



**GOVT.OF ASSAM**  
**OFFICE OF THE JORHAT MUNICIPAL BOARD**  
**JORHAT-785001, ASSAM**

Email:-chairmanjmb01@gmail.com

Website:- [www.jorhatmunicipalboard.in](http://www.jorhatmunicipalboard.in)

No. JMB/15<sup>th</sup> Finance/SWM/Tied-15/2022-23/7510

Dated, Jorhat the 10<sup>th</sup> January, 2023

**Notice inviting Request for Proposal (RFP)**

The Chairperson & Executive Officer, Jorhat Municipal Board, Jorhat invite bids (two bids system i.e. **Technical Bid & Financial Bid**) from reputed Companies/Firms/agencies for “Selection of Concessionaire for Design-Build-Operate-Transfer for a Moving Bed Bio Reactor (MBBR) technology of 15 KLD FSTP for 3 years in Jorhat City”. Detail terms and conditions will be uploaded at e-procurement portal website [www.assamtenders.gov.in](http://www.assamtenders.gov.in) or ULB official website: [www.jorhatmunicipalboard.in](http://www.jorhatmunicipalboard.in) from 11/01/2023.

Sl. No.	Name of the work	Estimated amount	EMD/Bid Security	Bid Processing Fee
1	<b>Selection of Concessionaire for Moving Bed Bio Reactor (MBBR) technology based project of a 15 KLD FSTP for 3 years in Jorhat</b>	<b>Rs 1,18,98,438.00</b> (Rupees One Crore Eighteen Lakhs Ninety eight Thousand Four Hundred Thirty eight only)	SC/OBC/ST: 1% General :2% of <b>estimated amount</b>	Rs.2,400.00 (Rupees Two thousand four hundred) only
<b>SCHEDULE FOR BID PROCEDURE</b>				
Submission of Bid	<b>Up to 2.00 PM on 01/02/2023</b>			
Opening of Technical Bid	<b><u>02/02/2023 at 3.30 PM</u></b>			
Place of Opening of Bid	AT Road, Unnayan Bhawan, Jorhat Municipal Board Office, Jorhat, Assam,785001			
Officer inviting Bid	The Chairperson & Executive Officer, Jorhat Municipal Board, Jorhat			

**Note:**

- Online mode of submission of Technical and Financial Bid is mandatory. Manual submission of bid will not be accepted.**
- In the event of date of bid opening being a holiday, the activities will take place on the next working day.
- Bidders are advised to scan their Papers at 100dpi (in black & white mode) in ‘PDF’ format for multiple pages with maximum file size of 25MB. If numbers of pages exceed, the bidders are advised to create multiple files and upload the same in “Upload additional document” stage.
- All the interested bidders are requested to read the bid document carefully before submission of their bid.

Chairperson  
Jorhat Municipal Board

Executive Officer  
Jorhat Municipal Board

**Memo No. JMB/15<sup>th</sup> Finance/SWM/Tied-15/2022-23/7511-16**

**Dated, Jorhat the 10<sup>th</sup> January,2023**

**Copy to:**

- The Director, Municipal Administration, Dispur, Ghy-781006, Assam for favour of kind information.
- The Mission Director, SBM(U), Dispur, Ghy-781006, Assam for favour of kind information.
- The Deputy Commissioner, Jorhat district for favour of kind information.
- The Director of Information and Public Relation Office, Assam, Dispur with a request for publishing the above notice in one issue at two local daily newspapers one in English and one in Assamese.
- The DIPRO, Jorhat for wide publicity of the NIT through two daily newspapers.
- Notice Board.
- Office file.

Chairperson  
Jorhat Municipal Board

Executive Officer  
Jorhat Municipal Board

# **REQUEST FOR PROPOSAL**

**Selection of Concessionaire for**

**Moving Bed Bio Reactor (MBBR) technology of a 15 KLD FSTP for 3  
years in Jorhat**

**January 2023**

**National Competitive Bidding through e-Procurement**

**Jorhat Municipal Board**

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# **VOLUME 1: INSTRUCTION FOR BIDDERS**

**Selection of Concessionaire for**

**Design-Build- Operate-Transfer of a 15 KLD FSTP for 3 years in Jorhat  
by using Moving Bed Bio Reactor (MBBR) technology**

**January 2023**

**National Competitive Bidding through e-Procurement**

**Jorhat Municipal Board**

Refer "FSM Procurement Manual" document on QA in FSM portal for help in filling this RFP

## **DISCLAIMER**

The information contained in this Request for Proposal ("RFP") document, provided to Bidder(s) whether verbally or in documentary form by or on behalf of Jorhat Municipal Board or any of their employees or advisors, is provided to the Bidder(s) on the terms and conditions set out in this RFP document and all other terms and conditions subject to which such information is provided.

