

# INDORE SAHAKARI DUGDH SANGH MARYADIT

CHANDA TALAWALI, MANGLIA-INDORE(M.P)-453771

AN ISO 22000: 2005 & 9001:2008 CERTIFIED ORGANIZATION

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Ref No: ISDSM/PUR/2020/011

Date: 28/05/2020

## **E-TENDER NOTICE (1<sup>st</sup> call)**

Online e-tenders (Two Bid System) are invited from the Manufacturers/Suppliers/contractors who completed Installation, Commissioning of different capacities ETPs (Dairy affiliated) on turnkey basis to other Co-operative Dairies/G.O.I/State Govt. Department & its undertaking Dairies for the **Design, Supply, Installation, Civil construction work and Commissioning of ETP Plant for dairy plant Jhabua(30 KLPD) & Burhanpur(5 KLPD) and for milk chilling centre Kannod(Khatagaon)(5 KLPD), Chapada(5 KLPD), Dudhi(5 KLPD), Badwah(5 KLPD), , Phoolgawadi(Dhar)(10 KLPD) and Petalawad(5 KLPD) situated in different cities of M.P (Indore Division) working under Indore Sahakari Dugdha Sangh Maryadit, Indore M.P.** The tender notice, tender documents, containing the terms and conditions can be purchased online & downloaded through following website <http://www.mptenders.gov.in> from 28/05/2020, 11:00AM onwards upto 18/06/2020 at 02.00PM. The tender will be submitted from 28/05/2020, 12:00 Noon onwards upto 18/06/2020 at 02.00PM. The tender will be opened on 19/06/2020 at 03.00PM. The detailed Tender Form can be seen (only for reference) at our H.O website: [www.mpcdf.gov.in](http://www.mpcdf.gov.in). For digital Signature please contact M.P. State Electronic Development Corporation Ltd., Area Hills, Bhopal on toll free no. 18002588684.

Corrigendum/Amendment if any to this publication would appear only on the above mentioned websites and will not be published else where.

**CHIEF EXECUTIVE OFFICER**

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Indore SahakariDugdhSanghMaryadit, ChandaTalawali, Indore Invites E-Tender (Two Bid System) for Design, Supply, Installation, Civil construction work and Commissioning of Dairy Affiliated ETP Plant different capacitiesfor dairy plant Jhabua&Burhanpurand for milk chilling centre Kannod (Khategaon), Chapada, Dudhi, Phoolgawadi (Dhar), Badwahand Petalawad working under Indore SahakariDugdhaSanghMaryadit, Indore M.P

The tender notice, tender documents, containing the terms and conditions can be purchased online & downloaded through following website <http://www.mptenders.gov.in>

## **TENDER DOCUMENT**

Schedule I	:	General Terms & Conditions.
Schedule-II	:	Specifications
Schedule III	:	SPECIAL CONDITIONS OF CONTRACT
Schedule IV	:	Price Schedule
Schedule V	:	ANNEXURE-I to VIII
Tender Cost	:	Rs.5000/-(Rupees five thousand only)
EMD	:	Rs.400000/-(Rupees Four Lakh only)
Tender Document Download/Sale Start Date	:	28/05/2020 Time 11:00 AM Onwards
Tender Document Download/Sale End Date	:	18/06/2020 Time 02:00 PM
Bid Submission Start Date	:	28/05/2020 Time 12:00 Noon Onwards
Bid Submission End Date	:	18/06/2020 Time 02:00 PM
Bid Opening Date	:	19/06/2020 Time 03:00 PM
Place of opening of Tender	:	Office of the Indore SahakariDugdha SanghMaryadit,Indore.
Period of completion	:	9 months from the date of confirm order.
Address for Communication	:	The CEO, Indore Sahakari DugdhaSanghMaryadit , ChandaTalawali,Manglia, Indore 453771.

**CHIEF EXECUTIVE OFFICER**

## -:INTRODUCTION:-

Indore SahakariDudhSanghMaryadit is having their Milk processing Plant at Jhabua&Burhanpurand milk chilling centre at Phoolgawadi (Dhar), Chapada (Bagli), Petlawad (Jhabua), Kannod (Khatagaon).Doodhi (Dhamnod) and Badwah (Khargone)having milk processing/ chilling capacities as under:-

Name of dairy plant	Capacity
Dairy Plant Jhabua and Milk Chilling Centers-Petlawad, Phoolgawadi (Dhar) and Kannod (Khatagaon).	20 KLPD
Dairy PlantBurhanpur and Milk Chilling Centere-Chapada (Bagali),Badwah and Dudhi (Dhamnod)	10 KLPD

The dairy plant involves processing of raw milk and manufacturing of products such as consumer milk, Ghee, Butter etc using processes such as chilling, pasteurization, and homogenization. The major process activities are as under:-

1. Raw Milk receiving from various formers/ villagers
2. Grading, Weighing & Sampling
3. Segregation & Separation of Sour
4. Milk Pasteurization
5. Milk Standardization/ Homogenization
6. Milk Storage
7. Milk Chilling
8. Milk Packaging & distribution

Milk Chilling Centre involves only milk chilling and washing of utensils and tanks.

. The effluents are generated from milk processing through milk spillage, drippings, washing of cans, tankers bottles, utensil, equipments and floors.

Indore SahakariDugdhSanghaMaryadit intends to develop the Effluent Treatment Plant to treat the effluent generated from various milk processing activities of above Dairy Plant and Milk Chilling Centreat for following capacities to treat the effluent.

Name of dairy plant	Capacity of ETP to be installed
<b>Dairy PlantJhabua</b>	<b>30 KLPD</b>
<b>Milk Chilling Centers-Phoolgawadi (Dhar)</b>	<b>10 KLPD</b>
<b>Dairy Plant Burhanpur and Milk Chilling Centers-Chapada (Bagali), Badwah, Dudhi (Dhamnod), Petlawad and Kannod (Khatagaon).</b>	<b>05 KLPD</b>

**SCHEDULE-( I ) -  
GENERAL TERMS AND CONDITIONS**

- 1.0 E-Tenders are invited from the reputed Manufacturers/Suppliers/contractors having experience in design , construction, fabrication , supply, erection , testing, commission and operation on contract for the following effluent treatment plant on Turnkey basis:-

Name of dairy plant	Capacity of ETP to be installed
<b>Dairy PlantJhabua</b>	<b>30 KLPD</b>
<b>Milk Chilling Centers-Phoolgawadi (Dhar)</b>	<b>10 KLPD</b>
<b>Dairy Plant Burhanpur and Milk Chilling Centers-Chapada (Bagali), Badwah, Dudhi (Dhamnod), Petlawad and Kannod (Khatagaon).</b>	<b>05 KLPD</b>

2.0. **SCOPE OF WORK:**

Design, construction, fabrication, supply, erection, testing, commission and operation of following effluent Treatment plant:-

Name of dairy plant	Capacity of ETP to be installed
<b>Dairy PlantJhabua</b>	<b>30 KLPD</b>
<b>Milk Chilling Centers-Phoolgawadi (Dhar)</b>	<b>10 KLPD</b>
<b>Dairy Plant Burhanpur and Milk Chilling Centers-Chapada (Bagali), Badwah, Dudhi (Dhamnod), Petlawad and Kannod (Khatagaon).</b>	<b>05 KLPD</b>

- On Turnkey basis **with one year operation & maintenance of the plant.**
- To provide training to operate ETP to Dairy personnel.
- To get approval required Consent To Establishment (CTE) and Consent To Operate (CTO) from MPPCB. *However FEE for CTE & CTO shall be reimbursed against submission of receipt.*
- Official renewal of water consent issued to industry by MPPCB, Contractor will have to submit two consecutive quarterly treated Sewage sample report from MPPCB /MOEF Laboratory with respect to standard laid down by MPPCB under IS:2490. Official fees for fresh / renewal consent will be paid by Indore Sahkari Dugdh Sangh Maryadit on submission of proper receipt.

2.1 The Bidders are requested to go through the tender document's instructions and various terms and conditions, it may be noted that no conditions or stipulations to the contrary or which are inconsistent will be not be accepted. **Bidders are required to ensure that all such parts of the tender document like schedules etc. (duly filled-in & signed) except the Price Bid, are submitted with the "Technical Bid".**

**3.0 TENDER SUBMISSION**

**3.1** The tender document can be purchased by downloading from the website [www.mptenders.gov.in](http://www.mptenders.gov.in) by payment of the cost of the tender document Rs. 5000/- **till date 18/06/2020 upto 2:00P.M...** The tender document is also available on the website [www.mpcdf.gov.in](http://www.mpcdf.gov.in) of M.P Co-Operative Dairy Federation only to read the terms & conditions, scope of works etc. as a reference only.

