit site visit report and attend the pre-bid meeting , his/her technical bid will be cancelled without assigning any reason behind it .

8) ***The intending Bidder must have executed MOU with a licensed electrical contractor having supervisor SCC relevant parts, readily present at work site during the execution of electrical works after accepting the Award of Contract (AOC).***

9) ***Intending bidder must have to submit/upload preliminary Drawing, Design/Layout of the scope of work on tender document which need to be approved by the tender Inviting Authority after final selection. After Issuing LOA/AOC selected agency must have to submit Final Drawing within 14 days from the issue of the LOA/AOC.***

10) The Financial bid may be opened within a very short notice (on the same day afternoon or next day forenoon), once technical evaluation is completed.

11) Bidders having any query / objection / claim regarding the evaluation or any decision taken by the tender selection committee may communicate in writing to the Corporation's official mail id info@wbldc.in within 48 hrs of taking such decision. Communications received after the due time, will not be entertained for consideration in any way.

12) For further information, the bidders are requested to please contact the undersigned.

13) **No Tender will be accepted across the table and no such receipt will be issued thereon.**

14) In the event of any discrepancy between downloaded tender document and master copy of the same available in the office then the latter will be accepted & binding on the bidder. No claim will be entertained.

15) N.I.T. to be downloaded properly and to be uploaded duly digitally signed as a token of acceptance by the bidder with all the general & special (if any) terms & conditions laid down in the tender document.

16) **In case quoting the rate anywhere other than BOQ, the tender is liable to be summarily rejected.**

17) The Bidder is required to carefully study all the tender documents and prepare his tender to comply with all the provisions thereof. Submission of a Tender shall be taken as evidence and confirmation that the Bidder has acknowledged all the provisions of the Tender Documents and has fully acquainted himself with site conditions and all factors which may influence the preparation of his Tender. Negligence of the Bidder to observe instructions in the matter of preparation of his Tender shall be attributable to him and shall not be a ground for securing relief from any error as may be found or discrepancies as may be contained in his Tender and would not give him any liberty to withdraw his Tender after the same being opened.

18) All the tender documents including N.I.T., terms & conditions for submission of tender & B.O.Q. will be the part & parcel of the bid documents.

19) The undersigned reserves the right to cancel the tender at any stage without assigning any reason thereof.

20) The offer shall remain valid for ***240 (Two Hundred Forty)*** days from the date of opening of the financial bid.

21) Test certificate of cable and other equipment shall have to be submitted at site with the supply.

ELIGIBILITY CRITERIA FOR PARTICIPATION IN THE TENDER

1) The contractors who have been delisted or debarred by any government department shall not be eligible in any way.

2) Contractors must have work credentials of both ***Civil & Mechanical*** works with at least 5years experience in the field.

3) Intending bidder must have Site Lab facilities with all necessary equipment.

4) Having experience to build up/ Remodeling work **preferably at similar work anywhere in India**.

5) Credentials for both ***Civil & Mechanical*** works as Prime agency will only be taken into account. That means tie up with one or more company for execution of similar nature of work cannot be claimed as a sole credential of the claimant company.

6) Intending bidder(s) must have to submit Drawing /Design and Lay out as per scope of work during submission of tender (online) , otherwise entire bid will be rejected . Site visit will be mandatory which will be communicated during Pre-Bid meeting .

7) Approve rate (percentage BOQ on put to tender amount) based on Final Selection as per criteria including GST , labour Cess, all taxes and Charges . If any changes in GST and other Govt. Taxes as well as charges as per latest Govt. Circular occur during implementation period (Job progressive period) , it will be taken juristically as per Govt rules as decided by the Tender Inviting Authority .

8) Valid up to date clearance of Income Tax return, Professional Tax Clearance Certificate, P.T. (Deposit Challan), PAN Card, GST Registration Certificate, PF & ESI certificate / declaration, Valid Trade License with the Technical Bid Documents, Income Tax Acknowledgement Receipt for latest assessment year to be submitted. [Non statutory Documents].

9) Registered Partnership Deed (for Partnership Firm only) along with Power of Attorney to be submitted along with application, if applicable. (Non-Statutory documents)

10) Registered Unemployed Engineers' Co-operative Societies are required to furnish valid Bye Law, Current Audit Report, Current N.O.C. from A.R.C.S., Minutes of last A.G.M. and also submit documents of the society consists at least 10 (ten) members out of which at least 60% should hold degree or diploma in any branch in Engineering.

11) Prevailing safety norms has to be followed so that LTI (Loss of time due to injury) is zero.

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EVALUATION OF TENDERS

EVALUATION METHODOLOGY OF PROPOSALS

Bids will be evaluated on Quality-cum-Cost Basis (QCBS) to ensure a fair and transparent method of selection.

Evaluation of Technical Proposal

Pursuant to the qualification of Bidders as per the Minimum Eligibility Criteria, and Responsiveness of the bids, the Evaluation Committee intends to evaluate the Technical Proposals, by applying the evaluation criteria as detailed below. Each responsive Proposal shall be given a technical score.

PROCESS OF EVALUATION AND SELECTION

Bids will be evaluated on Quality-cum-Cost Basis (QCBS) to ensure a fair and transparent method of selection. The credentials of the bidders as uploaded online will be examined first. The credentials will broadly cover the following areas –

• Competence in all the credential activities and sectors noted in the campaign outline at invitation for bid section of this document, in case a bidder does not meet the criteria for eligibility, his Technical Bids will not be opened.

• For all bidders eligible according to the prescribed criteria, the ongoing/layout/forthcoming proposals will be evaluated by a technical Committee ***on Pre bid meeting*** that may include external expert/s. The qualified bidders will be given the opportunity to make presentation/s to the Committee on a specified date onward. The criteria for evaluation of the Technical / scope proposal are at below.

• This is a very important matter which is expected to be evaluated after Technical presentation Hence, while the technical Bid would be evaluated as per the rules, it is deem necessary that the ability to perform all such work should be verified with utmost care.

Sl. No.	Bid Component (Technical Offer Evaluation)	Total Marks	Marks Scored
1.	Presentation/Demonstration of machineries, drawing , designing or layout of similar works in Govt Sector/Private sectors on Pre Bid Meeting conducted on 19.04.2023 at 2.00 PM (at least two sets of creative to be submitted /presented for evaluation)	**40**	
2.	The agency/company should have turnover of 3 Cr. Yearly with State Government. Financial turnover during the last financial year (either 2021-22 or 2022-23 FY) : (1) Rs.5,00,00,001and above=10marks (2) Rs. 3,00,00,001 to Rs. 5,00,00,000/- = 7 Marks (3) Rs. 1,50,00,001to Rs. 3,00,00,000/- = 3 Marks (4) Rs. 50,00,000/- to Rs. 1,50,00,000/- = 2 Marks (5) Rs. below 50,00,000/- = 1 Marks	**10**	
3.	The agency/company should have experience under any department of State Government for similar works (satisfactory completion certificate to be provided).	**10**	
4	Details drawing , planning & programme diagram for implementing the work within schedule time period	**10**	
5	Supplied machineries/equipment detailing with Make (specifications)	**10**	
	Total: Marks for Technical Evaluation :	**80**	

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Intending bidder(s) must have to attend Pre-Bid meeting held on 20.04.2023 at 2.00 P.M at the office of the undersigned , if any bidder fails to attend the meeting but participate in the said tender his/her bid will be rejected as decided by the tender Inviting Authority (TID) without showing any reason. Demonstration/ Presentation as stated above will be conducted on this day.

The Evaluation Committee shall evaluate and rank each Technical Proposal on the basis of the Proposal's responsiveness to the scope using the evaluation criteria and score system specified above. Each Technical Proposal shall receive a technical score. The Proposal shall be rejected if it does not achieve the minimum technical mark of 40 (Forty) out of maximum of 80 (Sixty) marks.
Final selection based on weightage of 80:20 (Technical : Financial) based on highest scoring in Technical Part as well as Lowest Scoring in Financial bid . financial bid will be opened only technically qualified bidders.

Scoring will be evaluated only after qualifying the criteria for submission of Statutory & Non-Statutory documents as stated in NIT by the intending Bidder(s).

TENDER TERMS & CONDITIONS

01. OPENING OF THE TECHNICAL PROPOSAL:

(a) Technical proposal will be opened by the authorized officer of the undersigned, electronically from the website using their Digital Signature Certificate (DSC).
(b) Cover (folder) for Statutory Documents and non statutory documents will be opened. If there is any deficiency in the **Statutory Documents** the tender will summarily be rejected.
(c) Decrypted (transformed into readable formats) documents of the Statutory & Non statutory Cover will be downloaded and handed over to the Tender Evaluation Committee.
(d) Pursuant to scrutiny & decision of the Tender Evaluation Committee the summary list of eligible bidders will be uploaded in the web portals.
(e) The Financial Cover (BID-B) of those bidders passing the technical requirements will only be opened. THE DECISION OF UNDERSIGNED/TENDER COMMITTEE WILL BE FINAL &BINDING UPON THE BIDDER IN THIS RESPECT.

02. PENALTY FOR SUPPRESSION / DISTORTION OF FACTS:-

If any bidder fails to produce the original hard copies of the documents (specially Completion Certificates or Work Orders as proof of credential) or any other documents on demand of the Tender Opening Authority within a specified time frame or if any deviation is detected in the hard copies from the uploaded soft copies or if there is any suppression of facts, the bidder will be suspended from participating in the tenders on e-Tender platform for 3 (three) years.
The Contractors are bound by the terms and conditions of W.B.F No. 2911 with relevant changes'

03. AWARD OF CONTRACT:-

The Tender Inviting Authority reserves the right to accept or reject any tender and to cancel the tendering process and reject all tenders at any time and prior to the issue of Award of Contract without incurring any liability to the affected Tenderer or Tenderers thereby or shall have any obligation to inform the affected Bidder or Bidders of the ground for Employer's action. The Bidder who's Bid has been accepted will be notified by the Tender Inviting & Accepting Authority through acceptance letter cum Award of Contract.

04. PERFORMANCE GUARANTY:

(i) Upon selection of the bidder in the Financial evaluation and after issuance of 'Letter of Acceptance' the successful bidder have to produce a Performance guaranty in shape of Bank Guarantee (as per specimen format) ***for 1 (one) Year*** of an amount of **3 % of the Tender Value**, payable to the West Bengal Livestock Development Corporation Ltd., Kolkata.

(ii) It may be noted by the intending bidders that, deposit of Performance guaranty is a pre-requisite for executing the agreement and issuance of 'Award of Contract' thereafter.

05. AGREEMENT

The corporation will execute an agreement with the successful bidder ***as per the prescribed format or as will deem fit as per the condition in a Non-judicial Stamp Paper worth Rs.100/-*** (Rupees One Hundred) only to be provided by the successful bidder. The notification of award will constitute the formation of the Contract or the agreement between the Tender Accepting Authority and the successful Bidder. All the tender documents including NIT & B.O.Q. will be the part & parcel of the Contact Documents. Prescribed Agreement must be signed by the both parties, the Authorized Signatories of the Corporation &Tendering firm concerned. The Original agreement will be retained by the Corporation in the concerned case file and the photocopy of the same will be provided to the concerned firm.

06. SECURITY MONEY DEPOSIT

Successful tenderer shall be required to deposit Security Money at the rate of 3% (Three P.C.) of the contract value. However earnest money of the successful tenderer may be converted/adjusted with the Security Money and the balance Security Money (1% of contract value) to be deducted from deducted from each and every submission of "running" bill to make *3% security deposit* as per terms of the contract. (As per G'0. No. 201-F(Y) Dated-18/01/202l of Finance Department Govt. of WB. The Security Money will not carry any interest.

In the event of non-completion or defective work by the contractor the Corporation will have the right to get the work done through any agency at the risk and cost of the contractor and also the Corporation will have the right to forfeit the security money in full or part at its discretion which will be binding upon the contractor.

The security money will be released ***on one month after the satisfactory completion*** of the defect liability period and satisfactory remedy or rectification or amendment or modification or all, and settlement of accounts.

07. PENAL MEASURE

If the firm withdraws tender as a whole or for any particular item at any stage during the tenure of tender or fails/refuses to enter into written agreement once the rate for any/all items(s) is/are accepted within the time specified when requested to do so by this Corporation. Such firms offer will not be taken into consideration in future & shall liable to be black listed for 3 (three) years.

i) The security money deposit furnished by a bidder is liable to forfeit in full along with cancellation of order without prejudice in the event of failure/refusal to maintain the terms &

conditions of tender and/or contracted specification and/or quality/quantity and the authority will be at liberty to terminate the contract as a whole or part.

ii) In consequence of submission of false or fabricated documents by any firm/ company for participating in the tender, if proved later on shall liable to be Black Listed for 3 (three) years.

iii) Quoting absurdly high or low rate in opinion of tender selection committee, with the intention to vitiate the tender process will be dealt with in the context of existing tender rules/ norms under Govt. of W.B.

iv) Any legal dispute arising during the tender process shall be dealt only under the jurisdiction of Calcutta High Court.

v) **Total work including supply is to be completed positively within 240 (Two Hundred & Forty) Days or the time specified in the order from the date of issue of order.**

08. PAYMENT

Any request for Advance Payment will not be entertained. However, in exceptional cases, advance amount up to 10% advance may be allowed against 110% Bank Guaranty

1. Bills to be produced in DUPLICATE.
2. ***The payment shall be made as per projected Performance Chart both Physical and Financial submitted by the Agency within 14 days of Issuing of Award of Contract based on Job completion period on approved Design/Lay-Out.***
3. However, as per instruction of the authority from time to time, the successful bidder shall have to produce the **BAR CHART** in terms of % of completion of work and Physical progress of the work accordingly
4. Payment shall be made after executing the order satisfactory in all respect. However, no interest shall be paid to the firm, if the payment is delayed due to whatsoever reasons. The payment of bills shall be withheld in case of violation of any tender terms & conditions.
5. **For Plant and Machineries : All payment will be made as per performance Chart (Physical & Financial) submitted by the agency prior to start the Job as above. However on prior approval from Competent Authority ,**

a) 75% Payment may be made after receiving the equipment's at site.

b) 15% Payment may be made after successful installation & commissioning.

c) 10% Payment may be made after one month of successful running of the equipment's.