This RFP document is not an agreement and is not an offer or invitation by the Jorhat Municipal Board to any parties. The purpose of this RFP document is to provide the Bidder(s) with information to assist the formulation of their Proposals. This RFP document does not purport to contain all the information each Bidder may require. This RFP document may not be appropriate for all persons and it is not possible for the Jorhat Municipal Board, their employees or advisors to consider the investment objectives, financial situation and particular needs of each Bidder who reads or uses this RFP document. Each Bidder should conduct its own investigations and analysis and should check the accuracy, reliability and completeness of the information in this RFP document and, where necessary, obtain independent advice from appropriate sources. The Jorhat Municipal Board, their employees and advisors make no representation or warranty and shall incur no liability under any law, statute, rules or regulations as to the accuracy, reliability or completeness of the RFP document.

The Jorhat Municipal Board may in their absolute discretion, but without being under any obligation to do so, update, amend or supplement the information in this RFP document.

## GLOSSARY

<b>Abnormally Low Bids</b>	As defined in Clause 3.7.4
<b>Authority</b>	As defined in Clause 1.1.1
<b>Bid Due Date</b>	As defined in Clause 1.2.2
<b>Bid Security</b>	As defined in Clause 1.2.4
<b>Bidders</b>	As defined in Clause 1.2.1
<b>Bidding Documents</b>	As defined in Clause 1.1.7
<b>Bidding Process</b>	As defined in Clause 1.2.1
<b>Concession</b>	As defined in Clause 1.1.5
<b>Concession Agreement</b>	As defined in Clause 1.1.3
<b>Concessionaire</b>	As defined in Clause 1.1.3
<b>Consortium</b>	As defined in Clause 2.1.1
<b>Financial Capacity</b>	As defined in Clause 3.4.1
<b>Government</b>	Government of [ <i>Name of State</i> ]
<b>Lead Member</b>	As defined in Clause 2.1.2
<b>LOA</b>	As defined in Clause 3.7.10
<b>Lowest Bidder</b>	As defined in Clause 1.2.6
<b>Member</b>	Member of a Consortium
<b>Memorandum of Understanding</b>	As defined in Clause 2.1.2
<b>Periodic Payments</b>	As defined in Clause 3.7.6
<b>Project</b>	As defined in Clause 1.1.2
<b>Re. or Rs. or INR</b>	Indian Rupee
<b>RFP or Request for Proposals</b>	As defined in the Disclaimer
<b>Selected Bidder</b>	As defined in Clause 3.7.8
<b>Service Fee</b>	As defined in Clause 1.2.6
<b>Service Provider</b>	As defined in Clause 1.1.4
<b>Specified Technologies</b>	As defined in Appendix – VIII
<b>Technical Capacity</b>	As defined in Clause 3.4.1
<b>Unbalanced or Front-Loaded Bids</b>	As defined in Clause 3.7.5

The words and expressions beginning with capital letters and defined in this document shall, unless repugnant to the context, have the meaning ascribed thereto herein. The words and expressions beginning with capital letters and not defined herein, but defined in the Agreement, shall, unless repugnant to the context, have the meaning ascribed thereto therein.

## 1. INTRODUCTION

### 1.1. Background and Brief Scope

1.1.1. Onsite Sanitation Systems (OSS) in the form of single pits and septic tanks is prevalent in cities across the State. Faecal Sludge Management (FSM) is the safe emptying, transport, treatment and reuse of the faecal sludge accumulated in the OSS. Currently, there are several gaps in FSM implementation across the sanitation service chain. Gaps in emptying service provision are due to lack of physical access to OSS and affordability. Lack of awareness/training and the informal nature of their work renders the physical and financial well-being of private emptying service providers vulnerable. Another major gap is the treatment infrastructure for safe handling of FS, forcing indiscriminate dumping and the associated public health and environmental risks.