**3.2** The **Technical Bid Physical** will comprised of supporting documents as per **Clause 5.0 & 5.6** should be submitted personally or send by Registered post, so as to reach the office of the Chief Executive Officer Indore Sahakari Dugdh Sangh , Dairy Plant, Manglia,

Indore (M.P.) not later than 18/06/2020 up to **2:00 p.m.** Indore SahakariDugdhaSangh will not be responsible for any postal delay. Envelop to be superscribed with **“TECHNICAL BID- Physical ”**& tender for E.T.P- **Dairy plant and Chilling Centre of ISDS..**

**3.3 All the tenderers are required to deposit Earnest Money on line. As the tender will be finalized the tenderers will get back the EMD from MP TENDERS (as per their norms) on line. . Submissions of earnest money by any other mode than specified above shall not be acceptable and the related tender shall not be eligible for consideration.**

**3.4 The”Technical Bid Online” will comprised of supporting documents as per Clause 5.0& 5.6 should be submitted on line on website [www.mptenders.gov.in](http://www.mptenders.gov.in) alongwith scanned copies of the Annexures (I) to (VII) & the documents required for fulfilling eligibility criteria for “Technical Bid” .**

**3.5 The Bidders should submit “Price Bid” online on website [www.mptenders.gov.in](http://www.mptenders.gov.in) in the specified “**schedule-( IV ) of Price Bid Format**”.The date and for opening Price Bid will **be informed separately** to the eligible bidders whose EMD and technical bid documents are found as per the eligibility criteria of tender conditions..**Physical submission of Price Bid will be rejected outrightly & tenderer submission will also be rejected.****

**3.6 Technical Bids (Physical ) should be submitted in properly sealed conditions.**

**3.7 Technical Bids (Physical ) received by E-mail /Telegram/Fax will not be considered.**

**3.8 Technical Bids (Physical) received after the scheduled date/ time will not be considered.**

**3.9 Individual signing the tender or other related documents must specify whether he has signed as -**

- a) The sale proprietor of the unit or legally constituted attorney of such proprietor. .
- b) A partner of the firm if it is a partnership firm, in which case he must have valid power of attorney.
- c) Authorized signatory in case of Registered/Limited company/organization.

**3.10 The Bidders should clearly state in their offers the address for communication together with theirTelegraphic / e-mail / Telephone and Fax No. Any change in the address should immediately be notified to the Chief Executive Officer,IndoreSahakariDugdhaSangh (M.P.), so that the correspondence thereafter may be made at the new address.**

**3.11 Chief Executive Officer,IndoreSahakariDugdhaSangh will have discretion to place full, partialor split orders for any part/parts of the work /works of the tender in case rates of more than one party are lowest & similar etc.**

**3.12 Joint ventures are permitted to participate in Tenders.**

**3.13 Scanned copy of E.M.D.deposit transaction receipt to be uploaded online andoriginal to be submitted with the “Technical Bid” (Physical ) of the tender otherwise the Bid shall be liable for rejection.**

**3.14 Bidders downloading the tender document from the website will have to Sign the declaration asdescribed at“**Annexure-( VI )**”.The Bidder is bound to accept the conditions of the declaration .**

**3.15 The “Technical bids” will be opened initially for evaluation as per tender specifications and other requirements as specified in the **clause-(5) , Bidder’s Technical Qualifications criteria.****

**3.16 The Price Bid of the bidders whose Technical Bid shall be accepted / qualified shall only be opened.**

**3.17** The term like successful bidder/contractor used in various clauses means the agency to whom purchase / work order have been awarded by the I.S.D.S. for execution of E.T.P.works

#### **4.0 BID SECURITY (E.M.D.)**

**4.1** Technical bid must be accompanied by bid security (Earnest Money Deposit - EMD) of **Rs.4.00 Lakh** .**The bids which are not accompanied with EMD shall be rejected.** The bid security shall be deposited online .Submission of earnest money by any other mode than specified above shall not be acceptable and the related tender shall not be eligible for consideration.

**4.2 Unsuccessful Tender's** E.M.D. shall be returned by [mptenders.gov.in](http://mptenders.gov.in), as per their norms to the Bidders, as soon as possible, after the tender is decided. No interest shall be paid on E.M.D. deposits.

**4.3 EMD may be forfeited** if successful Bidder fails / denies to perform work OR If any Bidder withdraw its bid during the bid validity period.

#### **5.0 BIDDER'S TECHNICAL QUALIFICATION CRITERIA :-**

(a) The Bidders who completed Installation, Commissioning of different capacities ETPs of Dairy affiliated on turnkey basis to other Co-operative Dairies/G.O.I/State Govt. Department& its undertaking Dairies could be participated in this tender. The selection of bidder for turnkey project of 5,10 & 30 KLPD ETP for the purpose of bidding, the Bidder shall meet the following minimum criteria & Technical Bid must accompanied the followings to qualify for opening of the Price Bid. If Bidder may not be able to fulfil the listed requirements then **bidders Price Bid** will not be opened :-

**5.1** The Bidder, in the same name and style, should be **in business for least for 3 financial Years i.e. 2018-19, 2017-18 and 2016-17.**In case of change of name of Bidder by merger / acquisition / change in status, the bidder may be eligible based on the documentary evidence.

**5.2** The Bidder should have valid registration under various Acts that may be applicable for the contract proposed. The Bidder must submit the details of PAN & GST with the documentary supports (**However this is not limited, as Income Tax, Companies, Works Contract Tax, Service Tax, Employee State Insurance, Contract Labour, Provident fund etc can be whenever needed then the contractor has to furnish.**)

**5.3** The Bidder in the same name & style shall have **successfully executed /completed contractsof similar nature and of same capacity plant for the respective bid during last 3 years i.e.2016-17, 2017-18 and 2018-19.** In the following {Details to be provided in enclosed **Annexure-(III)**} :-

**5.4**The Bidder's should havefinancial turnover of **Rs. 2.50 Cr. (Rs. Two crores Fifty lakhs )** in the same name and style during any of the 3 financial years (i.e.2016-17, 2017-18 and 2018-19) ending 31<sup>st</sup>March in business of supply of effluent treatment plant on turnkey basis as per enclosed **Annexure- ( IV )**

- 1. Similar nature of works means Effluent treatment plants based on Anaerobic&aerobic treatment (Extended Aeration), for similar bio-degradable organic waste, preferably for successfully project executed for Dairy /Food Industry in India.**
- 2. Bidder should have completed min 5 nos. ETP based on Anaerobic& aerobic treatment in dairy industries.**
- 3. Similar nature of works means “Establishment of an Effluent treatment plant with similar biological treatment systems having Anaerobic treatment – (UASB Digester) for any Dairy / Food / Distillery / Pharma/ Edible Oil & Fat Industry of Minimum 50 KLPD capacity”.**

5.5 The Technical Bid(Physical ) must be accompanied by the online transaction receipt of Earnest Money Deposit(E.M.D.).

**5.6 DOCUMENT COMPRISING THE TCEHNICAL BID**

- Documentary proof to qualify the eligibility criteria.
- Technical Data related to the system offered-All technical data, drawing and details required as per tender document.
- Tender document each page sealed and signed as token of acceptance to each and every terms and conditions.
- All documents (Work order copy, completion certificates and performance report) related to the previous executed projects for dairy Plant .
- All documents pertaining to the experience similar work execution .
- Copies of original documents defining registration, Type of firm (firm / partnership etc.), legal status, location of registration etc.
- Reports on financial position of bidder / supplier such as profit and loss statements, balance sheets, and auditor's report of 3 financial years i.e.2016-17 , 2017-18 , 2018-19, banker's official document certifying bidder.
- Information concerning any present litigation in which bidder / supplier is involved

**6.0 PRICE BID:-**

Bidders are requested to fill price format as per prescribed format only given at Schedule( IV ).

**7.0 BID VALIDITY :-**

Bid shall be valid for a period of 120 days from the date of opening of Price Bid.

**8.0 COST OF BIDDING :-**

The Bidder shall incur all costs associated with the preparation and submission of its bid, and I S.D.S. in no case shall be responsible for any cost incurred by bidder.

**9.0 BID PRICE :-**

9.1 Price indicated on the price schedule shall be inclusive of all taxes and other expenses . Any kind of taxes and duties or charges in addition to applicable taxes such as GST , no other charges like PACKING AND FORWARDING, FRIEGHT, INSURANCE, LOADING AND UNLOADING shall not be paid extra by the I.S.D.S.

9.2 Wherever applicable Tenderers outside the State of M.P. should also quote theprevailing rate of Taxesif applicable under new GST in case of any benefit to ISDS.

**10.0 BID CURRENCY:-**

All prices shall be quoted in Indian rupees ONLY

**11.0 SECURITY DEPOSIT**

Security deposit @ 5% of each payments to the Bidder shall be kept towards security deposit and this amount will be refunded after completion of defect liability period. No interest will be paid by the I.S.D.S. on security deposit.

**12.0 AGREEMENT:-**

Successful Bidder has to submit the non-judicial stamp paper of Rs.1000/-& sign the agreement within 10 days from the date of issue of rate acceptance letter by I.S.D.S. If Bidder failed to execute the agreement within the specified time the E.M.D. shall be forfeited with termination of tender.

**13.0 GENERAL (Important) NOTE FOR INTENDING BIDDER**

13.1 The Bidders are expected to have visited the site before filling in the rates, to assess the nature of the soil, the depth and variation of the sub-soil water and the problems that are likely to be encountered in construction or are likely to affect the design before filling in the rates.

13.2 After acceptance of the tender, the successful bidder shall submit 5 copies of design & drawings(Approved & Checked by ISDSapproved Structural Engg.Or from faculty of Government Engineering College) of the following sets of drawings normally within15 days from the date of receipt of acceptance letter.

(a) All detailed working drawings showing dimensions of the various components of the structure should be submitted by the successful bidder.

(b) All detailed technical drawings of the foundations, superstructures etc. showing all the details of the reinforcement, the details of the foundations, columns, vertical walls, plasters, pathways, plinth protections, railings etc. should also be given on a large scale, for each unit of the E.T.P.

(c) As per P.W.D. norms & design the mix of concrete in each sections or components of RCC structure, plaster, flooring etc. shall be specified & checked by the Structural Engg. Faculty of the Govt. Engg. College. The successful bidder should carefully note that no drawing or drawings with incomplete details will be accepted and the successful bidder will be responsible for any delay or loss of quality. In such circumstances the successful bidder shall be bound for the rectifications or reconstruction of the identified structures as per the decision of the I.S.D.S. If such identified rectifications or reconstructions within the intimated time will not be carried out by the successful bidder then the contract may be terminated at any stage of the progress of works and penalty shall be imposed to complete the balance works as per the manner decided by the I.S.D.S.