However, no interest shall be paid to the firm, if the payment is delayed due to whatsoever reasons. The payment of bills shall be withheld in case of violation of any tender terms & conditions.

09. GENERAL:

Unless otherwise stipulated all the works are to be done as per general conditions and general Specifications of the "Departmental Schedule" which means the Public Works Department, Schedule of Rates for works in West Bengal for the working area including up to date addenda and corrigenda, if any. The project should be executed as per IS code/IRC/MOST/MORTH standards regarding the quality of materials and various item of works. For general conditions and general specifications of items of works related to supply and carriage works, not appearing in the aforesaid Schedule of Rates in force including up-to-date addenda and corrigenda, if any, issued by the competent authority as applicable for the working at the time of submission of tender for the working area will be considered.

10. TERMS & CONDITIONS IN ORDER TO PRECEDENCE:

If the stipulations of the various components of the contract documents be at variance in any respect, one will override the other (only in so far as those are at variance) in the order of precedence as given below:

(a) Special terms and conditions
(b) Special specifications (Scope of work)
(c) General instructions.
(d) Notice Inviting e-Tender
(e) Schedule of probable items with approximate quantities
(f) Tender Form.

All works covered in the clause appearing hereinafter shall be deemed to form a part of the appropriate item or items of works appearing in the schedule whether specifically mentioned in any clause or not and the rates quoted shall include all such works unless it is otherwise mentioned that extra payment will be made for particular works.

11. ENGINEER-IN-CHARGE AND COMMENCEMENT OF WORK:

The word "Engineer-In-Charge" means the Executive Engineer, WBLDC Ltd. The word "Department" appearing anywhere in the tender documents mean WBLDC Ltd. (A Government of West Bengal Undertaking). The word "approved" appearing anywhere in the documents means approved by the Engineer-In-Charge. The work shall have to be taken up within seven days of the receipt of the work order. Failure to do so will constitute a violation of the contract stipulation as regards proportionate progress and timely completion of work and the contractor will thereby make himself liable to pay compensation or other penal action as per stipulation of the printed tender form.

12. CONDITION IN EXTENDED PERIOD:

When an extension of time for completion of work is authorized by the Engineer-in-charge , it will be taken for granted that the validity of the contract is extended automatically up to the extended period with all terms and conditions rates , etc. remaining unaltered , i.e the tender is revalidated up to the extended period.

The head of the corporation may allow maximum period of *28 days after the stipulated* date of completion . After that a penalty of 0.50 % which will be deducted from his R/A bill / Final bill as the case may be for each week of delay up to a maximum of 2.0 % on the amount put to tender .

13. CO-OPERATION AND DAMAGES AND COMPLETION OF WORK:

All works are to be carried out in close co-operation with the Department and other contract or contracts that may be working in the area of work. The work should also be carried out with due regard to the convenience of the road/building users and occupants, if any. All arrangements and programme of work must be adjusted accordingly. All precautions must be taken to guard against chances of injury or accidents to workers, road users, occupants etc. The contractor must see that all damages to any property which, in the opinion of the Engineer-In-Charge are due to the negligence of the contractor are promptly rectified by the contractor at his own cost and expenses and according to the direction and satisfaction of the Engineer-In-Charge.

14. CONTRACTOR'S SITE OFFICE:

The contractor shall have an office adjacent to the work as may be approved by the Engineer-In-Charge where all directions and notice of any kind whatsoever which the Engineer-In-Charge or his representative may desire to give to the contractor in connection with the contract may be left and same when left at or sent by post to such office or delivered to the Contractor's authorized agent or representative shall be deemed to the sufficiently served upon the contractor. ***The contractor shall have Site Lab facilities with all necessary equipment.***

15. INCIDENTAL AND OTHER CHARGES:

The cost of all materials, hire charges to Tools and plants, Labour, Corporation/Municipal Fees for water supply, Royalty or road materials (if any), Electricity and other charges of Municipalities or statutory Bodies, Ferry charges, Toll Charges, Loading and unloading charges, Handling chargers overhead charges etc. will be deemed to have been covered by the rates quoted by the contractor except G.S.T. (Central and/or State), Income Tax, Terminal Tax, Turnover Tax etc. All other charges for the execution of the complete or finished work or in case of supply of materials and for carriage to the entire satisfaction of the Engineer-In-charge of the work. No claim whatsoever in this respect will be entertained.

16. AUTHORISED REPRESENTATIVE OF CONTRACTOR:

The contractor shall not assign the agreement or sublet any portion of the work. The contractor, may however, appoint and authorize representative in respect of one or more of the following purpose only-

a) General day to day management of work.
b) To attend measurements when taken by the Departmental Officers and sign the records of such measurements which will be taken of acceptance by the Contractor. The selection of the authorized representatives subject to the prior approval of the Engineer concerned and the contractor shall in writing seek such approval of the Engineer giving therein the name of work, Tender No., the Name, Address and the specimen signature of the representative he wants to appoint and the specific purposes as specified the representative will be authorized for even after first approval, the Engineer may issue at any subsequent date.

Revised directions about such authorized representative and the contractor shall be bound to abide by such directions. The Engineer shall not be bound to assign any reason for any of his directions with regard to the appointment of authorized representative. Any notice correspondence etc. issued to the authorized representative or left at his address, will be deemed to have been issued to the contractor himself.

17. POWER OF ATTORNEY:

The Provision of the power of attorney, if any, must be subject to the approval of the Department. Otherwise the WBLDC Ltd. shall not be bound to take cognizance of such of attorney.

18. EXTENSION OF TIME:

For cogent reasons over which the contractor will have no control and which will retard the progress, extension of time for the period lost will be granted on receipt of application from the contractor before the expiry date of contract. No claim whatsoever for idle labour, additional establishment, cost of materials and labour and hire charges of tools & Plants etc., would be entertained under any circumstances. The contractor should consider the above factor while quoting his rate. Applications for such extension of time should be submitted by the contractor.

19. MATERIALS TO BE USED:

Suggested Brand Name/ names of different type of materials are to be use for this work as specified in PWD (WB) Schedule of Rate or as per direction of Engineer-In-Charge.

20. CONTRACTOR'S GODOWN:

The contractor must provide suitable godowns for cement and other materials at the site of work. The cement godown is to be sufficient in capacity and it must be water tight with either an elevated floor with proper ventilation arrangement underneath the floor or if solid raised flooring is made, cement is to be stored on bamboo or timber tonnage to the satisfaction of the Engineer-In-Charge. No separate payment will be made for these godowns or for the store yard. Any cement which is found at the time of use to have been damaged shall be rejected and must immediately to remove from the site by the Contractor or deposited as directed by the Engineer-In-Charge.

21. ARRANGEMENT OF LAND:

The contractor will arrange land for installation of his Plants and Machineries, his godown, store yard, labour camp etc. at his own cost for the execution of the work. Departmental Godown, if available may be spared for the purpose on usual charges as fixed by the Competent Authority.

22. USE OF GOVERNMENT LAND:

The contractor shall make his own arrangements for storage of tools, plant, equipments; materials etc. of adequate capacity and shall clear and remove on completion of work and shed, huts etc. which he might have erected in Government Land. Before using any space in Government Land of any purpose whatsoever, approval of the Engineer-In- charge should be needed.

23. CLEARING OF MATERIALS:

Before starting any work, work site, where necessary, must be properly dressed after cutting clearing all varieties of jungles shrubs, bamboo clusters or any undesirable vegetation from the alignment or site of works on completion of works all temporary structure or obstruction including some pipes in underground work, if any, must also be removed. All scars of construction shall be obliterated and the whole site shall be left in a clear and neat manner to the satisfaction of the Engineer-In-Charge. No separate payment shall be made for all these works, the cost thereof being deemed to have been included in the rates of various items of works quoted by the contractor in the schedule of probable items of works.

24. SUNDRY MATERIALS:

The contractor must erect temporary pillars, master pillars etc. as may be required in suitable places as directed by the Engineer-In-Charge at his own cost before starting and during the work by which the departmental staff will check Levels, layout different works and fix up alignment and the contractor shall have to maintain and protect the same till completion of the work. All petty and sundry material like, pegs, strings, nails, flakes instruments etc. and also skill labour require for setting out the levels for laying out difference structures and alignment shall also be supplied by the contractor as per direction of Engineer-in-Charge at his own cost without any extra claim towards the department.

25. SUPPLEMENTARY/ADDITIONAL ITEM OF WORKS:

Notwithstanding the provisions made in the related tender Form any item of the work which can be legitimately be considered as not stipulated in the specific schedule of probable items of work but has become necessary as a reasonable contingent item during actual execution of work will have to be done by then Contractor if so, directed by the Engineer-In-Charge and the rates will be fixed with manner as stated below:-

(a) Rate of Supplementary items shall be analyzed in the 1st instant extended possible from the rates of the allied items of work appearing in the tender schedule.

(b) Rate of supplementary items shall be analyzed to the maximum extent possible from rates of the allied items of work appearing in the P.W Department schedule of rates for Building and S&P along with all addenda and corrigenda of probable items of work forming part of tender document Rates for the working area enforce at the time of N.I.T.

(c) In Case, addition items do not appear in the above P.W Department Schedule of Rates, such items for the works shall be paid at the rates entered in the Public Works (Roads) Department Schedule of Rates along with all addenda and corrigenda for the working area enforce at the time of N.I.T.

(d) In case of any change in quantity due to any kind of alteration during actual work, the contractor will not be liable to put up any claim against any shortfall of quantity in execution. However if it is needed to take up any item in excess or supplement to the priced quantity, the payment for the extra work will be paid as per the prevailing govt. rule.
Unbalanced market rates shall never be allowed Contractual percentage shall only be applicable with regard to the portions of the analysis. It may be noted that the cases of supplementary items of claim shall not be entertained unless supported by entries in the Measurement Book or any written order from the tender accepting authority.

26. COVERED UP WORKS:

When one item of work is to be covered up by another item of work the latter item shall not be done before the formal Item has been measure up and has been inspected by the Engineer-in-charge as the authorized representatives of the Engineer-In-Charge and order given by him or proceeding with the latter item of work. When however, this is not possible for practical reasons, the Sub-assistant Engineer, if so, authorized may do this inspection in respect of minor works and issue order regarding the latter item.

27. APPROVAL OF SAMPLE:

Samples of all materials to be supplied by the contractor and to be used in the work shall have to be approved by the Engineer-in-charge and checking the quality of such materials shall have to be done by the concerned Department prior to utilization in work.

28. INCIDENTAL AND OTHER CHARGES :

The contractor shall have to arrange for their own source of energy for operation of equipments and machineries, driving of pumping set, illuminating work site, office etc. that may be necessary in difference stages of execution of work. No facility of any sort will be provided for utilization of the departmental sources of energy existing at site of work. Arrangement for obtaining water for the work should also be made by the contractor at his own cost. All cost for getting energy and / or for any purpose whatsoever will have to be borne by the contractor for which no claim will be entertained.

The cost of all materials, hire charges to Tools and plants, Labour, Corporation/Municipal Fees for water supply, food staff, medical aids ,Royalty or road materials (if any), Electricity and other charges of Municipalities or statutory Bodies, Ferry charges, Toll Charges, Loading and unloading charges, Handling chargers overhead charges etc. will be deemed to have been covered by the rates quoted by the contractor inclusive of Sales Tax (Central and/or State), Income Tax, Terminal Tax, Turnover Tax etc., all other charges for the execution of the complete or finished work or in case of supply of materials and for carriage to the entire satisfaction of the Engineer-In-charge of the work. No claim ***except GST and Labour Cess*** whatsoever in this respect will be entertained.

29. DRAWINGS:

Intending Bidder must have to submit Drawing/Design and Lay out of the entire Job based on Site visit in tender documents .All works shall be carried out in conformity with *the drawings /Lay Out approved by this Department*. After Selection the Approved Agency have to Submit projected Lay out of Plan (Planning of job completion) both Physical as well as Financial based on approved Drawing within 14 Days from the issuing of Award of Contract . Necessary Payment will be made based on such projection as per payment terms and conditions. However, the Contractor shall have to carry out all the works according to the departmental general arrangement drawing and detail working drawings to be supplied by the Department from time to time.

30. UNSERVICEABLE MATERIALS:

The Contractor shall remove all unserviceable materials, obtained during execution at place as directed. The contractor shall dressed up and clear the work site after completion of work as per direction of the Engineer-in-Charge. No extra payment will be made on this account.

31. CONTRACTOR'S RISK FOR LOSS OR DAMAGE:

All risk on account of railway or road carriage or carriage by boat including loss or damage of vehicles, boats, barges, materials or labour, if any, will have to be borne by the contractor without any extra claim towards department.

32. IDLE LABOUR:

Whatever the reasons may be no claim of idle labour, enhancement of labour rate additional establishment cost, cost of TOLL and hire and labour charges of tools and plants Railway freight etc. would be entertained under any circumstances.

33. CHARGES AND FEES PAYABLE BY CONTRACTOR:

a) The contractor shall be all notices and pay all fees required to be given or paid by any statute or any regulation or by law and any local or other statutory authority which may be applicable to the works and shall keep the department against all penalties and liability of every kinds for breach of such statute regulation or law.

b) The Contractor shall have save harmless and indemnify the department from and against all claims demands suit and proceedings for or an account of infringement of any patent rights design, trade mark of name of other Protected write in respect of any constructional Plant machine, work, materials, thing or process used for or in connection with works or temporary works or any of them.

34. ISSUE OF DEPARTMENTAL TOOLS AND PLANTS:

All Tools and Plants required for the work will have to be supplied by the Contractor at his own cost, all cost of fuel and stores for proper running of the Tools and Plants must be borne by the Contractor.