Jorhat Municipal Board (the “**Authority**”) is responsible for managing the activities of collection, transportation, treatment and disposal of faecal sludge and for ensuring that the collected faecal sludge is treated and disposed in compliance with applicable laws.

1.1.2. In pursuance of its objectives, the Authority has decided to select a private entity to Design-Build-Operate-Transfer of the Faecal Sludge Treatment Plant using Moving Bed Bio Reactor (MBBR) technology at the Project Site more fully described in Schedule A (hereinafter referred to as “the **Project**”).

1.1.3. Brief Scope: The selected Bidder (the “**Concessionaire**”) shall be responsible for the designing, engineering, procurement, construction, installation, commissioning, operation and maintenance of the Faecal Sludge Treatment Plant for 3 years and transfer thereof in accordance with the provisions of an agreement (the “**Concession Agreement**”) to be entered into between the Concessionaire and the Authority.

1.1.4. The Authority intends to qualify and select a suitable Service Provider for implementation of the Project through an open competitive bidding process in accordance with the procedure set out in this RFP.

1.1.5. The statements and explanations contained in this RFP are intended to provide a proper understanding to the Bidders about the subject matter of this RFP and should not be construed or interpreted as limiting in any way or manner the scope of services and obligations of the Concessionaire set forth in the Concession Agreement or the Authority’s rights to amend, alter, change, supplement or clarify the scope of work, the Concession to be awarded pursuant to this RFP or the terms thereof or herein contained. Consequently, any omissions, conflicts or contradictions in the Bidding Documents, including this RFP, are to be noted, interpreted and applied appropriately to give effect to this intent and no claims on that account shall be entertained by the Authority.

1.1.6. The Authority shall receive Bids in accordance with the terms set forth in this RFP and other documents to be provided by the Authority pursuant to this RFP (collectively the “**Bidding Documents**”), as modified, altered, amended and clarified from time to time by the Authority and all Bids shall be prepared and submitted in accordance with such terms on or before the date specified in **Clause 1.3** for submission of Bid.

### 1.2. Brief Description of the Bidding Process

1.2.1. The Authority has adopted a single-stage two-envelope bidding process on online tendering portal i.e. [www.assamtenders.gov.in](http://www.assamtenders.gov.in) or ULB official website i.e. [www.jorhatmunicipalboard.in](http://www.jorhatmunicipalboard.in) (referred to as the “**Bidding Process**”) for selection of the Bidder for award of the Project and invites Bids from eligible

parties (“**Bidders**”), which expression shall, unless repugnant to the context, include the Members of the Consortium, in accordance with the terms of this RFP.

1.2.2. The Bidders are requested to submit their Bids in accordance with the Bidding Documents. The Bid shall be valid for a period of not less than 180 (one hundred and eighty) days from the date specified in **Clause 1.3** for submission of Bids (the “**Bid Due Date**”).

1.2.3. In terms of the RFP, a Bidder will be required to submit, along with its Bid, a bid security amount of estimated value SC/ST/OBC 1% and for General 2% (the “**Bid Security**”) on *online portal*. The Bid Security is refundable not later than 60 (sixty) days from the Bid Due Date or any other extended period, except in the case of the Selected Bidder whose Bid Security shall be retained till it has provided a Performance Security under the Concession Agreement. The Bidders shall provide Bid Security in the form of online mode only. The validity of the Bid Security shall not be less than 80 (eighty) days from the Bid Due Date. The Bid shall be summarily rejected if it is not accompanied by the Bid Security.

1.2.4. The Bidders would need to submit the following sets of documents as part of their Bid on online portal as specified in e-procurement portal.

(A) Technical Bid -

- i. Documents as mentioned in **Clause 2.9.1 – “Key Submission”**.
- ii. Documents as mentioned in **Clause 2.9.1 – “Qualification Submission”**, relating to technical and financial capacity of the Bidder.
- iii. Documents as mentioned in **Clause 2.9.1 – “Technical Proposal”**.

(B) Financial Bid -

- i. Financial Bid as mentioned in **Clause 2.9.2 - “Financial Bid”**.

1.2.5 The evaluation of the Bid submissions would be carried out in the following two steps:

**(A) Technical Bid Evaluation – The technical bid will be evaluated based on the following criteria**

-

- i. Bidders’ responsiveness based on the Key Submissions.
- ii. Bidders Technical Capacity and Financial Capacity would be evaluated as per the criteria set out in this RFP.
- iii. The Technical Proposals of the Bidders would be verified for conformance with the minimum technical specifications of the Project.
- iv. The Bidders whose Technical Proposals are found to be in conformance with the minimum technical specifications, shall be qualified for the next step of evaluation.