**13.3** Due weightage shall be given to the past experience, effectiveness, efficiency of the system with benefits and advantages etc.

**13.4** The contractor shall arrange for insurance etc. of his people employed for erection and installation work as per ESIC act workman compensation and any other provision to meet statutory requirement of various labour Act / Rules. In case of accident to any of the workers during the period of installation, ISDS shall not bear any liability what so ever the entire responsibility primary and final in this respect will be that of the successful bidder and may ask end customer's view about implementation and overall effectiveness of complete system.

**13.5** The Chief Executive Officer of I.S.D.S. reserves the right to accept or reject any / or all the tenders without assigning any reason, whatsoever. No correspondence in this regard shall be entertained by Indore Sahakari Dugdh Sangh Maryadit, Indore

**13.6** For any technical clarification / interpretation decision of C.E.O., I.S.D.S. shall be final. Also it should be clearly understood that in the event of successful Bidder failing to accept and execute the work order, decision of the Chief Executive Officer, Indore Sahakari Dugdha Sangh, in this respect will be final and binding on the Bidder.

#### **14.0** COMPLETENESS

**14.1** It is not the intent to specify completely herein all details of the work. Nevertheless, work shall be complete and operative in all aspects.

**14.2** Any material or accessories which may not have been specifically mentioned but which are necessary for usual, satisfactory and trouble free operation of the system, shall be furnished by the contractor without any extra charge to I.S.D.S..

#### **15.0** PROJECT COMPLETION SCHEDULE

(11) Time of completion of all the ETP work shall be 9Months, including rainy season from the date of signing of the agreement.

#### **16.0** PENALTY ON LATE COMPLETION /LIQUIDATED DAMAGES

The time period to complete the work should be strictly adhered. In case they are not followed or in case of delay in execution or non-execution of the order, the I.S.D.S. reserves the right either to cancel the order and make alternative arrangement from other sources at the risk and cost and expenses of the contractor. In case the contractor delay in completion of the work as per schedules, the following liquidated damages will be charged as per ISDS directives :-

S.NO	DURATION OF DELAY	LIQUIDATED DAMAGE
1.	1 Month	1%
2.	1 to 2 months	2%
3.	Beyond 2 months	5%



#### **17.0 CO-ORDINATION OF PROJECT**

The contractor shall co-ordinate with I.S.D.S. officers/ Engineers and/or Consultant at site for execution of project to monitor quality of work & fulfil the design criteria & specification of E.T.P. provided in bid.

#### **18.0 PROTECTION TO EQUIPMENTS**

The contractor shall effectively protect supplied equipments/ material at his own expense, such work, equipment or material as may be liable to damage, theft or tampering during erection . Insurancecharges etc. for the above shall be borne by the contractor till handing over of complete installation of E.T.P. to the ISDS as per terms and conditions of contract

#### **19.0 GUARANTEE / DEFECT LIABILITY PERIOD :-**

19.1 The defect liability period shall be 18 months from the date of the successful commissioning of all the component of the E.T.P.

19.2 Successful commissioning date of E.T.P. will be comprises of not only the satisfactorily completion & working of all components of E.T.P. but also includes the 1<sup>st</sup> treated Sewage sample report from MPPCB /MOEF Laboratory with respect to standards laid down by MPPCB under IS:2490.

19.3 Any defect / defects found during the defect liability period shall be rectified / replaced by the contractor within time period specified as may be necessary for the proper running of plant at his own cost on providing intimation by the I.S.D.S..

19.4 On non-compliance of clause 19.3 as mentioned above the I.S.D.S. will do the rectification/replacement needed to run the plant departmentally / through engaging some other agency / agencies and the cost of it will be recovered from the security deposit or by encashment of amount from the Bank Gurantee.

#### **20.0 FORCE MAJEURE**

20.1 The terms and conditions mutually agreed upon shall be subject to the I.S.D.S. shall be considered in default in performance of its obligations here under, if such performance is prevented or delayed because of war, hostilities, revolution, civil commotion, strike, epidemic, accident, fire, wind, flood, earthquake or because of any law, order proclamation, regulation or ordinance of any government or any nature, beyond the reasonable control of the party affected. Should one or both of the parties be prevented from fulfilling his/their contractual obligations by state of force majeure lasting continuously for a period of six months, the two parties should consult with each other regarding the future implementation of the contract of the purchase /work order.

#### **21.0 ARBITRATION**

21.1 For all the matters of dispute between the successful Bidder and Indore Sahakari Dugdha Sangh, CHAIRMAN ,I.S.D.S. shall be sole arbitrator as per the provisions of the Indian Arbitration Act-1996, and his decision shall be final and binding on both the parties (Contractor & I.S.D.S.) Or Arbitrator may be appointed with the mutual consent of the two parties in case of chairman being out of position.

21.2 For all judicial issues the venue of jurisdiction shall be Indore (M.P.)

#### **22.0 PAYMENT CONDITIONS:-**

The payment for various items under the schedule will be made based on the work completed satisfactory. For payment under schedule the payment conditions will be as under:-

Stage No. (1):- Submission of PERT chart for project planning, schedules of proposed work and executional drawings of ETP Approved by ( TO be deleted structural Engg Faculty of Govt. Engg College & accepted by ISDS & also on submission of Bank Guarantee of equal amount in favour of C.E.O., I.S.D.S. for a period of 12 months. = 20% of accepted price will be released.

**Stage No. (2):- On arrival of all the plant equipments and related components at site including Satisfactory completion of all civil constructions = 30% of the accepted price of contract value will be released.**

**Stage No. (3):- After satisfactory commissioning of the plant and it's approval by I.S.D.S. and submission of approved treated water sample report from MPPCB = 40% of the accepted price will be released.**

**Stage No. (4) :- After successful completion of the defect liability period /submission of Bank GuaranteeOf 10% of the accepted price of the contract in favour of the C.E.O.,I.S.D.S for aperiod of 18 months from the date of successful completion of E.T.P = 10% of the accepted price will be released.**

## SCHEDULE-( II )

### TECHNICAL SPECIFICATIONS OF 30,10,05 KLPD CAPACITY PLANT

#### 50 KLPD CAPACITY EFFLUENT TREATMENT PLANT AT DAIRY PLANT JHABUA

#### LIST OF CONTENTS FOR 50 KLPD EFFLUENT TREATMENT PLANT:

S. NO.	DESCRIPTION
I)	Technical Specifications
	I) A) Technical Specifications
	I) B) Technical Specifications – Electro – Mechanical Equipment
	I) C) Technical Specifications – Civil
II)	List of Approved Makes

### 1. TECHNICAL SPECIFICATIONS (30,10,05 KLPD cap. ETP)

#### A. OPERATING PRINCIPLE:

In order to conserve water and to abate pollution, Waste Water Treatment Plant has been proposed to ensure that treated effluent (water) characteristics are well below the permissible limits of local/national pollution control norms even under varying flow conditions which are typical for such systems. This implies that the selected process shall be able to withstand the shock load situation.

We propose to use compact waste water treatment system working on the principle of extended aeration process after required pre-treatment operation followed by post tertiary treatment and disinfection.

The waste water treatment plant will be designed with a suitable capacity of liquid effluent waste. Waste water treatment plant will consists of screen chamber, oil and grease traps, equalization / collection sump with two numbers pumps, Anaerobic reactor, aeration reactors, Secondary settling tank with tube deck media, sludge holding tank, filter feed pump sump, treated effluent storage tank, filter feed pumps, multi-grade / pressure sand filter, activated carbon filter, micron filter, chlorination, MS / GI pipe and fitting, valves and associate electrical works with control panel per plant.

#### 2.0 PROCESS DESCRIPTION:

##### Considerations:

Raw effluents include waste water from can washing, equipment cleaning, floor washing, container washings, etc of the chilling center and processing unit.

Inlet characteristic considered for designing the proposed waste water treatment plant:

S.No.	Description / Parameter	UOM	Value	MPPCB limit
1	Flow	Cu.mt./day	50	
2.	pH		6 – 8	6.5 – 9
3.	Total Solids	Ppm	3000	Less than 2200
4.	Suspended Solids	Ppm	1000	Less than 100
5.	Total Dissolved Solids	Ppm	2000	Less than 2100
6.	Biological Oxygen Demand	Ppm	1200- 1500	Less than 30
7.	Chemical Oxygen Demand	Ppm	2000 – 2500	Less than 250
8.	Oil, Grease and Fat	Ppm	300-350	Less than 10

**c. Output Quality Considered:**

S.No.	Description / Parameter	UOM	Value	Limit
1.	Flow	Cu.mt./day	45	
2.	pH		6.5 – 7.5	6.5 – 9
3.	Total Solids	Ppm	Less than 2200	Less than 2200
4.	Suspended Solids	Ppm	Less than 100	Less than 100
5.	Total Dissolved Solids	Ppm	Less than 2100	Less than 2100
6.	Biological Oxygen Demand	Ppm	Less than 30	Less than 30
7.	Chemical Oxygen Demand	Ppm	Less than 250	Less than 250
8.	Oil, Grease and Fat	Ppm	Less than 10	Less than 10

**Treatment Scheme:**

Waste water treatment plant should be designed to ensure that treated effluent (water) characteristics are well below the permissible limits, even under varying flow conditions. This implies that the selected process shall be able to withstand the shock load situation.

The treatment plant shall be designed with a capacity to handle 50 KLD of liquid waste water.