35. REALISATION OF DEPARTMENTAL CLAIMS:

Any some of money due and payable to the contractor (including security deposit returnable to him) under this contract may be appropriated by the Government and set off against any claim of Government for the payment of sum of money arising out of this contract or under any other contract made by the contractor with the Government.

36. COMPLIANCE OF DIFFERENT ACTS:

The contractor shall comply with the provisions of the Apprentices Act, 1961, Minimum Wages Act, 1848. Contact Labour (Regulation and Abolition) Act 1970 and the rules and orders issued hereunder from time to time. If he fails to do so, the Engineer, may at his discretions, take necessary measure over the contract. The Contractor shall also make himself for any pecuniary liabilities arising out on account of any violation of the provision of the said Act(s). The Contractor must obtain necessary certificate and license from the concerned Registering Office under the Contract Labour (Regulation & Abolition) Act, 1970. The contractor shall be bound to furnish the Engineer-In-Charge all the returns particulars or date as are called for from time to time in connection with implementation of the provisions of the above Acts and Rules and timely submission of the same, failing which the contractor will be liable for breach of contract and the Engineer-In-Charge may at his discretion take necessary measures over the contract.

37. SAFETY, SECURITY AND PROTECTION OF THE ENVIRONMENT:

The Contractor shall, throughout the execution and completion of the Works and the remedying of any defects therein:

a) Have full regard for the safety of all persons and the Works (so far as the same are not completed or occupied by the department),
b) Provide and maintain at his own cost all lights, guards, fencing, warning signs and watching, when and where necessary or required by the Engineer-in-Charge for the protection of the Works or for the safety and convenience of the public or others,
c) Ensure that all lights provided by the Contractor shall be screened so as not to interfere with any signal light of the railways or with any traffic or signal lights of any local or other authority.

d) Take all reasonable steps to protect the environment on and off the Site and to avoid damage or nuisance to persons or to property of the public or others resulting from pollution, noise or other causes arising as a consequence of his methods of operation.

38. TRANSPORTATION ARRANGEMENT:

The contractor shall arrange for all means of transport including Railways Wagons required for carriage and supply of materials and also the materials required for the construction work. The Department may however, at their own discretion grant necessary certificates, if required, for procurement of railways Wagons. But, in case of failure of the Department to help the Contractor in this respect, the contractor will have to procure wagons at his own initiative and no claim whatever on the ground of non-availability of wagons shall be entertained under any circumstances. If Railways Wagons are not available, the Contractor will have to depend on transport of materials by road as necessary to complete the work in time and the contractor must consider this aspect while quoting rate.

39. PROGRAMME OF WORK:

Before actual commencement of work the contractor shall submit a programme of construction of work clearly showing the materials men and equipment. The contractor will submit a programme of construction in the pattern of Bar Chart or Critical Path Method and a time table divided into four equal periods of progress of work to complete the work within the specific period for approval of the Engineer-In-Charge who reserves the right to make addition, alterations and substitutions to such programme in consultation with the contractor and such approved programme shall be adhered to by the contractor unless the same is subsequently found impracticable in part or full in the, opinion of the Engineer-In-Charge and is modified by him. The contractor must pray in writing, showing sufficient reasons therein, for modification of programme.

The conditions laid down tender form regarding the division of total period and progress to work and the time table therefore as provided in the said clause shall be deemed to have been sufficiently complied with it the actual progress of work does not fall short of the progress laid down in the approved time table for one fourth, half and three fourth of time allowed for the work.

40. SETTING OUT OF THE WORK:

The contractor shall be responsible for the true and perfect setting out of the work and for the correctness of the position, levels, dimensions and alignments of all parts of work, if any, rectification or adjustment becomes necessary the contractor shall have to do the same at his own cost according to the direction of the Engineer-In-Charge during progress of works. If any, errors appears or arise in respect of position, level, dimensions or alignment of any part of the work contractor shall at his own cost rectify such defects to the satisfaction of the Engineer-In-Charge. Any setting out that may be done or checked by either of them shall not in any way relieve the contractor or their responsibility for correctness and rectification thereof.

41. PRECAUTIONS DURING WORKS:

The contractor shall carefully execute the work without disturbing or damaging underground or overhead service utilities viz. Electricity, Telephones, Gas, Water pipes, Sewers etc. in case disturbances of service utilities is found unavoidable the matter should immediately be brought to the notice of the Engineer-In-Charge and necessary precautionary measures as would be directed by the Engineer-In-Charge shall be carried out at the cost and expenses of the contractor. If the service utilities are damaged or disturbed in any way by the contractor during execution of the work, the cost of rectification or restoration of damages as would be fixed by the Engineer will be recovered from the contractor.

42. NIGHT WORK:

The contractor shall not ordinarily be allowed to execute the work at night. The contractor may however, have to execute the work at night, if instructed by the Engineer-in-Charge. For true technical or emergent reasons the work may require to be executed during the night also according to the instruction of the Engineer-in-Charge. In that case the contractor shall have to arrange for separate set of labour with sufficient and satisfactory lighting arrangement for the night work. No extra payment whatever, in this respect will be made to the contractor.

43. TESTING OF QUALITIES OF MATERIALS & WORKMANSHIP :

All materials and workmanship shall be in accordance with the specifications laid down in the contract and the Engineer-In-Charge reserves the right to test, examine and measure the materials/workmanship direct at the place of manufacture, fabrication or ***at the site of works*** or any suitable place. The contractor shall provide such assistance, instrument machine, labour and materials as the Engineer-In-Charge may require for examining, measuring and testing the works and quality, weight or quantity of materials used and shall supply samples for testing as may be selected and required by the Engineer- In-Charge without any extra cost. Besides this, he will carry out tests from outside Laboratory as per instruction of Engineer-In-Charge. ***The cost of all such tests would be borne by the agency irrespective of Site Lab facilities with all equipment.***

44. TIMELY COMPLETION OF WORK:

All the supply and the work must have to be completed in all respects within the time specified in Notice Inviting Tender from the date of work order. Time for completion as specified in the tender shall be deemed to be the essence of the contract.

45. PROCUREMENT OF MATERIALS:

All materials required for complete execution of the work shall be supplied by the contractor after procurement from authorized and approved source.

46. REJECTION OF MATERIALS:

All materials brought to the site must be approved by the Engineer-In-Charge. Rejected materials must be removed by the Contractor from the site within 24 hours of the issue of order to that effect. In case of non-compliance of such order, the Engineer-In-Charge shall have the authority to cause such removal at the cost and expense of the contractor and the contractor shall not be entitled to claim for any loss or damage of that account.

47. IMPLIMENTS OF WORK IN ITEMS:

Except of such items as are included in the Specific Priced Schedule of probable items and approximate quantities no separate charges shall be paid for traffic control measures, shoring, shuttering, dewatering, curing etc. and the rates of respective items or works are to be deemed as inclusive of the same.

48. DAMAGED CEMENT:

Any cement lying at contractor's custody which is found at the time of use to have been damaged shall be rejected and must immediately be removed from the site by the contractor or disposed of as directed by Engineer-In-Charge at the costs and expenses of the contractor.

49. FORCE CLOSURE:

In case of force closure or abandonment of the works by the Department the contractor will be eligible to be paid for the finished work and reimbursement of expenses actually incurred but not for any losses.

50. TENDER'S RATE:

The contractor should note that the tender is strictly based on the rates quoted by the Contractor on the priced schedule of probable item of work. The quantities for various other items of works as shown in the priced schedule of probable items of works are based on the drawing and design prepared by the Department. If variations become necessary due to design consideration and as per actual site conditions, those have to be done by the contractor at the time of execution at the rate prescribed in the tender clause. No conditional rate will be allowed in any case.

51. DELAY DUE TO MODIFICATION OF DRAWING AND DESIGN:

The contractor shall not be entitled for any compensation for any loss suffered by him due to delays arising out of modification of the work due to non-delivery of the possession of site. The whole work will have to be executed as per Departmental drawings available in this connection at the tender rate.

52. ADDITIONAL CONDITIONS:

a) As per Finance (Taxation) Department of Income Tax Will be made from each bill of the contractor as per applicable rate in force.

b) Labour welfare Cess will be deducted @ 1(one) % of gross bill value as per rule. The Contractor will remain liable for following with West Bengal Contract Labour(Regulation & Abolition) Rules in force &necessary. Certificates from appropriate authority to be submitted within 7 (Seven) days from the date of the work order'

53. DEFECT LIABILITY PERIOD:

Full security Deposit should be refunded to the contractor on ***expiry of one year*** from one month after the actual date of completion of the work. If any defect/ damage is detected during this period as mentioned the Contractor shall make the same good at his own expense to the satisfaction of the Engineer-In-Charge or in default the Engineer-In-Charge may cause the same to be made good by other agency and deduct the cost (of which the certificate of the Engineer-In-Charge shall be final) from his security deposit or any sums that may be then, or at any time thereafter become due to the Contractor.

54. There shall be no provision of Arbitration. Hence clause 25 of the West Bengal Form No. 2911(ii) shall not be allowed vide memo no. 558/SPW dated 13.12.2011 of P.W.D Establishment Branch.

55. Cement Procure & Supply by the Contractor shall be of ordinary Portland cement 53 grade, 43 grade, conforming (IS 8112) or PPC/PSC the grade to be decided by the Engineer-In-Charge or as per instruction on specified in the approved drawing of this department or as stipulated in the departmental schedule of rates.

56. During opening of bid Managing Director may call open bid/ sealed bid after opening of the said bid to obtain the suitable rate further, if it is required. No objection in this respect will be entertained if raised by any bidder present or absent during opening of tender.

57. In case of any unscheduled holiday on the aforesaid dates [Sl. (v)], the next working day will be treated as schedule/ prescribed date for the same purpose.

58. No Adjustment of Price or Price Escalation of any kind will be allowed. Notification No. 23-CRC/2M-61/2008 dated 13.03.2009 & Notification No. 38-CRC/2M-61/2008 dated 20.04.2009 shall not be applicable for the job included in this NIT.

59. If more than one Bidder quoted same rate and which are found lowest at the time of opening, such similar multiple rates will not be entertained / accepted. Lowest offer will be ascertained by sealed bid amongst the lowest bidder.

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60. The Earnest Money may be forfeited if ;-

a) If the Bidder withdraws the Bid during the period of Bid validity.

b) In case of successful Bidder, if the Bidder fails to execute formal agreement within the stipulated time period.

c) During scrutiny, if it is come to the notice of tender inviting authority that the credential or any other document which were uploaded & digitally signed by the Bidder are incorrect / manufactured / fabricated.

61. All intending bidders should be appointed one Civil / Electrical Engineer during execution of work as the case may be.

(Dr. Gouri Shankar Koner)
Managing Director
W.B.L.D.C. Ltd

WEST BENGAL LIVESTOCK DEVELOPMENT CORPORATION LIMITED
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SCOPE OF WORK :

JOB: Upgradation of the Mother Dairy Calcutta (MDC) Plant at Dunkuni , Hooghly-712310, West Bengal for 2023-24.

Sr. No.	Description/ Head	Capacity/Size	Qty	UOM	Make
1.0	**Processing Equipment**				
1.01	Tri purpose Milk Separator with All standard Accessories	30 KLPH	1	Set	Gea Westfalia
1.02	Milk Homogenizer with All standard Accessories	20 KLPH	1	Set	Gea NIRO
1.03	Curd Cup Filling Line with All standard Accessories, outgoing conveyor, Inkjet printer and change over parts for 400g cup size	2400 Cup/Hr	1	Set	Samarpan
1.04	Powder Blending unit with Shear pump and SS 304 tab top	2 MT/Hr	1	Set	Fristam
1.05	SS pipes, valves and Fitting for the above Equipment	Suitable	1	Lot	Pipes: Rensa, Fittings: Alfa Laval
1.06	Utilities & Service Piping for the above Equipment	Suitable	1	Lot	Pipes: Tata Valves:Reputed
1.07	SS & MS Structural supports for above piping	Suitable	1	Lot	SS Square Box Pipes: Ratnmani MS: Tata/Jindal
1.08	Milk o Scan tester with 1 KVA UPS system for supply	Suitable	2	Set	FOSS
1.09	Double Chambered Vacuum packing Machine for Paneer	500 pac/Hr	4	Nos.	Indvac
1.10	Magnetic flow meter for milk line (76.2 mm)	40 KLPH	4	Nos.	Anderson Negle
1.11	High Speed packing machine for Curd packing	10,000 PPH	2	Nos.	RMC
1.12	High Speed packing machine for Milk packing	10,000 PPH	8	Nos.	RMC
1.13	Level Transmitter for Storage Silo	Suitable for 10	1	No.	Anderson Negle
1.14	SS control panel for Milk Pasteurizer with PID based controller and VFD starter for feed pump	20 KLPH & 30 KLPH	4	Nos.	Viking Automation

2.0	**Utility & Services**				
2.01	Steam Boiler (FO/Gas) with All standard Accessories, PRS (10.5 Kg to 3.5 Kg), Chimney with Accessories, HT header, Economizer, Ash Handing system, Fuel Feeding system, Bag Filter, RO water system etc	4 MT/Hour	2	Set	Balkrishna Boiler
2.02	DG set with Acoustic Insulation, AVR, Chimney and Other standard Accessories	800 KVA	2.0	Set	Cummins
3.0	**Erection & Commissioning**				
3.01	Erection & Commissioning of the above equipment including loading, unloading, positioning	Suitable	1.0	Job	