**(B) Financial Bid Evaluation -**

- i. The Financial Bid of only the Technically Qualified Bidders would be evaluated in accordance with **Section 3** of this RFP.

1.2.5. Bids are invited for the Project on the basis of the lowest payment (“**Service Fee**”) sought by the Bidder for implementation of the Project to be paid by the Authority to the Concessionaire during the Concession Period. The Concession Period is pre-determined, as indicated in the draft Concession Agreement. The Service Fee shall constitute the sole criteria for evaluation of Bids. Subject to **Clause 3.7**, the Project shall be awarded to the Bidder quoting the Lowest Service Fee.

In this RFP, the term “Lowest Bidder” shall mean the Bidder who is offering the lowest Service Fee.



- 1.2.6. The Bidders are invited to examine the Project in greater detail and to carry out, at their own cost, such studies as may be required for submitting their respective Bids for award of the Project.
- 1.2.7. As part of the Bidding Documents, the Authority will provide a draft Concession Agreement and other information pertaining/relevant to the Project available with it.
- 1.2.8. Any queries or request for additional information concerning this RFP shall be submitted in writing or by e-mail to the officer designated below. The communications shall clearly bear the following identification/title:

"Queries/ Request for Additional Information: **RFP for Selection of Private Entity for Moving Bed Bio Reactor (MBBR) technology of 15 KLD Faecal Sludge Treatment Plant for 3 years in Jorhat Municipal Board**"

Address for Communication:

Attention of:	The Chairperson / Executive Officer, Jorhat Municipal Board
Address:	AT Road, Unnayan Bhawan, Jorhat Municipal Board Office, Jorhat, Assam,785001
E-Mail for communication	chairmanjmb01@gmail.com

### 1.3. Schedule of Bidding Process

The Authority shall endeavour to adhere to the following schedule:

	<b>Bid Stage</b>	<b>Estimated Date</b>
1.	Last Date for Receiving Queries	27/01/2023
2.	Pre-Bid Meeting and Field Visit	19/01/2023
3.	Bid Due Date	01/02/2023, 2:00 PM
4.	Opening of Technical Bid	02/02/2023, 3.30 PM
5.	Opening of Financial Bid	03/02/2023
6.	Letter of Award (LOA)	Within 30 days of opening of Financial Bid
7.	Validity of Proposal	180 days from Bid Due Date
8.	Signing of the Concession Agreement	Within 15 days from acknowledgement of LOA

- 1.4. A Pre-Bid meeting and field visit shall be convened at the place and time as mentioned below:

**Venue:** Jorhat Municipal Board

**Time& Date:** 19/01/2023, 11:00AM

- 1.5. During the course of Pre-Bid conference, the Bidder will be free to seek clarifications and make suggestions for consideration of the Authority. The Authority shall endeavour to provide clarifications and such further information as it may consider appropriate for facilitating a fair, transparent and competitive Bidding Process.

## 2. INSTRUCTIONS TO BIDDERS

### A. GENERAL

#### 2.1 Eligibility of Bidders and Other Provisions

2.1.1 For determining the eligibility of Bidders for their qualification here under, the following shall apply:

- (a) A Bidder may be a single entity or a group of entities (the “Consortium”), coming together to implement the Project. However, no Bidder applying individually or as a Member of a Consortium, as the case may be, can be Member of another Bidder. The term Bidder used herein would apply to both a single entity and a Consortium. Single entity shall mean a company incorporated under the Companies Act, 1956/2013.
- (b) A Bidder may be a private entity, including a company incorporated under the Companies Act, 1956/2013, society, registered partnership/proprietorship firm or any combination of them with a formal intent to enter into an agreement or under an existing agreement in the form of a Consortium. A Consortium shall be eligible for consideration, subject to the conditions set out in Clause 2.1.2 below.