**Primary Treatment:**

The incoming effluent reaching the ETP site shall be led by gravity via bar screens into a Fat (Oil & Grease) Trap to remove free-floating fats, oil & grease. From fat trap the effluent shall be led into an Equalization-cum-Neutralization Tank to attenuate variations in flow rate and to (partly) homogenizes the effluents. Two equalization tanks shall be provided for alternate operation on Fill & Draw principle. Pre-aeration and mixing facility shall be provided in the tank by means of diffused aeration. Acid shall be dosed in the tank to neutralize the effluent to the extent desirable. From equalization tank, the effluent shall be pumped to the biological treatment units.

**Secondary Treatment:**

After primary treatment, the effluent shall be led to the Anaerobic reactor and further into MBBR type aeration tank working on activated sludge process. The aeration tank shall be provided fine bubble diffused aeration for maximum efficiency and MBBR media for increasing the surface area for bacterial growth.

The air shall be supplied to fine bubble diffusers through aeration grid by twin lobe compressors (root blowers). The aeration tank shall be provided with diffused aeration system,. After biochemical oxidation, the effluents shall be led into a Tube settler tank for solid-liquid separation. Active sludge from the tube settler shall be partly re-circulate to the aeration tank to maintain the desired MLSS concentration.

Excess sludge shall be sent to SDBs for dewatering and drying prior to disposal.

**Tertiary Treatment:**The treatment water emanating from the Tube settler shall be passed through Sand filter and Activated Carbon filter and final treated water will be within the limits stated earlier and may be discharged via a calibrated V-notch to enable flow gauging and sampling.

## BOQ:30KLDETP

<b>A</b>	<b>Civil</b>	<b>QTY</b>	<b>Unit</b>	<b>Volume (m3)</b>	<b>Size/Specifications</b>	<b>MOC</b>	<b>MAKE</b>
1	Bar Screen chamber :	1	no	0.5	AS per Design/Approved Drawings	RCC/BRICK WORK	construction as per approved drawings
2	Fat Trap Unit	1	no	1.5	AS per Design/Approved Drawings	RCC/BRICK WORK	construction as per approved drawings
3	Equalisation tank	1	no	9	AS per Design/Approved Drawings	RCC/BRICK WORK	construction as per approved drawings
4	Sludge Drying Beds	1	lot		AS per Design/Approved Drawings	BRICK WORK	construction as per approved drawings
5	MS Structural Shed	1	no		6mx4mx3.5 M H	MS Painted	construction as per approved drawings
6	Civil Foundation SKID	1	no		AS per Design/Approved Drawings	RCC	construction as per approved drawings
<b>B</b>	<b>Electro Mechanical Units</b>	<b>QTY</b>	<b>Unit</b>		<b>Size/Specifications</b>	<b>MOC</b>	<b>MAKE</b>
1	Bar Screen in SS 304	1	No		Size: 500 x 500 mm Bar size: 25mm x10mm Bar Spacing : 10-20 mm	SS 304	Fabricated as per approved drawing
2	pH Meter	1	No		Range : 0-14		
3	Dozing TANK for Acid & Alkali	2	no		CAP 500 Liters	HDPE	SINTEX/GANGA/EQUIV
4	Agitator for Alkali tank	1	no		MOC: SS 304		Fabricated as per approved drawing
5	Raw Effluent feed Pump	2	no		cap 3 Kl/hr 15M head		Kirloskar/Johnson/EQUIV

6	UASBR REACTOR with GLSS & distribution grid & manual flare stack	1	Lot	30	1.9m dia 6.5FH with GLSS and inlet distribution grid	MS with FRP (INSIDE) and Outside Epoxy Painted	Fabricated as per approved drawing
7	MBBR TANK	1	Lot	15	Size as per plant design	MS with FRP (INSIDE) and Outside Epoxy Painted	Fabricated as per approved drawing

8	Twin Lobe air blowers-	2	nos		80m3/hr. (each) at 5.0m WC each.		EVEREST/USHA/ST ERLYNE
9	Fine bubble diffuser units along with air piping, valves, controls etc.as per specification s and design requirement s.	1	Lot		MOC: EPDM Length 600mm		MM AQUA/REHAU/BIO CHEM
10	Air grid	1	Lot		AS per Design/Approved Drawings	Wetted part SS 304	Fabricated as per approved drawing
11	MBBR MEDIA	1	Lot		MOC: PVC	MOC: PVC	BIOPACK/SBE/EQ UIV
12	TUBE SETTLER TANK -	1	Lot	6	Size as per plant design + Hopper		Fabricated as per approved drawing
13	TUBE DECK MEDIA	1	Lot		MOC : PVC  Shape : Unequal Hexagonal Length : 865 mm  Height at 60 degree : 750 mm Thickness : ( 1 mm(+/- 0.1)  Plan area @ 60 degree : 11 m2/m3		BIOPACK/SBE/EQ UIV

14	CHLORINE CONTACT TANK -	1	lot	3	Size as per plant design	MS with FRP (INSIDE) and Outside Epoxy Painted	Fabricated as per approved drawing
15	Sludge Re-circulation Pumps	2	No s.		CAP; 1-2 M3/hr Head 10M		Kirloskar/John son /EQUIV
16	Dozing System,	1	lot		Tank Cap 200 liter, Dozing Pump: 1-2 LPM		MILTON ROY/POS ITIVE METRIN G
17	FILTER FEED PUMP	2	no s		CAP: 3 m3/hr Head 25M	-----	Kirloskar/John son /EQUIV

18	MULTIGRAD E FILTER.	1	No .		DIA 500 mm Shell Height: 1200 mm MOC: MSEP MEDIA :Graded stones	MSEP	Fabricated as per approved drawing
19	ACTIVATED CARBON FILTER	1	No .		DIA 500 mm,Shell Height: 1200 mm MOC: MSEP MEDIA: Activated Carbon, IV 900	MSEP	Fabricated as per approved drawing
20	<b>TREATED WATER TANK</b>	<b>1</b>	<b>lot</b>	<b>6</b>	<b>Size as per plant design</b>	MS with FRP (INSIDE) and Outside Epoxy Painted	<b>construction as per approved drawings</b>
21	CONTROL PANEL, Cable Earthing etc.	1	lot		AS per Design/Approved drawings	ALL Switch gears shall be LT/EQUIV make	Fabricated as per approved drawing
22	Electronic Magnetic Flow Meters suitable for measurement of raw dairy effluent as per technical Specifications.	1	No s		Dia : 40 mm		UNITED/ASTER
23	Level Controller	2	no				TECHTROL/ASTER ?EUIV
24	Interconnecting piping/ Valves/ fittings etc.	1	lot		AS per Design/Approved Drawings		TATA/JINDAL ADVANCE/L&T /AU DCO
25	Testing, commissioning, one month Operation	1	lot				

**Note:-**

a.The tentative invert level is about 1.5 meter below the ground level, it may vary as per the actual site conditions. As per the actual level of the inlet line the levels of all other units will be modified accordingly. Nothing extra shall be paid for such modifications.

b. All units shall be provided plinth protection of 0.60 m wide and shall be joined by 1.25 m wide pathway and steps as per the site conditions.

c. All units shall be provided with support hand rail of 1 meter height all around outer walls in MS "B" Class pipe painted by synthetic enamel as per requirement. For bends in railing, regular bends shall be used and no elbows shall be used for this purpose. For supports of railings, MS pipe of class 'B' 32mm dia shall be used. The joints shall be well ground, smoothed. Then the pipe surfaces and supports shall be applied with one coat of anti corrosive red oxide primer followed by one coat of synthetic enamel paint of approved make & shade, for corrosion resistance immediately after fabrication. One coat of synthetic enamel paint shall be again applied on all railings and their supports after testing and commissioning.

d. Necessary cut-outs, insert plates etc. shall be provided.

e. CI steps of at 300 mm c/c spacing in staggered manner along the inner wall of the tank at a suitable location shall be provided.

f. 100 mm thick PCC 1:3:6 shall be provided below base raft extending 100 mm on all the sides.

g. All internal surfaces will be provided with smooth cement plaster with waterproofing compound.

h. All external surfaces upto 300 mm below ground level shall be plastered with cement paint of approved make and shade.

i. The MCC, Operator shed shall have proper flooring with shed.

a. **Internal Electrification of MCP cum operator shed:** Lighting of MCP room shall consist of following: (i) Supply, fixing, wiring and commissioning of approved make of distribution board with suitable DP incomer and enough number of SP outgoing MCB's. MCC room: 2 Nos. Light points suitable for LED Lamps.

**b. Piping work:** The piping work covered under this contract is the complete interconnecting piping with necessary pipe fittings, specials, flanges, etc for the waste water treatment plant between various units.

The piping work shall include all necessary pipe inserts required to be provided at various places and all the inserts shall be of suitable construction with puddle flange in the centre and properly grouted so as to prevent leakage.

The piping work shall also include all necessary excavation of pipe trenches for underground pipe with bedding of sand and shall also include all necessary pipe supports, plate inserts, etc.

Pipe anchoring works, brick masonry pillars, RCC pedestals etc. as required to support the pipe due to site conditions etc. or as may be required for supporting the various pipes above the ground level within the treatment plant area and for the piping work to convey waste water from different points to treatment unit are included in the scope of work.

All the necessary valves for the entire treatment plant piping as required shall be provided. The valves shall conform to the relevant BIS standards.

c. All the structural details shall be designed, checked & verified by a chartered registered structural engineer and stability certificate shall be issued by him for the same. The structure designed shall be earthquake proof for the project area zone. A certificate to this extent shall be furnished from the registered Structural consultant. If asked for the design calculation shall be made available to the Owner.

d. All the units of the plant shall be joined with a pathway 1.25 m width with a nominal slope on both the sides. Pathway shall be made with minimum 60 mm thick PCC 1:1.5:3, self finished



over 100mm thick CC 1:4:8. Where the site may be in contours necessary steps, side walls etc. as required may be provided in brick work, Concrete and IPS etc. Bidder shall assess this at site and the prices shall be inclusive of such requirements.

e. The bidder must, along with the bid, furnish the List of Spares required for normal operation of the plant for two years after commissioning and quote optionally for the spares.

f. The bidder must quote optionally for operation & maintenance of the entire plant for a period of one year after successful commissioning. The bidder must furnish full details along with the terms and conditions etc.