Sl no.	Scope of work	Approx Area	Unit
A)	**Civil Works:**		
1	**Processing Unit**		
	Renewing and repair old Plaster (to wall, floor, ceiling etc.),wall tiles ,makrana flooring work with existing floor polishing, MS work, ZN-AL sheeting, joint crack filling, waterproofing all complete including synthetic & acrylic interior paint with primer. complete	1500.00	SQM
2	**Lab**		
	Renewing and repair old Plaster (to wall, floor, ceiling etc.),wall tiles ,floor polishing, joint crack filling, waterproofing all complete including synthetic & acrylic paint all complete	200.00	SQM
3	**Card pouch filling machine Room**		
	Renewing and repair old Plaster (to wall, floor, ceiling etc.) including acrylic interior paint all complete	28.00	SQM
4	**Packaging room**		
	Renewing and repair old Plaster (to wall, floor, ceiling etc.) ,dismantling old AC machine and wall partition with glass and aluminium pannel, including acrylic painting all complete.	30.00	SQM
5	**Broiler room**		
	One no RCC base repairing.	1.00	Unit
6	**DG Room**		
	Repairing/Replacing asbestos sheet, louver window glass changing, MS work including painting all complete.	75.00	SQM
7.	Land Development	5000.00	SQM
8.	Boundary Wall	100.00	R.mtr
B)	**Electrical Works:**		
	Proper illumination at processing unit and Lab, DG Room, Packaging room, Card pouch filling machine room with extended plug points, cables as required. Installation of 2 nos 1.5 ton AC at Lab and 2 nos 2 ton AC at Packaging room.	1.00	Unit

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Technical Specification of various equipment:

1.0 Processing Equipment

1.01 Tri purpose Milk separator with all standard accessories

Capacity	: 30 KLPH
Qty	: As per above
Type	: Soft Stream system/bottom feed airtight separator with self-cleaning type disc bowl, automatic, periodic discharge of solids. Hydraulic control of the sliding piston. Direct drive (motor mounted on separator vertical shaft)
Material	: AISI 304
Feed System	: The hydro soft feed system ensures very gentle product handling without turbulences at low flow speed and low feed pressure leading to excellent product quality / as per OEM design.
Hydro hermetic Seal	: The feed system is hydraulically sealed and reliably prevents any air intake. It is designed without mechanical seals which would required increased service and additional cooling water / as per OEM design
Maximum Feed Pressure	: 1 bar
Dimensions	: Bidder to specify
Bowl Weight	Bidder to specify
Total Weight	: Bidder to specify
Installed motor power	: Bidder to specify
Drive	: Integrally mounted, 3 phase 415 V, 50 Hz. electrical motor direct driven (motor mounted directly on vertical shaft)
Shrouding	: Complete body and motor shall be shrouded in SS304.
Other	:

- Foundation Frame to be integrated in floor structure – 1 No.
- Set of tools for dismantling and assembling of bowl – 1 No.
- Set of spare parts for commissioning – 1 No.
- Sludge tank – 1 No.
- Booster Pump for operating water with pressure vessel and pressure switch for ensuring the operating water supply with a constant pressure independent from the water supply – 1 No.
- Special design with wear protection for milk containing abrasive components – 1 No.

Accessories :

1. Instruments (As per OEM), controls and fittings,
2. Control panel with VFD
3. Constant water pressure unit (hydro flow with 1W+1S pump)
4. Sludge discharge funnel (to be drained)
5. Silencer cum sludge collection tank with level switches
6. Sludge transfer pump

Control System :

1. MCC – Bidder to specify
2. Profinet connection – for transmission of signal exchange and operation parameters

Standard Components :

1. Pressure Sensor
2. Flow Indicator
3. Inductive flow meter
4. Flow Switch
5. Centrifugal Pump
6. Dosing Pumps
7. Product valve
8. Control valve
9. Frequency Converter

1.02 Milk Homogenizer with all standard accessorise

Capacity	: 20 KLPH
Qty	: 1 Set
Type	: The Homogenizer shall be of the multi-piston type
Material	: All parts in contact with the product are made of stainless steel (SS 316), Frame in CS with SS 304 cladding, the Compression block shall be made of a special high-strength stainless steel alloy and the pistons of ceramic material.
Finish	: 2B finish
Drive	: 415 V 50 Hz Electric motor

Working Pressure: The homogenizer is required to attend creaming index of less than 10 as per the international recognized testing method adopted by AMUL. The pressure shall be adjusted in two stages and the pressure adjustment shall be automatic through hydro pneumatic system and to have facility to adjust local control panel. New generation homogenization valves to be selected for highest possible energy efficiency.

Accessories	: Two stage Homogenizing arrangement with two homogenizing valves, pressure gauges with pressure switches for local control and indication. Provision for CIP and all other standard safety systems, in built strainers, pressure transmitting sensors for safety, flow dampener in suction and discharge line, bypass between suction and delivery of the homogenizer for preventing damage in case of accidental failure of any valves of discharge line etc. If any buffer tank or pump required for smooth operation of homogenizer, it shall be considered in the scope of supply.
Water conservation	: The jacket cooling water will be re-circulated through a buffer tank after chilling
Lubrication	: The Homogenizer shall be provided with a water cooling/ lubrication system with flow switch for the pistons, safety device, as well as local pressure gauge.
PLC	: All the control of homogenizer shall be done through dedicated PLC and touch screen OP.
Instrument	: Following instruments and valves to be considered for automatic operation of homogenizer

1. Suction pressure transmitter
2. 3-way bypass valve in suction as well as discharge
3. NRV for safety

4. Oil flow switch
5. Oil level switch
6. Seal water make up tank (size as per OEM) with low- & high-level switch
7. THE for-cooling seal water
8. Water flow switch
9. Homogenizer rpm meter (separate for actual speed measurement)
10. Filter in water circulation system to trap oil

Note:

The homogenizer should run uninterrupted during the production and CIP while separator goes in partial/full discharge. The arrangement should be such that the homogenizer should run uninterrupted even if separator is in circuit or not.

If required, a balance tank with LT, level switch, transfer pump and its logic shall be considered in the scope of supply.

NOTE:

Bidder must take the unconditional performance guarantee for creaming index as per relevant international standard of creaming index for market milk.

1.03 Curd cup filling line with all standard accessorise, out going conveyer, inkjet printer and change over parts for 100 gm and 400 gm cup size

Capacity : 2400 Cup/ hr
Qty : As per BOQ
Packing Size : 100g & 400g cup
Packing dia. : As per existing cup standard (80mm & 95 mm – to be confirmed before finalization of size)
Filling Accuracy : +/- 3 to 4 gram for both size
Type : Rotary

Dosing System : Piston filler

Other Specifications:

- Fully automatic, rotary indexing type machine for filling and sealing of pre-made stackable cups and tubs.
- Multi station machine with provision for dispensing from stack, filling of liquids, lid placing from stack, sealing and discharge of plastic containers (cups/tubs) as detailed below.
- The machine is capable of handling different sizes of containers and or different type of lidding foils by using of change parts which part of the tender
- Machine frame shall be in stainless steel
- Machine housing shall be with hygienically smooth and easy to clean SS external surfaces.
- Aesthetically designed front guards with interlock safety.
- Completely enclosed drive elements for protection from dust.
- Easy accessibility to the machine elements for servicing.
- Machine base with height adjustable leveling elements.
- Quick Clamp devices for tool less changeover of size parts.
- The rotary table is indexed through a precision cam indexer designed with effective acceleration / deceleration to handle liquids without spillage, driven by an AC geared motor lubricated for life in IP54 enclosure and controlled by Digital frequency controller. This is placed in a zone effectively isolated from product contact.

- Pneumatic equipment like Solenoid Valves, Pressure Regulators, Pneumatic Cylinders and Vacuum generators to perform various function based on sequence.
- SS rotary table for easy cleaning and hygiene control suitably mounted on precision bearing housing assembly and it is rigidly connected to the CAM indexer by a shaft.
- Standard stations are Cup dispenser, lid place, lid seal, & Cup discharge
- Electrically interlock to ensure No cup – No fill – No lid place – NO seal
- Machine shall be PLC operated with touch screen OP
- Changeover parts for to be included in the scope of supply.

Accessories :

1. 4 Line Inkjet printer for coding
2. Outgoing Conveyor
3. SS table at the end of line for collection of packed curd (4 x 3 feet)

For lassi/other semi solid fermented product packing, please consider the viscosity and select the filling mechanism accordingly to achieve the required filling accuracy.

1.04 Manual powder blending unit with shear pump and SS 304 Tab top

Capacity : 2 MT/Hr
Qty : 1 Set

The System shall be skid mounted with following major components.

1. Liquid Ring Pump
2. Shear Blender (only this will be allowed)
3. Powder Induction Funnel
4. Powder Control Valve
5. Liquid Control Valve
6. Internal Piping & Fitting
7. S. S. Skid for assembling all the above Parts

Technical Details of individual components are as follows.

a) Liquid Ring Pump.

Duty : It will draw the base milk out of the batch tank and will transfer it through a short pipe to the powder & will be of Sanitary Type.

Model No : Bidder to specify

kW/HP : Bidder to specify

Type : Sanitary, Monoblock, Self-Priming Centrifugal

MOC : SS 304

Accessories : Suitable rating motor with SS shroud & Base frame

b) Shear Blender

Duty : To blend powder coming from funnel and mix with liquid

Type : Sanitary with specially designed impeller to create high turbulence mixing zone at the suction

MOC : SS 304

Model : Bidder to specify

kW/HP : Bidder to specify

Accessories : SS sound absorbing shroud, Motor, Base frame etc.

c) Powder Induction Funnel.

Duty : To Dump Powder in the shear pump

Capacity : 50 Kg

MOC : SS 304

Thickness : 2.5 mm

d) Powder Control Valve

Duty : To regulate powder flow in the suction of Shear Pump

Type : Sanitary Manual Valve

MOC : SS 304

Size : 63 mm

e) Liquid Control Valve

Duty : To regulate Liquid flow in the suction of water ring Pump

Type : Sanitary Manual Valve

MOC : SS 304

Size : 51 mm

f) Internal Piping & Fitting

SMS standard fitting to connect water ring pump, shear pump, funnel etc.

All SS 304 with suitable size.

g) S. S. Skid for assembling all the above Parts

All above component shall be mounted on SS 304 skid of suitable size.

1.05 SS Pipes, valves and fitting for the above equipment

Capacity : Suitable

Qty : 1 Lot

Pipes:

Sizes	: As required
Type	: TIG welded; annealed and de-scaled tubes shall be manufactured as per the standard ASTM-A270.
Material	: AISI 304 / AISI 316 as per requirement
Finish	: Outer surface of the tubes shall be with dairy finish and inner surface should be pickled as per dairy standard
Thickness	: The average wall thickness of tubes should be 1.6 mm up to 76.2 mm OD and 2.0 mm for diameters above 76.2 mm OD.

SS 304 Fittings

Type	: SMS or quick opening tri-clover clamp type.
Thickness	: Thickness of fitting made from tube will not be less than 1.6 mm up to 76.2 mm dia. and will not be less than 2.0 mm for above 76.2 mm dia.
Unions	: Will be complete with liner, male nut, and gasket. Liner made of male parts will be suitable for expansion joints.
Pipe clamps	: Will be quick opening type

Supports required for pipes:

Size	: Square sections as required
Type	: Supported from walls, ceilings, and floors
Material	: AISI 304

SS Pneumatic mix proof and single Seat Valves

Qty	: 1 Lot
Type	: Pneumatically operated sanitary valves of mix-proof double seat type with independent seat lifting facility for CIP.
Application	: The Mix proof and single Seat Valves shall be provided for all valve batteries to ensure mixing free simultaneous product and CIP operation and flexibility in operation.
Material	: AISI 316
Gaskets	: EPDM
Features	: Housing should be ball shaped for the ideal flow characteristics to ensure 100% clean ability by CIP. Housing closed by cover plates should not create a sump or dead corners. The seals such as housing seals, stem seals and disc seals shall be flush mounted.

Position Sensing: Separate on and off proximity switches for open and close feedback.

Signaling : All the pneumatic valves shall have Asi bus connectivity

SS Actuated Butterfly Valves

Type : Sanitary Pneumatic butterfly valve with control cap and 24 DC connectivity
Qty : 1 Lot

Note: Utility actuated valves shall be with 24V DC hard wired connectivity

SS Manual Valves
Required number of valves to be finalized during detail engineering as per functional requirement & standard engineering practice.

a) Manual butterfly Valve: The butterfly valve shall be of sanitary design and all liquid contacting parts shall confirm to AISI 316. The valve sealing gasket shall be EPDM /Nitrile rubber material suitable for hot water sterilization temperature of 100 Deg. Celsius and hot acid and lye solution of 2% concentration at 85 Deg. Celsius. The valve shall be provided with SS handle.

The valve shall be with plain ends shall be suitable for direct welding on the pipes.

b) Non-Return Valve: The non-return valve shall be of sanitary design and all liquid contacting parts shall confirm to AISI 304. The valve sealing gasket shall be EPDM / Nitrile rubber material suitable for hot water sterilization temperature of 100 Deg. Celsius and hot acid and lye solution of 2% concentration at 85 Deg. Celsius. The non-return valve shall be with plain ends shall be suitable for direct welding on the pipes.

c) Unions: All the parts unless otherwise specified shall be made out of investment casting using AISI 304 material The union shall be complete with liner, male part, nut and sealing ring (neoprene food grade rubber gasket). The liner and male parts should be suitable for expansion joints. All the inside as well as outside surface of the union shall be with dairy finish.

d) Bend, Tee, Elbow: These fittings shall be made out of AISI 304 unless otherwise specified, process tube, TIG welded, annealed, de-scaled having outer surface mirror polished and inside pickled, manufactured as per ASTM A270. The thickness of the fittings made from the tube section should not be less than 1.6 mm up to 76 mm dia and should not be less than 2.0 mm for above 76 mm dia. The wall thickness at any point shall not vary more than 12.5% over and under from the average wall thickness specified.

Bends and elbows shall be free from wrinkles. Tee shall have uniform flaring on the branch connection. The ovality on the open ends shall be within the permissible limit specified in the ASTM A270.

1.06 Utilities & service Piping for the above equipment

Manual Utility Valves
Capacity : Suitable
Qty : 1 Lot
Type : Non- Sanitary

Make	: As per approved make list
Service	: Utility lines.
Working Pressure	: 5.0 bar (g)
Design Pressure	:8.0 bar (g)
Working Temp.	:1.5°C to 100°C
Class	: Non-IBR
Pressure Rating	:150 #
Body	:CI/Die cast Aluminium
Wetted Parts	:CI/ Die cast aluminium
Body Liner/Seat	: Nitrile rubber /AISI304
End Connections as required.	: Valve shall be sandwich between **GI** flanges or weldable end
Test Pressure	:15 bar (g).