2.1.2 In case the Bidder is a Consortium, it shall comply with the following requirements:

- (a) Number of Members in a Consortium shall not exceed 3 (three);
- (b) Members of the Consortium shall nominate one Member as the Lead Member (the “Lead Member”) who shall be a Company under the Companies Act 1956/2013, The Bid should contain the information required for each Member of the Consortium;
- (c) The nomination(s) of the Lead Member shall be supported by a Power of Attorney, as per the format of Appendix-III, signed by the other Members of the Consortium;
- (d) The Bid should include a brief description of the roles and responsibilities of individual Members, particularly with reference to financial and O&M obligations;
- (e) An individual Bidder cannot at the same time be a Member of a Consortium applying for the Project. Further, a Member of a particular Bidder Consortium cannot be Member of any other Bidder Consortium applying for the Project;
- (f) Members of the Consortium shall enter into a binding Memorandum of Understanding (the “**Memorandum of Understanding**” or “**MoU**”), for the purpose of submitting Bid and should submit the same along with the Bid. The MoU should be specific to the Project and should fulfil the requirements set out below, failing which the Bid shall be considered non-responsive. The MoU shall, inter alia:
  - i. Convey the intent of the Members of the Consortium to enter into the Agreement in case the Project is awarded to the Consortium;
  - ii. The Lead Member would enter into the Concession Agreement with the Authority on behalf of the Members of the Consortium and, subsequently, carry out all the responsibilities as the Concessionaire in terms of the Concession Agreement;
  - iii. Clearly outline the proposed roles and responsibilities of each Member of the Consortium;
  - iv. Include a statement to the effect that all Members of the Consortium shall, under the Agreement, be liable jointly and severally for all obligations of the Concessionaire in relation to the Project.
- (g) The MoU entered into between the Members of the Consortium shall be specific to the Project and should contain the above requirements, failing which the Proposal shall be considered non-responsive and liable for rejection.

Note: The Authority restricts a change in the control of a Consortium, the Bidder is not allowed to change the composition of the Consortium during the Bidding Process and, subject to condition of the Concession Agreement, after signing of the Concession Agreement.

- 2.1.3 Notwithstanding anything to the contrary contained in this RFP, the detailed terms specified in the draft Concession Agreement shall have overriding effect; provided, however, that any conditions or obligations imposed on the Bidder hereunder shall continue to have effect in addition to its obligations under the Concession Agreement.
- 2.1.4 The Financial Bid should be furnished in *online mode* only as per the format of **BOQ** provided in the e-procurement portal.
- 2.1.5 Any condition or qualification or any other stipulation contained in the Bid submission shall render the Bid submission liable to rejection as a non-responsive Bid.
- 2.1.6 The Bid submission and all communications in relation to or concerning the Bidding Documents and the Bid submission shall be in English language.
- 2.1.7 The Bidding Documents, including this RFP, and all attached documents are and shall remain the property of the Authority and are transmitted to the Bidders solely for the purpose of preparation and the submission of a Bid in accordance herewith. Bidders are to treat all information as strictly confidential and shall not use it for any purpose other than for preparation and submission of their Bid. The Authority will not return any Bid or any information provided along therewith.
- 2.1.8 The Bidder should submit a Power of Attorney as per the format of **Appendix-II**, authorising the signatory of the Bid to commit the Bidder. In the case of a Consortium, the Members should submit a Power of Attorney in favour of the Lead Member as per the format of **Appendix-III**.
- 2.1.9 Any entity which has been barred by the Central/State Government, or any entity controlled by it, from participating in any project, and the bar subsists as on the date of Bid, would not be eligible to submit a Bid, either individually or as Member of a Consortium.
- 2.1.10 A Bidder, including any Consortium Member, should, in the last 3 (three) years, have neither failed to perform on any contract, as evidenced by imposition of a penalty by an arbitral or judicial authority or a judicial pronouncement or arbitration award against the Bidder/Consortium Member, as the case may be, nor have been expelled from any project or contract by any public entity nor have had any contract terminated by any public entity for breach by such Bidder/Consortium Member.
- 2.1.11 The Authority requires that the Bidders observe the highest standard of ethics during the procurement and execution of such contracts. In pursuance of this policy, the Authority:
- (a) Will reject a proposal for award if it determines that the Bidder recommended for award has engaged in corrupt or fraudulent practices in competing for the contract in question;
  - (b) Will declare a firm ineligible, either indefinitely or for a stated period of time, to be awarded an Authority's contract if it at any time determines that the firm has engaged in corrupt or fraudulent practices in competing for, or in executing, an Authority's contract.
- 2.1.12 The following conditions shall be adhered to while submitting the Bid:
- (a) The Bidders should attach clearly marked and referenced continuation sheets in the event that the space provided in the prescribed forms in the Annexures is insufficient. Alternatively, the Bidders may format the prescribed forms making due provision for incorporation of the requested information;
  - (b) Information supplied by the Bidder (or other constituent Members if the Bidder is a Consortium) must apply to the Bidder named in the Bid and not, unless specifically requested, to other associated companies or firms.