### **BATTERY LIMITS FOR THE WASTE WATER TREATMENT PLANT WORK**

The scope of work described in the Schedule of Requirements shall be governed by the following battery limits:

**a.** Raw effluent line from different sources (piping length will not be more than 100 meters) including chambers / manhole (maximum 6 numbers) to the waste water treatment plant site, entire turnkey project for waste water treatment plant.

**b.** Treated effluent line from the outlet of water meter / flow meter, line length not exceeding 10 m. This treated effluent could be used for irrigation purposes within the campus. Supply and installation of further pump & piping shall be arranged by Owner at their own cost and shall not be in the scope of the bidder.

**c.** Supply, erection and charging of the Motor Control Centre shall be in the Contractor's scope. The supply, laying, connection and charging of 3½ x 35 sq.mm. armoured Aluminium conductor, PVC insulated and sheathed power cable for main incomer of MCC is included in contractor's scope of work. This cable shall be laid underground from the existing Panel at ETP site and its length shall not exceed 10 m. Termination of this cable at both ends with suitable glands and lugs is included in the contractor's scope. Supplying and providing necessary earthing system including two number GI plate type earthing pits, GI strip/wires from MCC to all electrical equipment/ controls is included in contractor's scope.

**d.** Unit lighting and yard lighting in the ETP area including conduits, wiring, cables, light fittings, poles/brackets of approved design is included in Contractors scope.

## TECHNICAL DETAILS& ESTIMATE for 5 & 10 KLD ETP for BMCU

1. **Capacity of Plant** : 5 KL/10 KL per Day, The treatment process run in batches of 2.5/5.0 KL per 12 hr

2. **Raw Effluent Characteristics** :

S.NO.	DESCRIPTION	VALUE	UNIT
<b>2.1</b>	<b><i>INLET PARAMETER</i></b>		
2.1.1	pH	6.5-9.0	
2.1.2	Total Suspended Solids	< 1000	mg/lts
2.1.3	Biochemical Oxygen Demand (BOD)	<600	mg/lts
2.1.4	Chemical Oxygen Demand (COD)	< 1200	mg/lts
2.1.5	Oil & Grease	< 100	mg/lts

**Treated Effluent Parameter** :

S.NO.	DESCRIPTION	VALUE	UNIT
<b>2.1</b>	<b><i>OUTLET PARAMETER</i></b>		
2.1.1	pH	6.5-8.5	
2.1.2	Total Suspended Solids	< 150	mg/lts
2.1.3	Biochemical Oxygen Demand (BOD)	<30	mg/lts
2.1.4	Chemical Oxygen Demand (COD)	<100	mg/lts
2.1.5	Oil & Grease	< 10	mg/lts

### 3. PROCESS DESCRIPTION:-

The Sequencing Batch Reactor (SBR) process is a cyclic activated sludge treatment process. Single reactors are provided to treat the wastewater in batches. Sequencing batch reactors will be and operated to oxidize the carbonaceous BOD, nitrify the ammonia, and denitrify to reduce the total nitrogen to a level that meets the permit limits. All treatment processes including equalization, aeration, de-nitrification, and sedimentation, and decanting occur in the SBRs eliminating the need for separate clarification and return activated sludge systems.

The typical SBR treatment sequence for nitrification-de-nitrification systems is as follows:

1. The reactor is allowed to fill with raw wastewater. The filling phase is often divided into stages that include aeration to reduce BOD and to nitrify ammonia and then mixing without aeration to promote de-nitrification (removal of nitrogen).
2. A reaction phase is generally provided to promote additional treatment.
3. A settling or quiescent phase then follows to allow the biological solids to settle.
4. A decanting phase is provided to draw off the clarified effluent from the upper portion of the reactor.
5. Often a small idle phase is provided to allow time for miscellaneous operations that may need to occur to keep the reactors in sequence.

Wasting of the biological solids that are produced by converting BOD to bacteria needs to occur periodically to maintain the design mixed liquor concentration and sludge age. Wasting can occur at anytime in the process sequence. Frequently, wasting is performed following the decant phase when the sludge concentration is highest.

The SBRs will be equipped with diffused aeration, and decanting facilities. The discharge from SBR systems is higher than the inflow because the same volume of water that entered the SBR is discharged over a shorter time period.

The treated water can be discharge inland and used as horticulture or in toilets for flushing purposes. Excess sludge from the SBR tank is drain in sludge pit pumped for dewatering and drying during decanting phase.

#### **4. TREATMENT PROCESS:-**

1. Wastewater from BMCU (Bulk Milk Chilling Units) is received through pumps in SBR Tank. This step is called **fill** in SBR Treatment Process.
2. The different steps - fill, react, settle, decant and idle takes place in the SBR reactor and is collective called **SBR Cycle**. At typical operating conditions as specified above it takes 24 hr. to complete one cycle in Sequencing Batch Reactor.
3. After the decanting, effluent flows into gravity Sand Filter which further polishes the water by removing suspended solids. The treated water meeting the pollution control board norms is finally discharged into the natural drain/ on land discharge.
4. Gravity sand filter is backwashed by compressed air through air compressor once in a week. The compressed air is stored in Air receiver @ 5 kg/cm<sup>2</sup>.
5. The air stored in the Air Receiver is sufficient for biological aeration of SBR Tank even during any power interruption upto 2hrs. The capacity of Air Receiver is 0.16 cum @ 10 kg/cm<sup>2</sup> is filled by the air compressor. Air Compressor starts automatically due to pressure variation (*Air Compressor starts when pressure in air receiver is below 8 kg/cm<sup>2</sup> and cutoff at 10 kg/cm<sup>2</sup>*).
6. Electrical load for the Air Compressor as per requirement.

#### **5. MERITS OF SBR TREATMENT PROCESS:-**

1. SBR Treatment is a Biological treatment system based on Activated sludge process.
2. This is a batch type process most suitable for BMCU waste treatment as waste water is generated only once in a day.
3. The plant is a packaged type skid mounted and required only 5.0 Sqmts of area.
4. Hypo chemicals is required for disinfection.
5. The sludge generated during the treatment process is non-hazardous and is very less in quantity (1.0 lit/day).
6. This biological sludge can be used as manure for plants and trees.

## Typical Operating for a Sequencing Batch Reactor

### Fill

The purpose of the fill operation is to add substrate (raw wastewater or primary effluent) to the reactor. The fill process typically allows the liquid level in the reactor to rise from 25 percent of capacity (at the end of idle) to 100 percent. If controlled by time, the fill process normally lasts approximately 25 percent of the full cycle time. Wastewater fills the tank, mixing with biomass retained in the reactor from previous cycles. This provides the necessary micro organisms to initiate biodegradation.

### React

The purpose of react is to complete the reactions that were initiated during fill. Typically, react takes up 35 percent of the total cycle time. Reactor contents are aerated to promote organic matter reduction and stabilization by growing micro organism mass. React phase remove the required nutrients (carbon, nitrogen and phosphorous).

### Settle

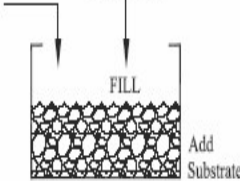
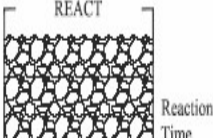
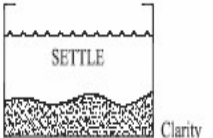
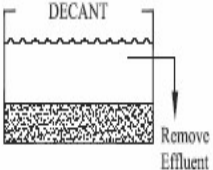
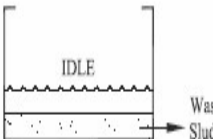
The purpose of settle is to allow solids separation to occur, providing a clarified supernatant to be discharged as effluent. In SBR, this process is normally much more efficient than in a continuous flow system because in the settle mode the reactor contents are completely quiescent. Mixing and aeration stopped, promoting gravity separation of settled solids on the bottom with high quality supernatant.

### Decant

The purpose of decant is to remove clarified treated water from the reactor. Here we uses a floating decanter. The time dedicated to draw can range from 5 to 30 percent of the total cycle time (15 minutes to 2 hours), with 45 minutes being a typical draw period. As solids settle, they agglomerate, forming large particles, clarified high quality effluent (supernatant) is discharge.

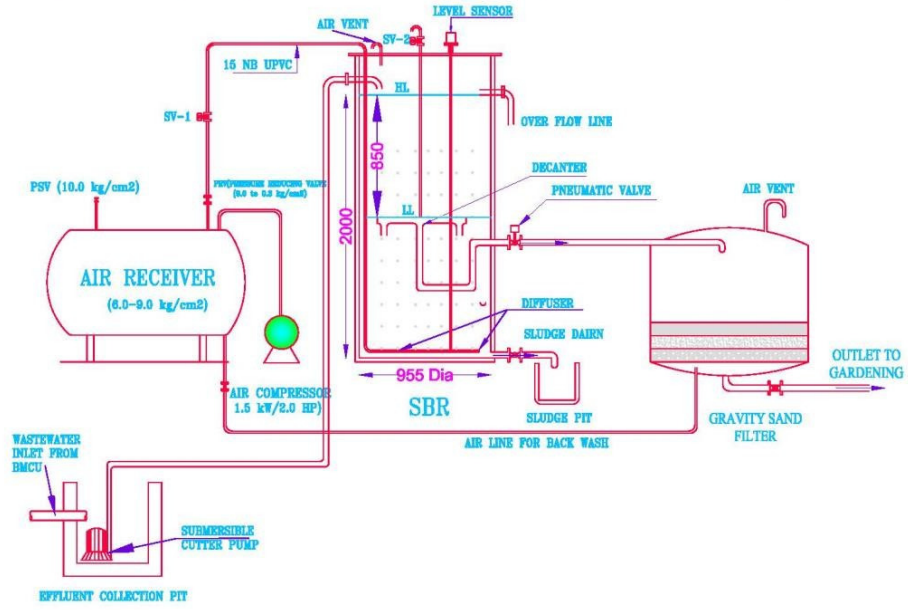
### Idle

Excess sludge is removed from the reactor.