Actuated Utility Valves

Capacity	: Suitable
Qty	: 1 Lot
Actuator	: SOV (24V DC operated)
Feedback	: On/off (separate) through proximity/limit switches

1.07 SS & MS structural supports for above piping

All supports inside the plant shall also be of SS-304 box section (2.5 mm thk. minimum).
Below mentioned areas are to be considered for SS-304 structural and fabrication work:

- SS304 structural supports for all product/ CIP/ Utility piping, cable trays/conduits etc. processing area

In addition to all above mentioned requirement required SS structural platform & supports shall be provided as per functional requirements of the plant operation and maintenance.

MS (GI) structures for outdoor pipe bridge, silo / tank platforms etc.

- MS 5mm thick chequered plate for the trenches shall be provided wherever required as covers, platform, partition etc.

In addition to all above mentioned requirement required GI/MS structural platform & supports shall be provided as per function requirement of the plant operation and maintenance.

1.08 Milk Scan tester with 1KVA UPS system for supply (FTR)

Capacity : As per above

Qty : As per above

Specifications

Area	Specification		
Included calibrations **Milk** **Cream** **Whey & whey permeate**	Fat, protein, total solids, solids non fat, lactose (incl. low lactose products), glucose, galactose, density, urea, titratable acidity, free fatty acids, casein, citric acid Fat, protein, lactose, total solids, solids non fat Fat, protein, lactose, total solids, solids non fat, titratable acidity		
Optional calibrations **Concentrated Whey & Permeate** **Concentrated & Fortified Milk Yoghurt & Fermented** **Desserts & Ice Cream**	Fat, protein, lactose, total solids, solids non fat, titratable acidity Fat, protein, lactose, total solids, solids non fat Fat, protein, lactose, total solids, solids non fat, glucose, fructose, sucrose, total sugars, lactic acid Fat, protein, lactose, total solids, solids non fat, glucose, fructose, sucrose, total sugars		
Freezing Point (FP)	Milk freezing point, cream freezing point (by applying conductivity sensor)		
***Untargeted models for adultera- tion screening (ASM Models)**	Calibration tool and ready to use abnormal milk screening models. ASM models for: Raw cow's milk, raw buffalo milk, processed milk		
***Targeted models for adulteration screening (TAM)**	Ammonium sulphate Cyanuric acid Formaldehyde Glucose Hydroxyproline Maltodextrin	Maltose Melamine Sodium bicarbonate Sodium carbonate Sodium chloride Sodium citrate	**Sodium nitrite** **Sorbitol Sucrose** **Added urea** **Added water** **Added fat indicator**
Calibration range	According to application note		
<1.0% CV (F, P, L, TS) (guaranteed) <0.8% CV (F, P, L, TS) (typical) <4.0 m°C (FP)			
Repeatability (milk)	<0.25% CV (F, P, L) <0.20% CV (TS) <1 m°C (FP)		
Transferability (milk)	<0.5% CV (F, P, L, TS)		
Carry over (milk and cream)	<0.5%		
Adjustment routine	Automated slope/intercept procedure		
Sample volume milk and cream	<8.0 mL		
Measurement time (milk)	30 seconds		

Sample temperature	5 - 55 °C (the sample must be homogeneous)		
Ambient temperature	10 - 35 °C		
Advanced flow system	Automatic zero setting and clean. Cleaning defined according to properties and auto-adjust to each specific sample		
Automatic humidity control	Protected automatic drying system		
Intelligent diagnostics	Built-in ID chips for wear-time logging, service history and troubleshooting		
Network connections	Bidder to submit		
Demineralised water quality	Bidder to submit		
Weight and dimensions (W x D x H)	Bidder to submit		

2.0 Utility & services

2.01 Steam Boiler (oil /Gas Fired) with all standards accessories, PRS (10.5 KG To 3.5 KG), Chimney with accessories, HT header, economizer, fuel feeding system, RO water system etc.

Capacity : As per above
Qty : As per above

PARAMETERS	TECHNICAL SPECIFICATION
METEROLOGICAL DATA	
Ambient Temp.	46 °C. Max. 8 °C. Min.
Design Temp.	25 °C.
Relative Humidity	95% Max. & 26% Min.
Wind Velocity	179 km / Hr. Max.
STEAM PRODUCTION	
Capacity	As per BOQ at F & A 100°C at Steam Pr. of 10.55 kg/cm2 at actual operating conditions
Design Pressure	10.55 kg/cm2
Safety Valve Set Pressure	10 & 10.5 kg/cm2
Operating Pressure	9.0 kg/cm2
Quality	Saturated 98.5 % dryness
BOILER SPECIFICATION	
Make	As per Make list
Type	Duel Fuel (NG & FO) 3 Pass Wet Back design
Design Mode	**IBR**
Type of mounting	Skid mounted
Tubes Thickness in mm	3.25 mm minimum
Tube Diameter in mm	50.8 mm minimum
Effective length in mm	Pl. Indicate
Foot Print of Boiler in mtrs	P.Indicate
Material of Construction	SA 515/516 Gr 70 / IS 2002 Gr II
Material of Construction	

Boiler Drum	
Shell Plate	SA 515/516 Gr 70
Tubes	BS 3059 ERW
Manhole/Hand hole	SA 515/516 Gr 70
Pipes	SA 106 Gr B
Furnace	
Plates	SA 515 / 516- 70
Header/Pipe	SA 106 Gr B
Tubes	BS 3059 ERW 320
Excess O2	For NG 2% Max. & for FO 4.0 to 4.5 % Max.
Efficiency of Boiler without heat recovery unit	**Thermal ɳ on NCV of NG/LDO 89%**
Efficiency of Boiler with heat recovery unit	**Thermal ɳ on NCV of NG 93%; FO 92%**
Chimney Outlet temperature	Approx. 130°C To 140°C
BURNER	
Type	Step-less Modulating, Mono-bloc ECR
Make	Supplier to specify
Burner Nozzle	OEM
Turn Down	1:5 on NG & 1:4 on FO.
Burner Modulation System	Step-less Modulation with O2 trimming (VFD based)
LP Gas train	VPS, Multibloc valve, etc to be part of burner
DETAILS OF F.O. SYSTEM	
Qty. of FO Pumps	As per OEM design (1W+1S)
Make of F.O. Pumps	AS per OEM
Motor	Eff. Class-1
VFD	As per Make list
Duplex Filter	Required
Oil Solenoid Coil	Required
Ignition Transformer	Required
Oil Back Pressure Regulating Valve	Required
Oil Gun	Required
Ring Main System	As per OEM design with 1 W+1S pump
DETAILS OF BOILER FEED WATER SYSTEM	
Feed Water Temp. at the inlet of Boiler	50 to 60°C
pH	Pl. Indicate
Conductivity	Pl. Indicate
Hardness	Pl. Indicate
Oil content	Pl. Indicate
Oxygen	Pl.Indicate
TDS	Pl.Indicate
Boiler Feed Water Pumps	Required for supply of Feed water from Existing Main Feed Water tank to Boiler through Pressurized Economizer
Qty	Two (1 W + 1 S)
Type	Single Element control with by-pass arrangement
Make	GRUNDFOS / Equivalent

Motor	TEFC , High Efficiency, Eff. Class-1
Interconnecting Piping between Pumps & Feed Check Valves	To be Provided
VFD	AS per Make List
PRESSURIZED ECONOMIZER (IBR)	
Type	**IBR approved Pressurized Heat Recovery Unit**
Flue Gas Qty.	Pl. Indicate
Flue gas inlet Temp. °C	Approx. 250°C
Flue gas outlet Temp. °C	Approx. 130-140°C for N.G. and 180°C (Min.) for FO
Feed water inlet Temp. °C	50-60°C Oxygen free
Feed water outlet Temp. °C	Pl. indicate
Pressure drop across economizer	Pl. Indicate
Drain Valve	Required
Vent valve	Required
Safety valve	Required
Inlet temperature indicator water side	Required
Outlet temperature indicator water side	Required
Inlet pressure indicator water side	Required
Outlet pressure indicator water side	Required
Bypass on Water Side with fittings with shut off valves	Required
Supply & Installation of interconnecting ducting from Boiler to Pressurized economizer & From economizer to chimney	Required
Bypass arrangement of pressurized economizer	Pl. indicate
DETAILS OF O2 TRIMMING SYSTEM	
Make of O2 Sensor	As per OEM
Accuracy of O2 Sensor	Supplier to specify
Make of Frequency Converter	Should be of reputed make
Boiler Efficiency Monitoring System & O2 Trim System with Touch Screen Panel	
1	Oxygen sensor for O2 trim on NG and FO
2	Steam Production data in kg/hr, Steam Totalizer etc.
3	Feed water consumption data in kg/hr and Water Totalizer
4	Fuel consumption data in kg/hr and Fuel Totalizer etc. (In N.G. and FO. both)
5	Oxygen % monitoring
6	Steam / Fuel Ratio
7	Boiler efficiency on NCV / Various losses data
8	Data of Steam Pressure, Feed Water Pressure, N.G. Pressure, FO Supply & Return Pressure, Flue Gas temp. in the stack etc.
9	Data of Steam Temp., Feed Water Temp., NG Temp. , Flue Gas Temp. in the stack etc.
10	Data of Boiler Blowdown Water TDS and TDS Totalizer
UTILITY DATA	

Electric Power	
Voltage	415 V +/- 10 % AC.
Frequency	50 Hz+/- 3%
Phase	3 Phase, 4 wire
Control Power	
Voltage	230 V +/- 10 % AC.
Frequency	50 Hz+/- 3%
Phase	Single, 2 wire
Fuel	
Type	NG and LDO
Pressure	Gas Pressure ≤ 2 bar
Temperature	30°C
Specification	N.G.: NCV- 8500 Kcal/SCM; GCV- 9500 Kcal/SCM
	F.O.: NCV-9650 Kcal./kg; GCV-10,200 Kcal/kg

1.0 Design Requirements

a. Boiler should be horizontal, shell type fully packaged 3- pass smoke tube design, automatically controlled, tested and proven under rigorous conditions and subject to the strictest quality control procedures.

b. The boiler should be of genuine three pass flue path. Flue gases should pass through the furnace (first pass) whereas second and thirds passes should be formed by nests of smoke tubes. At the end of the furnace the flue gas reverses into second pass tubes.

(i) The boiler shall be complete with all mountings, accessories, controls etc.

(ii) Boiler construction shall be in accordance with the latest revision of Indian Boiler Regulations 1950. All materials used shall be approved and tested as per relevant existing codes. All the welded joints shall be as per code requirement.

(iii) The boiler should be of modern compact design and be genuinely packaged design. The design source should confirm to international design. The boiler and the burner design must be preferably from the same source to ensure perfect matching of burner and boiler.

(iv) The fire tubes in the tubes nest should be plain without any restriction inside. These tubes should be easily accessible both from inside as well as outside for inspection and maintenance. These tubes are to be tightly expanded in the tube plate and seal welded. The required number of stay tubes and stay bars are to be fitted the boiler.

(v) All working parts of the boiler should be accessible for ease of inspection and maintenance. On the shell, one elliptical mandoor and on tube plate one mud hole must be provided. Access to the combustion chamber should be through bolted refractory lined access door whereas tube nest should be exposed through hinged mounted front door.

(vi) Boiler front door is lined with ceramic fiber blanket with SS sheeting on the tube side of the door.

(vii) The boiler mountings shall be as per the **Extent of Supply**.

(viii) The boiler shall be designed and constructed to generate steam at efficiency of 89% on net calorific valve (NCV) basis. Efficiency shall be demonstrated as per standard BS – 845 Part 1 Indirect method.

(ix) The insulated cylindrical shell of the boiler shall be housed in rectangular box shaped sheet metal cover frame. Therefore, the top of the boiler serves as platform and facilitates ease of movement for maintenance at elevation. A movable ladder shall be provided which can be moved as per convenience.

(x) Boiler and accessories shall be mounted on a single base frame. Individual systems such as feed water pump etc. may be on separate base plates welded to the boiler base frame.

(xi) The boiler shall not require any special foundation for the boiler and its mountings/fittings. It should be able to be mounted on simple PCC foundation.

c. **Gas Train**: This shall be suitable for handling the fuel specified. For NG, there shall be installed a high-pressure gas train which shall reduce the gas pressure from the available 1 - 2 barg to the pressure at which the gas is fired at the burner.

NOTE: Gas pipeline is running in site and supplier need to take tapping from it and fed it to gas train. Further distribution including flow meter, PRS, pipes, valves, safety valve, fitting as per safety norms and relevant IS code shall be responsibility of the supplier.

d. **Fuel oil system**: This shall be suitable for handling the fuel specified. Burner shall be mono-bloc type.
The burner and the boiler design shall be compatible with each other and it is recommended that both the burner and boiler manufacturer are the same.

The burner shall be of monoblock construction and directly mounted on the furnace of the boiler. In case of burner construction the burner shall have a hinged construction for easy maintenance ensuring reduced downtime.
The burner load regulation shall be electronic compound regulation consist of independent servo motor for air damper, an independent servo motor for oil regulation. Each motor shall be controlled through a central burner management system digitally. No Mechanical linkages should be provided to control air and fuel ratio.

1. Burner Sequence Control

Switching ON a burner does not result immediately in a flame. The burner starts in a sequence which can be described as under:
Initial Reference Position (closed damper position)

1. Prepurge (full damper positon)
2. Secondary flame check
3. Ignition
4. Solenoid valve open for Ignition load
5. Flame safety check
6. Burner firing increased to Partial load
7. Burner Modulation between Partial load and full load
8. Burner off on flame failure/load limit
9. Burner post-purge

All the above sequence is controlled by ICM (Intelligent Combustion Manager).
Additionally, it has inbuilt program for:

- Load Controller
- Gas Valve proving

ICM has plug in contacts to make the direct connections with all the valves, pressure switches, etc thereby eliminating intermediate wiring and terminal strips. ICM has inbuilt different operating sequences for different fuels i.e. Light oil, gas, dual fuel and also for different type of load regulation. The ICM controls all connected correcting element/Actuator i.e. Oil Regulator, Air damper through individual servomotors through digital signals. Each servomotor is driven by a highly accurate stepping motor. The stepping motor used have high accuracy of 0.1 degree on angle of drive shaft and now we can dispense with hysteresis compensation.