PERCENT OF:		INFLUENT	PURPOSE/OPERATION
MAXIMUM VOLUME	CYCLE TIME		
25 TO 100	25		AIR ON/OFF
100	35		AIR ON/CYCLE
100	20		AIR OFF
100 TO 35	15		AIR OFF
35 TO 25	5		AIR ON/OFF

Details for SKID mounted Plant Machinery and Equipment for ETP ( BMCU) cap: 5 & 10 KLD					
Sr. No.	Work Area	Description	Specification/ Dimension (with unit)	Qty	Unit
1	Civil Work				
		Collection Tank/Equalization Tank	1.5x1.5x1.5		
		Sludge Drying Bed	1m x 1m		
		Platform for Tanks and Equipment	5mx1.5m		
		Plant Room: Shed or Building	As per site requirement		
2	SKID mounted Plant Machinery and Equipment for ETP ( BMCU) cap: 5 KLD / 10 KLD	SBR Tank (MS FRP) with decanter, diffusers, motor control valves.	As per design requirement to meet the specifications of treated water	1	Lot
		Air Compressor			
		Air Receiver MSEP with PSV			
		Gravity sand filter			
		Electrical panel			
		Piping (UPVC) and valves			
		Raw Effluent pump			
3		Installation and Commissioning Charges		1	Lot
4		Transportation, Loading and Unloading Charge		1	Lot
5	Admin	Approval from Pollution Control Board		1	Lot
	Other works in client,s scope				
		Input Cable for ETP Panel Treated water disposal pipeline			

### BMCU WASTEWATER TREATMENT - SCHEMATIC FLOW DIAGRAM



## **TESTING, TRIAL RUNS, COMMISSIONING & HANDING OVER**

### **a. Testing and Trial Runs**

The contractor shall have to test each equipment used for the plant for at least 72 hrs continuous running with designed load and to the full satisfaction of the Engineer-in-Charge. After testing the individual equipment and stabilization of the plant, the contractor shall run the whole plant at no extra cost to the at least for one month as directed by the Engineer-in-Charge. Any defects found in design, workmanship or in any of the equipment shall be rectified by the contractor at his own cost within a reasonable time to be decided by the Engineer-in-charge, and beyond this period suitable penalty shall be levied and the plant shall be tested again for faultless running for one month to the entire satisfaction of Engineer-in-Charge.

Necessary instruments, gauges, supervisory personnel etc. shall be furnished/provided by the contractor free of cost for conducting the tests. The recording of tests result shall be as per formats to be approved by the Engineer-in-Charge and will form part of the completion documents.

### **b. Commissioning and handing over**

During trial runs as described above, the contractor shall satisfy the Engineer-in-Charge in all respects regarding the satisfactory quality of effluent, quality of materials, equipment and workmanship used in the plant. Only after satisfying himself, regarding the above points, the Engineer-in-charge will take over the plant and such date of taking over shall be deemed as date of commissioning. The guarantee period described above will start from this date. The contractor shall have to obtain necessary statutory approval for setting up of Waste Water Treatment Plant to its commissioning/handing over. The charges for this shall be all included in bid prices.

## **PLANT GUARANTEES**

The undermentioned clauses shall be read in conjunction with Warranty/Guarantee provisions given elsewhere in this document.

### **a. Manufacturer's Guarantees**

The manufacturer's guarantee for design, workmanship and performance for all bought out items shall be made available to the purchaser/owner and shall be valid at least for the entire defects liability period.

In the event of failure of any particular equipment which fails more than three times during the guarantee period as mentioned in clause below, the contractor shall replace at his own cost that equipment. Manufacturer's/Contractor's guarantee, as mentioned in clause above, for such replaced equipment shall also be made available to the purchaser/owner and should be kept at least for one year from the date of last replacement.

### **b. Performance Guarantee**

The contractor shall give guarantee for a period of one year from the date of successful commissioning for the treatment plant against design, defective materials, workmanship, performance and guaranteed effluent quality. In the event the commissioning of the plant is not possible due to non-availability of effluent, contractor shall be issued mechanical completion certificate by Engineer-in-Charge provided each equipment is tested satisfactorily as directed by Engineer-in-Charge. However, the contractor shall have to maintain the plant at his own cost, in such a case for a period of three months beyond which period, if he is required to

maintain further, he will be paid extra at mutually agreeable rate. However, testing and commissioning of the plant shall be carried out by the Contractor during the Defects Liability period. Any defects found in the workmanship materials or performance of the plant shall be made good by the contractor at his own expense within the time specified by Engineer-in-Charge.

For this purpose the performance guarantee furnished by successful bidder, as per general conditions of contract shall be retained till the completion of the guarantee period as stated above. The contractor, at his own expense shall start and commission the plant and prove that it is giving satisfactory service and desired characteristics of the treated effluent, for one month before handing over the plant to the Owner. During this start up and commissioning period the contractor shall train the Owner's operational staff without any extra cost to the Owner. The contractor shall also have to guarantee the quality of the treated final effluent to meet the specification. For given design quantity and quality of untreated effluent, if the Contractor fails to achieve the treated effluent criteria, the Contractor shall rectify the plant at no extra cost, so as to achieve the requisite performance guarantee and satisfy commissioning of the plant to the Engineer-in-Charge.

All the above guarantees will be based on collection and analysis of samples as mentioned in clause below.

### c. Collection and analysis of samples

The guaranteed effluent shall be based on complete analysis of treated effluent collected after stabilization of the plant as per Special Conditions of Contract.

## List of approved make

### LIST OF APPROVED MAKES OF MATERIAL

S. No.	MATERIAL	APPROVED MAKES
1.	SS Screen with basket	PACE / ARVI / SEEPL/Equivalent
2.	Raw effluent transfer submersible cutter pump	CNP / CRI /equivalent
3.	Filter feed pumps / Sludge recirculation pumps and treated water transfer pumps	Kirloskar / CRI / CNP
4.	Filter press feed pump	Weltech / Kirloskar / Johnson
5.	Dosing pump	Grundfos / Asia LMI / Edose / Pentair
6.	Electric motors	Kirloskar / Crompton / ABB / Siemens / Bharat Bijlee
7.	Twin lobe roots air blower	ACME Air Equipment / Kay / Everest Transmission / Air Vak
8.	Chemical dosing tank	Sintex / Frontier / Water well / Equivalent
9.	Tubular and coarse air diffusers	Jay Engineering / Membrane India / Equivalent
10.	UPVC pipe Class 10kg/cm <sup>2</sup>	Supreme / Astral / Ashirwad
11.	GI & MS pipeline	Tata / Jindal (Hissar) / Prakash Surya
12.	GI fittings	Unik / 'R' brand / Jain sons
13.	FRP vessel	Pentair / Aventura / Hydrocell
14.	Multiport valves	Pentair / Astral / Aster / Pharer / Flack / Equivalent



<b>S. No.</b>	<b>MATERIAL</b>	<b>APPROVED MAKES</b>
1.	SS Screen with basket	PACE / ARVI / SEEPL/Equivalent
15.	Butterfly valves	Nova / C&R / Inter Valve / Castle / Deep / Zolta / Equivalent
16.	Non return valve	Karan / C&R / Inter Valve / Castle / Deep / Zolta / Equivalent
17.	Ball valve	Nova / C&R / Inter Valve / Castle / Deep / Zolta / Equivalent
18.	Expansion / vibration eliminator	Resistoflex / Kanwal
19.	Pressure gauge	Fiebig / H Guru
20.	Level controller	Femac / NandShyam / Mimic
21.	Strainer	Zoloto / Emerald /Maharaja Casting.
22.	Foot valve	C&R / Inter Valve / Castle / Deep / Zolta / Equivalent
23.	Float valve	CIM / Leader / C&R / Inter Valve / Castle / Deep / Zolta / Equivalent
24.	Multiport valve	Pentair / Astral / Initiative / UKL / Midas
25.	Flanges	Class 150 / Table 'H'
26.	Filter press	Pharmtech / Sachin / Vasu / Bhagylakshmi / Equivalent
27.	Tube dac media	MM Aqua / Cooldac / Energy / Vasu
28.	Gear box	Radicon / Elicon / Priemer
29.	Electrical control panel	Fabricated
30.	Power cables & control cables	Havells / Finolex / Polycab
31.	PVC insulated copper wires	Finolex / Skyline / National / Batra Henley / Polycab
32.	Single phase preventer	L&T / Siemens / ABB
33.	Thermal relays	L&T / Alstom / EasunReyrolle
34.	Indicating lamps	Siemens / L&T (Esbee) / BCH
35.	Cable lugs	Dowell / Jainson
36.	Relays	L&T / Alstom / C&S
37.	Push buttons	L&T / Siemens / BCH
38.	Current transformer	Kappa / Precision / C&S
39.	Ammeter/ Voltmeter	Automatic Electric / Rishab / Enercon Neptune
40.	Time delay relay/limit switch	L&T / Siemens / BCH
41.	Controls	Honeywell /Danfoss / Steafa /Penn
42.	Starters / Switches	L&T / Siemens / ABB
43.	Contractors	L & T / Merlin Gerin / Siemens / ABB Schneider
44.	Annunciator	Minilac
45.	ACB/MCCB	L&T / Merlin Gerin / Siemens / ABB
46.	Miniature circuit breakers	L&T (Hager) / Siemens / ABB / Legrand