In case of Oil ICM drives two Actuators
They can be Actuators for

- Oil Regulator for Oil quantity adjustment
- Air Damper for Air Adjustment
- Online Oxygen trim and Speed control through VFD

All the operations and Diagnosis functions are displayed in clear legible text and can be loaded on to a PC.
In addition to the combustion control the following data should be logged.

- Date & Time
- Serial No.

- Selection of Fuel : type
- Burner Operating Phase
- i.e. ON/Off, Prepurge, Ignition, Flame ON, Burner Fault, Burner Lockout, Burner Limit etc
- Set Point & Actual Value
- Operating Load %
- Position of Actuators on Operating Load ie. (Air, Oil, etc)
- Fault/Lockout in Clear text English

It can store faults and lockouts in the History which can be retrieved for analysis.
In Addition, following is Displayed on IC

- Position of Frequency Convertor on Operating Load
- O2% online values for operating load (with and without O2 trim)
- Flue Gas temperature
- Stack losses
- Combustion Efficiency
- Fuel flow

2. O2 Trim in Oil Firing

The basic modulation of Air and Oil both is done through electronic compound regulation through independent servo-motors controlled by respective Intelligent Combustion Manager at respective firing rates. Combustion is mass principle. The Air to Fuel Ratio is impacted by changes in the air density (volume). The air density is impacted with respect to ambient temperature and altitude.
The changes in Air density results in a variance between SV (Set Value) and PV (Process Value) for excess air. Dampers are volume control devices which modulate opening area. To correct the variance, we adapt oxygen trimming and this is achieved through the speed control of the Variable Frequency Drive. The VFD achieves both correction of the variance and electrical power saving. Below is the range of change in Air Volume (Density) with respect to temperature. ICM uses the Stack Oxygen feedback to measure the variance between PV & SV and accordingly control the speed of Fan to compensate the variance. Step One is to control with Dampers and Step Two is to adjust for variance in Oxygen through Feedback. A combination of this is the ECR + O2 Trim control for Oil.

3. O2 Trim in Gas Firing

In Gas Firing we use Ratio Control (Ratiotronics) which a combination of Electronic and Pneumatic Control. The basic modulation of 'Air' is done through electronic compound regulation through an independent servo-motors controlled by Intelligent Combustion Manager at respective firing rates. The feedback of Oxygen Signal is used for pre-setting and modulating the air at various firing rates in the ICM. In Ratio-Control the Air Pressure Signal provides a feedback through a pneumatic arm to the Gas Ratio Controller.
The Air to Fuel Ratio is impacted by changes in the air density (volume). The air density impacted with respect to ambient temperature and altitude is auto corrected through the changes in air pressure (which is impacted by density and altitude variation). The change in Air Pressure is translated to the Gas Ratio Controller through via a pneumatic arm. Thus, O2 Trim for Gas Firing is done through Ratio Control. Ratio Control is the 3rd Generation Technology for modulation and it has advantages of linear control over non-linear in case of damper. The VFD is used for power savings only since Trim is done through Ratio-Control.

4. O2 Trim in Dual Fuel Burner

For O2 Trim in Dual Fuel Burners it is has both VFD for Oil and Ratio Control for Gas. O2 Trim shall be provided in the Burner with Oxygen Analyzer (Zirconia Based) & Variable Frequency Drive.

e. **Feed water System**: 2 nos. electrically driven vertical centrifugal multistage pumps with frame & motor with design temp of 120 deg C with all SS internals, interconnected pipework between pumps and feed check valves.

Feed water day tank shall be placed at an elevation of 3.5m approx. from finished floor level.

f. **Blowdown system**: Automatic Blowdown Control System based on conductivity principle with pneumatically actuated valve for efficient control of TDS level within the boiler shell. This system shall be installed in parallel to the manual blowdown valve.

g. **Boiler Efficiency Monitoring System**: Consisting of Steam Flow Meter, Oil Flow meter, Oxygen Analyzer, Auto Blowdown Control System, Temperature Transmitters and Computation Unit to compute the indirect efficiency of the Boiler.

h. **Controls**: The electro-mechanical control system shall be provided. The relay based control panel cum MCC shall be mounted on the same boiler frame.

(i) Interlocking of the feed water pumps and water level in the boiler.
(ii) Audio–visual alarm for danger level of water in the boiler and also for flame failure.
(iii) Programmer controller to ensure sequence of boiler start-up after ensuring required temperature and pressure of oil, air etc.
(iv) MCB's and contactors shall be provided for all electrical drives for the boiler.
(v) Pilot lamp to indicate operating status of the various equipment.
(vi) Complete internal wiring to ensure power supply at a single point on the panel.
(vii) Indicating lamps/ Audio alarm shall be provided for the following parameters -

- Low water level in the boiler
- Burner flame failure
- Feed water pumps failure
- Damper closed position

(viii) Pressure switch should be provided for burner interlock.

IMPORTATNT NOTE: Supplier must consider separate individual control panel for individual boiler.

i. **Pressurized Economizer**

Vendor shall offer Pressurized Economizer (IBR). complete with supporting structural; dampers (3 Nos including on Bypass); insulation & cladding. The Pressurized Economizer shall be designed for an inlet feed water temperature of 40 Deg C.

Offered economizer shall be MS finned tube type, with design fuel as NG.

j. **Feed Water Tank, 5 KL** : The feed water tank shall be with a capacity of 5000 lits. The feed water tank shall be manufactured as a horizontal rectangular tank with 6 mm thick plates. The feed water tank shall be complete with the following accessories.

a. Level Gauge
b. Atmospheric Deaerator Head with inlets for make-up water, flash steam and condensate.
c. Level Control System consisting of 3 level switches for high, low and extra low level of water.
d. Insulation & Cladding
e. Flow meter for water make up line to know the water consumption with communication to mail PLC.

k. **Day Oil Tank, 2 KL**: The oil tank shall be with a capacity of 2000 lits. The Oil tank shall be manufactured as a horizontal Rectangular tank with 6 mm thick plates. The Oil Tank shall be complete with all the necessary accessories like:

a. Level Gauge
b. Outflow Heater

c. Level Control System consisting of 3 level switches for high, low and extra low level of oil in the day tank.
d. Insulation & Cladding

l. **Boiler House Piping**: The following boiler house piping shall be delivered by the vendors.

(a) Feed Water Piping from the Feed Water Tank to the individual feed water pumps complete with inlet Isolation Valves – 2 Nos and Strainers – 2 Nos. Inclusive of Insulation & Cladding.
(b) Furnace Oil Piping from the Day Oil Tank to the Burner complete with Duplex Filter & Recirculation Header and return oil piping to Recirculation Header. The piping shall be complete with Insulation & Cladding.
(c) Steam Piping from Main Steam Stop Valve to the Main Steam Header complete with Insulation & Cladding.
(d) Safety Valve Exhaust Piping from the outlet of the Safety Valves to outside of the boiler house, complete with insulation & cladding.
(e) Blowdown piping from the outlet of the blowdown control system to the Blowdown pit.
(f) Drain Piping from the boiler drain points, drain from the feed water tank and the day oil tank shall also be delivered by the Vendor.

m. **Boiler House Electricals**: Complete with

(a) Power cables from the control panel to the various consumers
(b) Control cables from the panel to the various instruments
(c) Utility Panel from mounting the Efficiency Monitoring Panel
(d) Cable trays & Accessories as required.

n. **MS Self Supported Chimney** : Designed as per IS 6533 with suitable height. The chimney shall be designed for a boiler capacity of 3.5 TPH. The corrosion allowance to be considered shall be 1.5 mm and shall be complete with

(a) Aviation Lamps
(b) Lightening Arrestor
(c) Earthing Strips
(d) Inlet for ducting coming from boiler
(e) Ladder & Platforms at suitable heights
(f) Insulation & cladding of the Bottom 2 meters

o. **Flue Gas Ducting** : from boiler to Chimney complete with expansion bellows, insulation & cladding.

Extent of Supply

The package boilers for specified duty shall be supplied complete with all accessories in all respects, but not limited, to the following, within vendor's battery limit.

- Oil fired package boiler complete with all accessories as specified such as fuel oil system, FD fan, oil heating system, boiler mountings, motors, starters, etc. Foundation bolts for all items to be supplied.

- Two feed water pumps of adequate capacity and rating complete with motor, starters etc.

- All necessary instrumentation complete with pre-wired control panel

- Inter connecting piping, fittings etc.

- Inter connected power & control wiring and instrument tubing etc.

- Items required for installation, commissioning & start up of boiler

The following items, but not limited to those mentioned, shall be supplied with the boiler.

Pressure Parts

a.	Boiler Shell	1 no.
b.	Tube Plates	2 nos.
c.	Furnace Flue	1 no.
d.	Combustion Chamber	1 no.
e.	Boiler Tubes	2 lots
f.	Stays (Tubes, Bars, Gussets)	1 lot
g.	Mud door on tube plate	1 no.
h.	Man door	1 no.
i.	Stand Pipes for Stop, Feed check, Safety and Blowdown Valves	1 lot
j.	Stand pipes for gauge glass and level controller	1 lot

General Construction Parts

a.	Front casing with hinged door	1 no.
b.	Rear casing with removable doors, Flue outlet flange	2 lot.
c.	Insulation and sheeting for boiler shell	1 lot.
d.	Refractory for front & rear access doors with support base frame. Refractory for furnace ring / burner ring	1 lot.

Accessories

a.	Oil firing equipment	Pressure jet, automatic, with necessary valves, fittings & mountings – 1 set
b.	Oil pump with drive motor	1 no.
c.	FD fan with drive motor	1 no.
d.	Electric pre-heater	1 no.
e.	Multistage feed pumps with motors	2 nos.

5. Mounting & Fittings

a.	Main steam stop valve	1 no.
b.	Safety valve	2 nos. (with each capable of 50% venting capacity)
c.	Feed check valve	2 nos.
d.	Auxillary valve	1 no.
e.	Blowdown valve with Automatic Blowdown Control System	1 no.
f.	Isolating valve for water level controllers	2 nos.
g.	Isolating valve for pressure switches and pressure gauge	2 nos.
h.	Drain valve for water level controller	2 nos.
l.	Sight glass assembly	1 set

6. Instrumentation

a.	Water level controllers	2 nos.	for feed pump operation and low water level alarm
b.	Over-ride controller	1 no.	for lockout under extra low water level alarm
c.	Steam pressure gauge with cock	1 no.	For display of boiler steam pressure
d.	Water level gauge assembly	2 nos.	For display of water level in the boiler
c.	Switch gears, relays, connectors	1 set	For individual controls of equipment through control panel
d.	Audio / visual alarm	1 set	In case of unsafe operation for lockout under extreme conditions
e.	Pressure and temp gauge with thermostat	1 set	for burner operation
f.	Control panel	1 no.	For housing above instruments and switchgears
g.	Steam to fuel ratio monitoring system	1 no.	To monitor and display the boiler efficiency on-line, using necessary meters, instrumentation and hardware.

7. Controls & Safeties

a.	Oil temperature indicator	1 no.	Local cum panel mounted to indicate oil temperature
b.	Pressure switch	2/3 nos.	For firing positions of burner
c.	Photo resistant cell	1 no.	Flame failure and audio visual alarm
d.	Temperature controller	1 no.	To control oil temperatures in burner heater before nozzle with audio visual alarm and burner trip
e.	Sequence controller	1 no.	To control sequence of firing, pre-purging etc.
f.	Modulating mechanism	1 no.	Stepped / Three stage modulation
g.	Low oil pressure switch	1 no.	To trip burner with audio visual alarm
h.	Level controller	2 nos.	To regulate feed water pump operation and trip burner in case of very low level with audio visual alarm.

8. Safety Interlocks

Unsafe condition	**9. Instrument**	**10. Action**
High water level	Level controller No. 1	Feed water pump trip.
Low water level	Level controller No. 1	Alarm & Burner Shut down
Extra low water level	Level Controller No. 2 (Overriding controller)	Alarm & lock-out
Flame failure	Photocell	Alarm & burner trip
Boiler high pressure	Safety valves	Lift & discharge

11. Piping

Feed water : Feedwater piping from tank to boiler
Oil : Oil Piping from oil tank to burner.
Drain : Interconnecting drain piping within battery limits

12. Electricals

The control panel must be a part and parcel of boiler/boiler package. It should contain all necessary switchgears, safety alarms/interlocks and burner management system and is to be mounted on the boiler itself eliminating any cabling requirement at site.

Boiler should be complete with all necessary electrical cabling from the control panel till burner / FW pumps etc. Power cables shall be 1100 V grade, PVC insulated & PVC overall sheathed. Control cables shall be multi-strand copper conductors of minimum 2.5 sq.mm. All motors shall conform to squirrel cage induction motors, TEFC, IP-55, class 'F' insulation.

13. MCC Cum Control Panel

A MCC cum control panel, complete with main isolator switch, starters, auxiliary contactors, relays, fuses, rotary switches, indicating lamps, isolator, hooters with programmer and combustion safety relay. The panel should be completely pre wired and factory tested. It should be mounted on the boiler itself and shall not require any separate foundation.

NOTE: Panel AC to be considered for Boiler control section of MCC for better working temp and safety of PLC and other electronic components

14. Insulation & Cladding

The boiler should be completely insulated in the factory itself and there should not be any site work involved for insulation and electrical cabling. The cylindrical shell of boiler must be insulated with glass wool / Rock wool mattresses of desired thickness and should be housed in a box shaped CRCA covered frame giving the boiler a provides neat appearance and also reducing heat loss due to the air gap between insulated shell and outer sheet metal cover. The top plate of the box should be designed to provide working platform for maintenance.