S. No.	MATERIAL	APPROVED MAKES
1.	SS Screen with basket	PACE / ARVI / SEEPL/Equivalent
47.	M.S conduits (ISI Mark)	BEC / AKG
48.	Earth leakage relay	PIC Make / Alstom / L&T / EasunReyrolle
49.	Conduit accessories	AKG / BEC
50.	Cable trays / Race ways	Slotco / Steel ways / Profab / Pilco
51.	Metal clad socket	MDS / BCH / Neptune / Crompton
52.	Metal clad socket weather proof	MDS / BCH/ Neptune / Crompton
53.	Switch fuse & fuse switch unit	L&T / HH-Elcon / Siemens
54.	ELCB	L&T / Neptune / MDS
55.	Terminals	Elmex / Wago

**NOTE:**

a. The tentative invert level is about 1.5 meter below the ground level, it may vary as per the actual site conditions. As per the actual level of the inlet line the levels of all other units will be modified accordingly. Nothing extra shall be paid for such modifications.

a. All units shall be provided plinth protection of 0.60 m wide and shall be joined by 1.25 m wide pathway and steps as per the site conditions.

b. All units shall be provided with support hand rail of 1 meter height all around outer walls in MS "B" Class pipe painted by synthetic enamel as per requirement. For bends in railing, regular bends shall be used and no elbows shall be used for this purpose. For supports of railings, MS pipe of class 'B' 32mm dia shall be used. The joints shall be well ground, smoothed. Then the pipe surfaces and supports shall be applied with one coat of anti corrosive red oxide primer followed by one coat of synthetic enamel paint of approved make & shade, for corrosion resistance immediately after fabrication. One coat of synthetic enamel paint shall be again applied on all railings and their supports after testing and commissioning.

c. Necessary cut-outs, insert plates etc. shall be provided.

d. CI steps of at 300 mm c/c spacing in staggered manner along the inner wall of the tank at a suitable location shall be provided.

e. 100 mm thick PCC 1:3:6 shall be provided below base raft extending 100 mm on all the sides.

f. All internal surfaces will be provided with smooth cement plaster with waterproofing compound.

g. All external surfaces upto 300 mm below ground level shall be plastered with cement paint of approved make and shade.

h. The MCC, Operator shed shall have proper flooring with shed.

i. **Internal Electrification of MCP cum operator shed:** Lighting of MCP room shall consist of following: (i) Supply, fixing, wiring and commissioning of approved make of distribution board with suitable DP incomer and enough number of SP outgoing MCB's. MCC room: 2 Nos. Light points suitable for LED Lamps.

**j. Piping work:** The piping work covered under this contract is the complete interconnecting piping with necessary pipe fittings, specials, flanges, etc for the waste water treatment plant between various units.

The piping work shall include all necessary pipe inserts required to be provided at various places and all the inserts shall be of suitable construction with puddle flange in the centre and properly grouted so as to prevent leakage.

The piping work shall also include all necessary excavation of pipe trenches for underground pipe with bedding of sand and shall also include all necessary pipe supports, plate inserts, etc.

Pipe anchoring works, brick masonry pillars, RCC pedestals etc. as required to support the pipe due to site conditions etc. or as may be required for supporting the various pipes above the ground level within the treatment plant area and for the piping work to convey waste water from different points to treatment unit are included in the scope of work.

All the necessary valves for the entire treatment plant piping as required shall be provided. The valves shall conform to the relevant BIS standards.

**k.** All the structural details shall be designed, checked & verified by a chartered registered structural engineer and stability certificate shall be issued by him for the same. The structure designed shall be earthquake proof for the project area zone. A certificate to this extent shall be furnished from the registered Structural consultant. If asked for the design calculation shall be made available to the Owner.

**l.** All the units of the plant shall be joined with a pathway 1.25 m width with a nominal slope on both the sides. Pathway shall be made with minimum 60 mm thick PCC 1:1.5:3, self finished over 100mm thick CC 1:4:8. Where the site may be in contours necessary steps, side walls etc. as required may be provided in brick work, Concrete and IPS etc. Bidder shall assess this at site and the prices shall be inclusive of such requirements.

**m.** The bidder must, along with the bid, furnish the List of Spares required for normal operation of the plant for two years after commissioning and quote optionally for the spares.

**n.** The bidder must quote optionally for operation & maintenance of the entire plant for a period of one year after successful commissioning. The bidder must furnish full details along with the terms and conditions etc.

## **BATTERY LIMITS FOR THE WASTE WATER TREATMENT PLANT WORK**

The scope of work described in the Schedule of Requirements shall be governed by the following battery limits:

- a.** Raw effluent line from different sources (piping length will not be more than 100 meters) including chambers / manhole (maximum 6 numbers) to the waste water treatment plant site, entire turnkey project for waste water treatment plant.
  
- b.** Treated effluent line from the outlet of water meter / flow meter, line length not exceeding 10 m. This treated effluent could be used for irrigation purposes within the campus. Supply and installation of further piping shall be arranged by Owner at their own cost and shall not be in the scope of the bidder.
  
- c.** Supply, erection and charging of the Motor Control Centre shall be in the Contractor's scope. The supply, laying, connection and charging of 3½ x 35 sq.mm. armoured Aluminium conductor, PVC insulated and sheathed power cable for main incomer of MCC is included in contractor's scope of work. This cable shall be laid underground from the existing Panel at ETP site and its length shall not exceed 10 m. Termination of this cable at both ends with suitable glands and lugs is included in the contractor's scope. Supplying and providing necessary earthing system including two number GI plate type earthing pits, GI strip/wires from MCC to all electrical equipment/ controls is included in contractor's scope.
  
- d.** Unit lighting and yard lighting in the ETP area including conduits, wiring, cables, light fittings, poles/brackets of approved design is included in Contractors scope.

**SCHEDULE- ( III )  
SPECIAL CONDITIONS OF CONTRACT**

The following Special instructions to bidders shall supplement the General conditions of Contract, wherever there is a conflict the provision herein shall prevail over those in the General conditions of Contract.

**1.0 The bidder shall include a list of recommended spare parts for following**

- Normal operations of one year under his scope of services
- Two years trouble free operations, after handing over to ISDS; list shall state the price of all spare parts for maintaining store inventory.

**2.0 Any disposal of material in plant area shall be prohibited. The waste/dispose material shall bedisposed from plant by the contractor at his own cost.**

**3.0. During the project execution phase, contractor shall arrange for necessary quality tests ofvarious materials being utilized for civil works as per the norms of the P.W.D.from aGovt.Engg.College / Govt.Polytecnic College at his own cost. The contractor should maintain a record of such tests as per the given format & keep it at site for inspection of officers of I.S.D.S./Consultant at any time .The contractor has to submit a copy of this record & all test results before release of payment as per schedule-(I)-clause(22)- stage No-2**

S.NO	Date of sampling	Details of sample	Name of Test	Detail of test performing authority			Remarks
				Name	Date on which sample sent for the test	Result of the test	

**4.0 The plant shall include such guards, hand-railing, access steelwork, walkways, etc, as may be required to meet the current relevant regulations for the safety of personnel and of the plant, and to afford adequate and safe access to all parts of it. All shall be of substantial design and construction. All moving parts shall be covered with safety guards. Where corrosion or abrasion of materials may be expected from contact with water or sediment or from any other cause, the Contractor shall supply suitably resistant materials. The Contractor shall make all reasonable efforts to reduce noise and vibration to a minimum. All rotating parts of the plant shall be statically and dynamically balanced so that they operate over all specified conditions without undue vibration. The equipment and system involved shall be designed such that noise level at any operating time shall not exceed 85 dB at 1 m distance from equipment**

**5.0 All chemicals, nutrients and first fill of lubricants for equipment as necessary for commissioning and operation & maintenance of the plant shall be provided by the contractor. ISDS will provide water& electricity free of cost to contractor after commissioning of plant .**

**6.0 Platforms, ladders, walkways and railings for the safe and easy access to the units shall beprovided. CI rungs shall be provided for safe and easy maintenance of all chambers, manholes and plant units.**

**4.0 After commissioning of plant, one year operation & maintenance of ETP run shall beprovided by the Contractor during which daily monitoring of raw and treated effluent quality and effluent throughput shall be done and log sheets to be maintained duly signed bythe representative of project authority . Over and above the daily monitoring of effluent quality, the Contractor shall arrange at his own cost, analysis of the composite raw and treated effluent samples for 7 consecutive days for all the effluent parameters specified in the consent note at an external laboratory approved by MoEF under EPA act 1986 or from the MPPCB laboratory. The results shall conform to the performance guarantee for the plant which shall be a pre requisite for the takeover of the plant. In case of non-compliance to the guaranteed treated**

effluent quality for given design input conditions, the Contractor shall take necessary measures to bring the plant to the desired performance.