15. Refractory

Suitable refractory material is provided for all required parts as follows:

Front door	:	Ceramic fiber blanket with SS sheeting
Rear door	:	Hysil blocks with Kynex HG / Insulyte 7
Furnace ring / burner ring	:	Hysil blocks with Insulyte 7

16. Services

The following services shall be provided by the OEM

- Supervision of Erection & Commissioning
- Erection and commissioning
- IBR Approval of Boiler upto Provisional Firing Order.

17. Inspection & Approvals

The boiler shall be subject to inspection and testing in accordance with latest IBR codes.

Boiler fabrication shall be subject to inspection & testing in accordance with latest revision IBR. Manufacturer shall ensure that the boiler meet the requirements of the Inspectorate of boilers.

Simulation test of boiler control panel shall be carried out in presence of customer's representative at the place of manufacture before delivery.

Boiler/ piping shall be hydro-tested at works.

18. Makes

1.	Boiler	Forbes Marshall, Thermax
2.	Feed Water Pump	Wilo, Grundfoss
3.	Fuel oil pump	Neels – Entees, Suntec
4.	Burner	Forbes Marshall / Imported
5.	Blower	Burner manufacturer's standard
6.	Sequence controller	Burner manufacturer's standard
7.	Photocell	Burner manufacturer's standard
8.	Motors	Siemens / OEM Standard
9.	Main steam stop valve & Mobrey Isolation valve	Forbes Marshall, BDK, Uniklinger
10.	Steam & Water Valves	Forbes Marshall, Uniklinger, BDK
11.	Non-Return valve	Forbes Marshall / L&T / Thermax
12.	Safety valve	Forbes Marshall/ Thermax
13.	Blow down valve	Levcon / Forbes Marshall / Thermax
14.	Level indicator	Techtrol / Forbes Marshall / Thermax
15.	Level controller	Malhotra
16.	Pressure switches	Danfoss
17.	Pressure gauges	Reputed
18.	Steam flow meter	E & H /Equivalent
19.	Automatic Blowdown Control System	As per OEM
20.	Electrical Switch Gears	L&T / Siemens
21.	Cables	Polycab
22.	MCB	L&T / Siemens
23.	CEMS (PCB monitoring system)	Forbes Marshall / Thermax
24.	Efficiency monitoring system	Forbes Marshall / Thermax
25.	Gas flow meter	E & H /Equivalent
26.	Oil flow meter	E & H /Equivalent

19. FO pipes, valves & Fittings

Capacity : As per BOQ
Qty : As per BOQ
Type : MS with hot insulation and heat tracing

In addition to boiler house FO lines, following but not limited to FO piping to be considered;

- FO line from FO storage tank to FO day oil tank
- FO line from day oil tank to FO ring main system
- FO ring main system to burner

20. Pressure Reduction Station

Capacity : 3000 Kg/Hr (minimum)
Type : Automatic, roboter type
Duty : To reduce the pressure from 10.5 – 7 Bar or as per OEM requirement of HP steam pressure

Accessories : Isolation valve on both side, bypass valve, safety valve, Steam trap, insulation and all other accessories as per relevant IBR norms

21. Steam Pipes, Valves & Fittings with Insulation

General : Pipe sizes and fittings etc. are to be decided as per requirement.

Quantity :1 lot

Insulation : Glass wool of specified thickness covered with GI wire netting generally
Insulation shall be covered with aluminium cladding

Thickness : As per relevant IS standard

The piping and insulation shall be generally as per IS standard specifications.

2.02 DG set with acoustic insulation, AVR, chimney and other standard accessories- AMF panel not required

It is proposed to provide the standby power for carrying out essential operation in case of power failure. The DG set as per the quantity and capacity.The DG will be selected for continuous duty operation of in. 8 hours. The facility shall be self-contained, and it should be possible to hook up the power supply into the power control center. The Bidder should ensure that the DG supply is connected to the essential feeders provided on the PCC. The division on essential and non-essential load distribution on the PCC with isolation breaker will be the responsibility of the Bidder.

Type : Air cooled DG set in acoustic enclose complete with silencer and chimney

Construction : Standard packaged unit
Duty : 430 V ac

capacity : As per BOQ

QTY : As per BOQ

Instrumentation & Control: Standard as per the IE rules

Rating: The capacity mentioned in the BOQ is KVA electrical

Note:
a. control panel with suitable rating ACB to be considered
Diesel charging system to be included in the scope of supply

3.0 Erection & Commissioning

3.01 Erection & Commissioning of the above equipment including loading, unloading, positioning

The scope of E & C includes unloading at site, unpacking, shifting, positioning, erection, testing, and commissioning of all above items/equipment) including the following;

A. The bidder must carry out the complete erection, testing and commissioning of the Equipment in the scope as per BOQ on turnkey basis.

B. The works shall be carried in the best workman like manner in conformity to the relevant codes of practices of BIS or international standards applicable for Dairy Process, mechanical and electrical installations.

C. While unloading the equipment, Erection, testing, and commissioning of Milk processing and utility machinery all the safeties related to men, machinery and material shall be in the scope of the contractor hence every care must be taken along with necessary insurance coverage till the handing over of the machineries in working conditions to the Banglar Dairy.

D. The erection works including the following.

- Shifting of equipment from the unloaded place, decorating, aligning, fixing to foundations, placing on foundation,
- Connecting to the pipelines of product and utilities and installation of piping.
- Connecting to the electrical power Control Centre, MCC, Power cables, control cables with proper termination and providing of Communication cables, etc. and preparation of single line Diagram etc is part of this job.
- Starting and commissioning and trail runs.

E. Bidder/Supplier shall arrange and demonstrate the commissioning & performance trial runs of the entire plant as per the technical rated parameters offered in the technical proposals.

F. During Testing and trial period, necessary operating guidelines and practices should be explained to the operating personnel and shall be trained accordingly.

G. Training of the personnel of Dairy at different stages of assembling, installation and operations etc. should be provided. Service Engineer/key person shall stay for minimum 30 days for assistance and train the dairy personnel in running of the plant (after product trials are over).

4.0 Additional Items

4.01 Vacuum packing machine for paneer (for 200 std.)

Capacity	: As per BOQ
Qty	: As per BOQ
Paneer Block Size	: 10 – 12 kg block
Paneer cutting size	: 100 gm – 55 x 81 x 22 mm, 200 gm – 110 x 81 x 22 mm 500 gm – 110 x 81 x 52 mm

(Size to be finalized during detailing and shall be as per AMUL standard)

Frame	: S.S. 304 Square tubing
Covering	: S.S. 304
Blade Frame	: S.S. Square bar grade 304 fabricated
Blade	: S.S.
Pushers	: UHMW
Actuator	: SMC Electrical Actuator
Pneumatic pressure	: 5 kg/cm^2 (min.)
Pneumatic Fitting	: Rotex Type
Cleaning	: Air Gun Provided

Doors : Poly carbonate
Electrical Panel :

1. PLC : Delta
2. MCB : Siemens make
3. Push Button

Paneer Block is placed in first zone. The Electrical Actuator operated to push the Paneer block by indexing the required sizes towards the slicing blade. The slicing blade operated vertically by pneumatic cylinder slices the advanced paneer. The operations are interlocked by proximity sensors. All blades and structural frames are of S.S. 304. Poly carbonate doors are provided for visibility for cutting material. Cleaning system provided with the machine.

4.02 Flow meter (Electromagnetic)

Quantity : As par BOQ

Magnetic flow meters shall be considered with Hard wired communication (4-20 mA, 24 V DC) through local junction box to PLC RIO panel. The flow tube material shall be of AISI 304 with PTFE lining. The electrode material shall be either SS 316L or Hastelloy depending upon process condition. In general, SMS type process connection may be used for magnetic flow meters.

Accuracy of magnetic flow meter shall be plus or minus 0.5% of flow rate or better.
Local digital flow rate as well as totalizer display shall be provided.
Earth ring of SS 316 shall be provided for proper grounding of mag flow meter.

4.03 Pouch filling machine for doi – Mechanical controlled with inbuilt printing system

Capacity : As per BOQ

Qty : As per BOQ

PRODUCT	Milk or any other free flowing liquid
MACHINE CONTROL	PLC controlled with servo mechanism & Touch screen Operating panel
FEEDING SYSTEM	Gravity Filler
DOSAGE	Up to 1000 ml.
ACCURACY	WEIGHT VARIATION: ± 0.2%. under ideal Working condition. BAG LENGTH VARIATION:± 1 mm.
SPEED (min)	5000 pouches / hour / head. (500 G) 10,000 pouches / hour / machine (500 G)

PACKING MATERIAL	Virgin Film: Any Impulse sealing material like co-ex LDPE 1) Film Width - 321 mm ⍰ 2mm 2) Thickness: 42-47 micron 3) Maximum weight of film rolls 75 Kg (in built without external attachment) 4) Film Roll dia. – 300 mm. Core dia. 76 mm
TYPE OF SEAL	Vertical –Overlap Horizontal – Seal & Cut Impulse Type. Leakage rate: < 2000 Part Per Million.
SUPPLIES TO THE MACHINE	**A) Electrical** 1Power Supply: Bidder to specify. 2. Connected Load: Bidder to specify 3. Power Consumption (in kWh): Bidder to specify 4. Electrical connection cable size: Bidder to specify **B) Cooling Water**: Pressure- Bidder to Specify Flow Rate- Bidder to specify Temperature: Bidder to Specify **C) Utility for Actuation of Injection System:** Electromagnetic coil actuation system the movement of the same is regulated by electromechanical device with MMI display.
DESCRIPTION OF THE MACHINE BODY	The components, which form, fill seal the pouches/sachets are enclosed in a stainless-steel cabinet. All major items are of stainless steel or treated with Aluminium protected by a weatherproof paint. All parts in contact with the product are of AISI-304 stainless steel with smooth finish.
SPOOL BEARER ASSEMBLY	The Roll of heat sealable films are mounted in a compartment at the rear bottom of the machine. They are supported on the idler rollers in sliding drawers with bottom opening machine cabinet doors, which enables to charge the rolls quickly. The Film layers passes in each head via different idler rollers, film loosening takes place through positive film unwinding AC drive mechanism and moves in front of the ultraviolet sterilization tube before it is engaged in the forming device. The specially designed former converts this layer into a tube.
VERTICAL SEAL	The film is overlapped and sealed into a tube on each head by impulse heated elements known as vertical electrodes. The sealing jaws are water-cooled and are mechanically operated by link mechanism through the drive shaft. The formed film tube surrounds the injection or filling tube through which the products to be filled flows in the film tube.

INJECTION SYSTEM	The filling system is as follows: ▪ A constant level tank is mounted on top of the machine ▪ A filling tube leading down from the tank and inside tube of film ▪ A liquid injection electromagnetic coil is mounted on top of the injection tube ▪ A gate at the lower end of the injection tube opens when injection switch is turned ON. This allows the liquid to be packed in the surrounding formed film tube. The gate opens by electromagnetic coil actuation system of the piston in the injection cylinder assembly when injection switch is made ON.
FILM FEED	Rubber nip rollers below each vertical sealer control downward movement of the film tube. Vertical overlapped sealed film tube is pulled down by nip rollers coupled with clutch and brake unit through drive shaft. The length of the film tube pulled down is controlled by PLC.
HORIZONTAL SEALING AND CUTTING	The sealed tube then arrives at the bag making point. Here when the horizontal presses close on the film tube, the horizontal assembly mounted on one of the presses seals and cuts the horizontal portion of the film tube. The horizontal jaw simultaneously seals the upper horizontal sealed band of the lower filled pouch and the lower horizontal sealed band of the upper film tube. The other horizontal press on which there is only silicon back up rubber and a Teflon magazine is called a counter electrode.
COOLING	Both horizontal and vertical electrode holders should be water-cooled
CODING MECHANISM	a. Heat embossing coding device with9 characters b. TTO printer for each head
PHOTOCELL REGISTRATION SYSTEM **SPARES** **MANUALS**	It should be working properly while photo mark film is used. Sensors make: P& F, OMRON, Banner Set of critical spares related to two years of operation. A) Manufacturer/bidder's Guarantee certificate. B) Four copies of certificate of Insurance. C) Four copies of the list of all spares related to machine with its part number. D) Critical spare list along with model number, part number and make. E) Four Copies of user Manual.

Salient Feature:

- Automation equipped with PLC & HMI
- Simple maintenance friendly construction
- Servo Motor Controlled Bag Pulling Mechanism

- Independent head operation allowing flexibility
- Hygienic machine design. MOC of product contact parts from stainless steel SS 304
- Servo driven impulse sealing mechanism
- Motorized mechanical filling system for consistent fill accuracy through programmer and ease of change over
- UV film sterilization system for packaging material in back as well as front side with door interlocking
- Motorized/manual web tracking system
- Jumbo reel trolley with hygienic enclosure
- End of film roll facility with interlock of machine to parking mode
- Motorized film reel unwinding control mechanism
- Heating element failure linked alarm generation
- Electrical system of respective head/ track housed in separator cabinet
- Maintenance friendly horizontal & vertical seal mechanism
- Lubrication free design of the machine
- Automatic homing of Horizontal jaw position at power on
- Independent balance tanks offering flexibility to handle different products simultaneously
- Vertical and horizontal jaw sealing temperature to be optimized through programmed PLC

Features required in high-speed Machine

- There shall be equal distribution of electrical load on all 3 phases to avoid any interruption during DG set operation
- Isolation switch is required for cut off machine from mains
- LED light (8/10W) to be provided in place of PL tube light
- Machine body should be SS 304 construction. As well as all contact parts are of SS 304.
- Machine Operations should be electronically controlled with PLC
- Digital Setting Control for all Setting Timings
- Individual Head operation
- Positive unwinding for each Head
- Rooftop with SS.
- Provision to run different bag size.
- Separate Control for Seal voltage & timer for handling different film.
- Provision of Jaw close switch.
- Adjustable cooling time.
- Electrical control circuit shall be with 24 V DC.
- Bank of UV tube for Sterilization of film with interlock for stoppage
- SS Nozzle for CIP system
- Toughened Door glass
- SS Legs with height adjustment.
- No Milk No fill with indication and alarm.
- Front and back door safety interlocks.
- Solenoid valve control for jaw cooling water control with start/stop of machine.