**8.0. In case during the guarantee test run, the effluent flow or organic load shall be found to be less than the rate input, the contractor shall undertake that as and when rated throughput and organic load conditions are available, the contractor shall extend necessary assistance to achieve the guaranteed output quality, through re-deputation of his personnel at a later date at mutually agreed terms.**

9.0 The Contractor shall train the Dairy plant personnel in the Operation & Maintenance practice for the Effluent Treatment Plant units during the operation & maintenance period for following aspect:-  
Familiarization with operational procedures and minimum on site testing parameters. Hands on experience on Operation of Equipment & chemical consumptions. Routine preventive maintenance activities of the facilities. Knowledge of emergency and break down systems. Operational control & parameters to achieve treated output within norms. Data sheet/ log book & record keeping as per norms of MPPCB & Standard practices Safety regulations and accident prevention.

10.0 The scope of services shall include the Preparation and Submission of Operation & Maintenance Manual (One soft copy and 3 sets of hard copies) prior to plant commissioning. The Manual shall cover the following aspects: Brief process description & flow sheet. Unit wise function and description, equipment details with sizes and as build drawings, operational instructions, maintenance procedures. Plant start-up, commissioning, normal operations, effluent parameters testing procedures, emergency operation steps etc required for smooth operation & maintenance of ETP units.

11.0 The contractor shall provide list of spare parts to maintain necessary inventory by owner for routine / smooth operation & maintenance of ETP after successfully handing over of ETP.

**12.0 The invert level of inlet line before Screen Chamber shall be fixed considering the invert level of last manhole at site. As per the actual level of the inlet line the levels of all other units will be modified accordingly.**

**13.0 All electrical works including electrical motors for the various equipment, cabling, Motor Control centre, starters, earthing conductors and earth pits etc. are to be provided by the Contractor. The scope of work includes all necessary civil works like panel foundations, cable trenches, cable supports, unit lighting, etc. complete. Commissioning of all the equipment after the electricity is supplied shall be within the scope of contract.**

**14.0 The manufacturer's guarantee for design, workmanship and performance for all bought out items shall be made available to the purchaser/owner and shall be valid at least for the entire defects liability period. In the event of failure of any particular equipment which fails more than three times during the guarantee period as mentioned in clause below, the contractor shall replace at his own cost that equipment. Manufacturer's/Contractor's guarantee, as mentioned in clause above, for such replaced equipment shall also be made available to the purchaser/owner and should be kept at least for one year from the date of last replacement.**

**15.0 Bidder should also mention tentative area required, power consumption / load for offering equipments for ETP and cost of operation & maintenance of ETP in per KL along with turnkey quote for the capacities of ETP for all units.**

**16.0 All the necessary valves for the entire treatment plant piping as required shall be provided. The valves shall conform to the relevant BIS standards and shall be provided as per the design requirements and piping network.**

**17.0 All the units of the plant shall be joined with a pathway 1.2 m width with a nominal slope on both the sides. As the site may be in contours there is a possibility that steps, side walls etc. Are required to be provided in brick work, Concrete and IPS etc. Bidder shall make a note of this and the prices shall be inclusive of such requirements.**

**SCHEDULE - ( IV)**

**PRICE BID FORMAT**

S. N.	Name of dairy plant/ Chilling centres	Capacity of ETP	Basic Cost of ETP including civil, mechanical , electrical works And installation, successful trial run and training to ISDS staff for 16 hours (Rs.)	Applicable GST Amount	Charges for one year operation and maintenance (Rs.)	Applicable GST Amount	Total cost (Rs.)
1	Dairy Plant Jhabua	30 KLPD					
2	Dairy Plant Burhanpur	5 KLPD					
3	Milk,ChillingCenter,Phoolgawadi	10 KLPD					
4	Milk Chilling Center-Petlawad	5 KLPD					
5	Milk chilling centre Kannod	5 KLPD					
6	Milk chilling centre Chapada	5 KLPD					
7	Milk chilling centre Dudhi	5 KLPD					
8	Milk chilling centre Badwah	5 KLPD					

Signature of Bidder with seal

Name: -

Designation

Address

**SCHEDULE - (V)**

**ANNEXURE-I**

**FORMAT FOR ORGANISATION DETAILS**

- i. Name of the Co./unit:-----
- ii. Address of the Co./unit: -----
- iii. Telephone Numbers (With S.T.D.Code) /Mob.No : -----
- iv. Fax Number & Mail I.D. :-----
- v. Name of the C.E.O./Proprietor/partner : .....
- vi. Name & designation of other authorized :-----

Signatory of the Co./Unit .....

- vii Particulars of Regn.Certificate issued :.....  
by the competent authority .....
- (Regn.No , Date & enclose copy )

- Viii GST No & Date : .....
- ix PAN No : .....

- x. Number of years of experience. :.....  
(Enclose copy of work/purchase order and  
Performance Report In tabular  
form issued by the concerning authority)

- xi. How many years have your organization :.....  
been in this business under the present name? .....
- What were the fields when your organization :.....  
was established? Whether any new fields were :.....  
added in your organization? And if so, when?

- xii. Have your Co./Unit or its sister concerned ever been Black listed/Debarred by MPCDF or its  
Sister Milk Unions or G.O.I./State Govt. Department & its Undertaking...YES / No

- xiii. If YES , when & why \ Give reason in details :.....  
.....

( I /We hereby undertake that information furnished in the tender document are correct to the best of our knowledge and belief)

Seal Signature of the Bidder



ANNEXURE-II

FORMAT FOR KEY PERSONNEL

i. Details of key technical and Administrative Personnel with the applicant and those that would be assigned to the work.

S.No,	Name	Age	Qualifications	Experience in related field	Year with the applicant	Contact Mob.No
1	_____					
2						
3						
4						
5						
6						

i. Key Technical personnel:

.....  
.....  
.....  
.....  
.....

( I /We hereby undertake that informations furnished in the tender document are correct to the best of our knowledge and belief)

Seal & Signature of the Bidder

ANNEXURE-III

FORMAT FOR SIMILAR WORK EXPERIENCE

Total cost of work order :.....  
:.....  
Name of work :.....  
Name of the owner of the project, :.....  
contact number ,email ID and :.....  
address :.....  
Brief Description of the project :.....  
:.....  
Copy of Completion certificate  
attached :Yes / No  
Time period for actual completion :.....  
Stipulated date of completion :.....  
Period of completion of the entire :.....  
project, give reason, if delayed. :.....  
:.....  
:.....

( I /We hereby undertake that information furnished in the tender document are correct to the best of our knowledge and belief)

Seal & Signature of the Bidder

## ANNEXURE-IV

### FORMAT FOR FINANCIAL STATEMENT

Information regarding financial standing of the Bidder of the following three years, financial year ended 31<sup>st</sup> March

Sr. No.	Details ( Financial Year)	Amount (INR)	
1	FY- 2018-19		Audited BalanceSheet Attached- yes/no
2	FY-2017-18		Audited BalanceSheet Attached- yes/no
3	FY- 2016-17		Audited BalanceSheet Attached- yes/no

( I /We hereby undertake that informations furnished in the tender document are correct to the best of our knowledge and belief)

Seal & Signature of Bidder

## ANNEXURE-V

### FORMAT FOR DEVIATION FROM TECHNICAL REQUISITE

1. This tender document provides design standards & treatment process to be used in tender package and “basis of design” and “standards & specifications”. These all define the qualitative limitations.
2. It is compulsory on bidder to provide complete details of equipment and makes. Which supplier is proposing to provide.
3. Items, which deviate from the tender proposal, shall be as per design specification of supplier and shall be treated as deviation from the text of this tender document.

Deviation Statement Sheet to be filled by Bidder, if any

Sr. No	Clause No of Tender Document	Deviation	Remark
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( I /We hereby undertake that informations furnished in the tender document are correct to the best of our knowledge and belief)

Seal &Signature of the Bidder

## ANNEXURE-VI

Declaration form to be signed by the Bidders submitting the offer downloaded from website (Web Declaration Form).

We hereby declare that:

- 1) "We have downloaded the tender document from website <http://www.mptenders.gov.in> and printed the same. We have verified the content of the printed document from the website and there is no addition, no deletion and or no alteration to the content of the tender document".
- 2) We are aware that, if at any stage, addition/deletion/alteration/manipulation is found in the content of the tender documents, our offer will be summarily rejected/tender will be terminated.
- 3) In case of any dispute, the hard copy of Tender documents approved by Competent Authority and preserved in the office of C.E.O., I.S.D.S. INDORE shall prevail and considered as final and we shall have no objection for this.

( I /We hereby undertake that informations furnished in the tender document are correct to the best of our knowledge and belief)

Seal & Signature of Bidder

ANNEXURE-VII

FORMAT FOR EXPERIENCE OF WORK/WORKS OF E.T.P. CAPACITY WISE

Information regarding Bidder executed / completed contract of similar nature during the three financial years i.e.2018-19, 2017-18 , 2016-17., in either of the followings:-

( I ) One contract / work of similar nature capacity not less than 80 % of the tendered capacity of the proposed E.T.P..

Details of the work & enclosure :-  
.....  
.....

OR

( II ) Two contracts / works of similar nature each capacity not less than 60 % of the tendered capacity of the proposed E.T.P.

:-  
Details of the works & .....  
enclosures ...  
.....  
.....  
.....  
.....  
.....

OR

( III ). Three contracts / works of similar nature each capacity not less that 40 % of the tendered capacity of the proposed E.T.P.

:-  
Details of the works & .....  
enclosures ...  
.....  
.....  
.....  
.....  
.....  
.....  
.....

.....Similar nature of works means Effluent treatment plants based on aerobic treatment (Extended Aeration), for similar bio-degradable organic waste, preferably for successfully project executed for Dairy /Food Industry in India.À

( I /We hereby undertake that information’s furnished in the tender document are correct to the best of our knowledge and belief.

Seal & Signature of Bidder

## **ANNEXURE-VIII**

**PROCESS FLOW DIAGRAM OF ETP- attached separately**