- SS pipeline with suitable diameter for Jaw cooling. No water line in backside of machine.
- End of the roll detection system to be supported on insulated bush to prevent earth fault in PLC and other electronic parts
- Friction free forming tube shoulders to be provided to ensure minimum wear and tear of the forming tube
- Locking arrangement to be provided for maximum height of the injection rod
- Film roll stand to be provided with extra length to easily slide the new roll inside the machine
- Chequred plate stands to be provided in the space available between two films roll for maintenance purpose
- During CIP, the injection rod should be in fully open position for 100% flow (i.e., 1 liter mode)
- CIP hose for each machine to be supplied
- TTO printer for each head each machine to be considered in the scope of supply.

4.04 Pouch filling machine for milk- Mechanical controlled with inbuilt printing system (Inject printer)

Capacity : As per BOQ

Qty : As per BOQ

All other specifications shall be same as per the item no: 4.03

4.05 Level Transmitter with display in process section

Capacity : to suit the existing silo

Qty : As per BOQ

Hydrostatic Level transmitter
Material wetted parts: 316L; Ra =< 0,64 µm
Output: 4...20 mA
Supply: 18...36 V DC ,Process temp.: -18...110°C (0...230 F)
Span Range of Stem :-- 0 to 0.4 Bar and 0 to 2 Bar. Electrical connection – M12 connection with IP 69K

Display: Separate SS 304 panel mounted display to be considered in the scope

Note:

a. 24 DC supply required for the above level transmitter to be considered in the scope.
b. If LT mounting arrangement in not available in the storage tank, the same shall be carried out and to be considered in the scope.

4.06 20KL/ 30KL pasteurizer control panel with PID

Capacity : Suitable
Qty : As per BOQ

MOC : SS 304

****

NIT No: WBARD/WBLDC/NIT-BD-001/2023-24 **Date of Issue: 05/04/2023**

The panel shall be installed in the process hall and shall have the following but not limited to component:

1. Main incomer with suitable rating MCCB
2. VFD for Balance tank feed pump
3. DOL starter for hot water pump
4. Temp. Transmitter (including sensor) with display on the panel for inlet, R2,R1, Heating, Chilling section
5. PID controller for hot water/steam controller for existing pasteurizer.
6. FDV selector switch
7. Power supply as per requirement for above instrument
8. Internal power and control wiring
9. SS structure for installation
10. Cable entry/Exit shall be from bottom.
11. Any other accessories for complete system

(Dr. Gouri Shankar Koner)
Managing Director
W.B.L.D.C.Ltd.

APPLICATION FORMAT
(FORM – I)

(To be furnished in the Company's Official Letter Head Pad with full Address with Contact No., Telephone No., FAX No., e-mail address, Website etc.)

To
Managing Director
West Bengal Livestock Development
Corporation Limited,
LB-2, Sector-III, Salt Lake City,
Kolkata – 700 106.

Sub: "*e* -Tender on **Upgradation of the Mother Dairy Calcutta (MDC) Plant at Dunkuni , Hooghly-712310, West Bengal for 2023-24".**

Ref: NIT No: WBARD/WBLDC/NIT-BD-001/2023-24 Date of Issue: 05/04/2023

Dear Sir,

With reference to your NIT under reference, I am/we are furnishing my/our rates tendered for as per your specification, terms & conditions.

Should this tender be accepted, the work shall be completed within stipulated period from the date of work order.

I/We further declare that I/we have inspected the site and are fully conversant with all aspects of the site and appraised the condition of the site in regards to the execution of this contract.

I / We understand that: -

a) Tender Inviting and Accepting Authority can amend the scope & value of the contract bid under this NIT.
b) Tender Inviting and Accepting Authority reserve the right to reject any tender without assigning any reason.

I/We also agree that the decision of the Managing Director, West Bengal Livestock Development Corporation Ltd. in all matters in respect of this tender will be final & binding on me.

Yours faithfully,

Date: Signature & office seal:

Name of the Firm:

Address with PIN:

DECLARATION BY THE TENDERER
(FORM-II)

(To be uploaded under Company letter head with full address, phone no., mail id etc., duly signed & sealed)

I/We have inspected the site of work and have made myself/ourselves fully acquainted with local conditions in and around the site of work. I /We have carefully gone through the Notice Inviting e-Tender and other tender documents mentioned therein along with the drawing attached if any. I/We have also carefully gone through the 'Priced schedule of Probable Items and Quantities'.

I/We must have *executed MOU with a licensed electrical contractor having supervisor SCC relevant parts, readily present at work site during the execution of electrical works after accepting the Award of Contract (AOC)*

My/Our tender is offered taking due consideration of all factors regarding the local site conditions stated in this Detailed Notice Inviting e-Tender to complete the proposed construction as per drawings referred to above in all respects.

I/We promise to abide by all the stipulations of the contract documents and to carry out and complete the work to the full satisfaction of the Engineer-In-Charge.

I/We also agree to procure tools and plants, at my/our own cost required for the work.

Signature & Seal of the Bidder
with Date

Certificate from Chartered Firm

(To be furnished in the Chartered Firm Official Letter Head Pad with full Address with Contact No., Telephone No., FAX No., e-mail address, Website etc.)

(FORM – III)

This is to certify that I/We have examined the audited Balance Sheet & P/L accounts and other records of M/S ..... having its official address at ..... It is also certified that Annual Turnover of the firm for the Financial years 2020-21, 2021-2022 & 2022-2023 are Rs.....lakh.,Rs.....lakh. & Rs.....lakh respectively (as per P/L accounts & Balance Sheet of the firm submitted)

Signature of the Chartered Firm with Registration No

Countersigned

Signature of the authorized signatory (bidder)

Affidavit Proforma

(On Non Judicial Paper worth Rs. 100/-)

(FORM – IV)

(Sworn before the Notary Public / Judicial Magistrate/Executive Magistrate on or after the date of publication of the Quotation Notice)

I, Sri/Smt. …… the Managing Director/Proprietor (etc.) of the Firm. ,…… (Name of the firm)

At (address)……..…

P.O… ……

P.S……Dist……

do hereby solemnly affirm and declare as follows:

1. That I have not ever been convicted of any offence making myself liable to be disqualified for any work of Govt. or Govt. undertaking Organization /Institution in the State of West Bengal or other State or States.

2. That no case is pending against me or against my firm in any criminal court of law in the State of West Bengal or other State or States .

3. That my firm is not debarred/blacklisted as a whole or part thereof at present by any Govt. or Govt. undertaking Organization / Institution in the State of West Bengal or other State or States of India.

4. That, I also declare that if any information subsequently found incorrect or false will it automatically render the quotation submitted by me cancelled and make me liable for penal/legal action as per law of the country.

5. That I do further affirm that the statements made by me in this quotation are true to the best of my knowledge and belief and all the documents attached are genuine & correct.

Signature of the Deponent(s).

Name in Block letters :

Designation :

(FORM-V)

(To be furnished in the Official Letter Head of Firm/Bidder with full Address with Contact No., Telephone No., FAX No., e-mail address, Website etc.)

WORKING (CREDENTIAL) DETAIL (Mandatory)

1. Name of Applicant:

2. List of similar type of work completed / ongoing:

Name of Employer	Name, location and nature of work	Reference of Work Order (Memo. No. and Date)	Contract Value	Date of Start of Work	Present Status (If completed, please mention date of completion

Note :Copy of Work Order or Completion Certificate from the employer to be attached.

Signature of applicant including title and capacity in which applicant is made

CHECK LIST (FORM – VI)

Information about Bidders under Company Letter-Head (To be uploaded with the Technical Bid)

Sl.	Description	Particulars
1	Name of the Firm	
2	Registered Address with PIN, Phone No, Fax No. E-mail address etc. Sole owner or Partnership Firm/Company	
3	Name of the Person authorized to enter into & execute contractual agreement	
4	Earnest Money Transaction slip, whether uploaded, if not, Exemption Certificate to be uploaded	
5	Application Form as per FORM-I whether uploaded.	
6	Self-declaration as per FORM-II whether uploaded.	
7	Original PAN Card whether uploaded.	
8	Original Prof. Tax Clearance Cert./Paid Challan (valid up to 31/10/2021) whether uploaded	
9	Original GST registration Certificate whether uploaded.	
10	IT returns of **2022 – 2023 Financial year** whether uploaded.	
11	Trade License valid up to 31/03/2023 whether uploaded	
12	Credential of similar nature of work whether uploaded.(FORM-V)	
13	P.F. & E.S.I. Registration Certificate / Declaration whether uploaded.	
14	Certificate from Chartered Firm in the official pad whether uploaded. (The agency / company should have minimum annual turnover of Rs. 300 lakh) (FORM-III)	
15	Audited balance sheet for the last 3 years whether uploaded.	
16	Plant Layout as well as Design / Drawing of ***(as per*** Scope of Work) must be provided/uploaded .	
17	The Bidder shall not be under a Declaration of Ineligibility for corrupt or fraudulent practices or blacklisted with any of the Government Agency whether uploaded. (FORM-IV)	

Signature & Seal of the Bidder with Date

(BANK GUARANTEE SAMPLE FORMAT)

To,
W.B.L.D.C Ltd. LB-2, Sector-III
Salt Lake City
Kolkata- 700-106

Tender Ref. No: NIT No: WBARD/WBLDC/NIT-BD-001/2023- 24 dt.: 05/04/2023

At request of our Client _____ having its Registered Office at _____ (hereinafter called the supplier) who has accepted the tender, for "**e -Tender on Upgradation of the Mother Dairy Calcutta (MDC) Plant at Dunkuni , Hooghly-712310, West Bengal for 2023-24** " with reference to the Offer letter **(Memo No.: _____; Dated: _____)**. The supplier has requested us for a performance guarantee of **Rs._____(Rupees _____) only** (Including Tax, Insurance and Packing).

We _____ **BANK** having its branch office _____ situated at _____, hereby agree as follows:

In the event of the supplier failing to perform their obligations under the contract for any reason what-so-ever we shall pay without any demur a sum of **Rs._____ only**. Your receipts for the sum claimed accompanied by your statement that the contractor failed comply with contract terms notwithstanding any contestations by the supplier or any other party.

Unless a demand or claim is made in writing by you to us under this guarantee and reaches us on or before due date, all our obligations hereunder shall cease and we shall not entertain any claim after the due date _____.

In issuance of said Bank Guarantee our guarantee is unconditional and valid in your favor until _____ including the mailing period. We indemnify you against any loss or damage whatsoever and the same will be remitted as per your advices.

Notwithstanding anything contained hereinabove, our liability under this guarantee is restricted to _____ and will remain in full force up to _____. All your rights under the said guarantee shall be forfeited and we shall be relieved and discharged from all liabilities hereunder unless a written claim for payment under this guarantee is lodged on us within zero months from the date of expiry of the guarantee i.e. on or before _____, irrespective of whether or not the original guarantee is returned to us.

Notwithstanding anything contained under the said BG

1. Our liability under this Bank Guarantee shall not exceed Rs._____(Rupees _____) only.
2. This Bank Guarantee shall be valid up to _____ 2024.
3. We are liable to pay to guarantee amount or part thereof under this Bank Guarantee only if you serve upon us a written claim or demand on or before _____, 2024.

Place: _____

Date: _____

PROFORMA FOR AGREEMENT OF CONTRACTUAL CONTRACT

This Agreement is signed and executed on this …… day of……., 2023 At Kolkata.

BY AND BETWEEN

West Bengal Livestock Development Corporation Limited, A Company registered under the Companies Act, 1956 and having its registered office at LB-2, Sector-III, Salt Lake City, Kolkata – 700106 represented by its Managing Director unless his rights and obligation relating to the objects and purports of these presents are delegated, to any other officer(s) of WBLDCL hereinafter referred to as the **First Party** (which expression shall, unless excluded by or repugnant to the context, means and includes his successors, representatives, permitted assignees, liquidators and administrators) of the ***ONE PART*****.**

A N D

……., a company registered under the Company's Act/a partnership firm/Proprietorship Firm (delete whichever is not applicable) having its Registered Office at …… represented by its …… unless his rights and obligation relating to the objects and purports of these presents are delegated, to any other officer(s) of…… hereinafter referred to as the **Second Party** (which expression shall, unless excluded by or repugnant to the context, means and includes his successors, representatives, permitted assignees, liquidators and administrators) of the ***OTHER PART*****.**

WHEREAS the **First Party** is desirous that the work of **"e -Tender on Upgradation of the Mother Dairy Calcutta (MDC) Plant at Dunkuni , Hooghly-712310, West Bengal for 2023-24"** wanted to execute the said work and for the purpose floated open Tender on line.

A N D

WHEREAS the **Second Party** offered his price against the said Tender and being eligible, his Tender having been accepted agreed to execute and complete the said work as detailed in the tender document along with bill of quantities and all other conditions.

Now, therefore, this agreement witnessed as follows:-

That the word and expression shall have same meanings as are respectively assigned to them in the general condition of the contract hereinafter referred to.

That the **Second Party** shall abide by all statutory obligations and payment statutory dues as are obligatory on the part of the **Second Party** and that any failure on his part if attracts any liability on the **First Party** the **Second Party** will, on intimation from the **First Party**, immediately compensate the same.

If any dispute or question arises any time between the parties about the rights and liabilities of each of them relating to the terms and conditions stated hereinabove shall unless and otherwise mutually resolved between the parties, the aggrieved party may refer the matter to the sole Arbitrator as may be appointed by the Govt. of West Bengal, ARD Department on reference from either Party for arbitration and the decision of the Arbitrator shall be final and binding on both the parties.

In witnesseth whereof:

The parties have set and subscribed their hands on this Agreement on the day, month and year first written.

Contractor	Managing Director. W.B.L.D.C.Ltd.
Seal	*Seal*
Witness and address: –	Witness and address: –
1.	1.
2.	2.