## 2.2 Cost of Bidding

The Bidders shall be responsible for all of the costs associated with the preparation of their Bids and their participation in the Bidding Process. The Authority will not be responsible or in any way liable for such costs, regardless of the conduct or outcome of the Bidding Process.

## 2.3 Site Visit and Verification of Information

2.3.1 The Bidders are required to compulsorily to submit their respective Bid after visiting the Project site and ascertaining for themselves the site conditions, location, surroundings, climate, existing infrastructure, availability of power, water and other utilities, handling and storage of materials, weather data, applicable laws and regulations and any other matter considered relevant by them. A site visit shall be organised by the Authority immediately after Pre-Bid meeting.

2.3.2 It shall be deemed that by submitting the Bid, the Bidder has:

- (a) Made a complete and careful examination of the RFP;
- (b) Received all relevant information requested from the Authority;
- (c) Acknowledged and accepted the risk of inadequacy, error or mistake in the information provided in the Bidding Documents or furnished by or on behalf of the Authority relating to any of the matters referred to in **Clause 2.3.1** above;
- (d) Satisfied itself about all matters, things and information, including matters referred to in **Clause 2.3.1** hereinabove, necessary and required for submitting an informed Bid, execution of the Project in accordance with the Bidding Documents and performance of all of its obligations thereunder;
- (e) Acknowledged and agreed that inadequacy, lack of completeness or incorrectness of information provided in the Bidding Documents or ignorance of any of the matters referred to in **Clause 2.3.1** hereinabove shall not be a basis for any claim for compensation, damages, extension of time for performance of its obligations, loss of profits etc. from the Authority, or a ground for termination of the Concession Agreement;
- (f) Agreed to be bound by the undertakings provided by it under and in terms hereof.

2.3.3 The Authority shall not be liable for any omission, mistake or error in respect of any of the above or on account of any matter or thing arising out of or concerning or relating to the RFP or the Bidding Process, including any error or mistake therein or in any information or data given by the Authority.

## 2.4 Right to Accept or Reject Any or All Bids

2.4.1 Notwithstanding anything contained in this RFP, the Authority reserves the right to accept or reject any Bid and to annul the Bidding Process and reject all Bids, at any time without any liability or any obligation for such acceptance, rejection or annulment, and without assigning any reasons therefor. In the event that the Authority rejects or annuls all the Bids, it may, in its discretion, invite all eligible Bidders to submit fresh Bids hereunder.

2.4.2 The Authority reserves the right to reject any Bid if:

- (a) At any time, a material misrepresentation is made or uncovered; or
- (b) The Bidder does not provide, within the time specified by the Authority, the supplemental information sought by the Authority for evaluation of the Bid.

Such misrepresentation/ improper response shall lead to the disqualification of the Bidder. If the Bidder is a Consortium, then the entire Consortium shall be disqualified / rejected.

2.4.3 In case it is found during the evaluation or at any time before signing of the Concession Agreement or after its execution and during the period of subsistence thereof, including the right thereby granted by the Authority, that one or more of the pre-qualification conditions have not been met by the Bidder or the Bidder has made material misrepresentation or has given any materially incorrect or false

information, the Bidder shall be disqualified forthwith if not yet appointed as the Concessionaire either by issue of the LOA or entering into of the Concession Agreement. If the Bidder has already been issued the LOA or has entered into the Concession Agreement, as the case may be, the same shall, notwithstanding anything to the contrary contained therein or in this RFP, be liable to be terminated by a communication in writing by the Authority to the Bidder without the Authority being liable in any manner whatsoever to the Bidder and without prejudice to any other right or remedy which the Authority may have under this RFP, the Bidding Document the Concession Agreement or under applicable law.

- 2.4.4 The Authority reserves the right to verify all statements, information and documents submitted by the Bidder in response to the RFP. Any such verification or lack of such verification by the Authority shall not relieve the Bidder of its obligations or liabilities hereunder nor will it affect any rights of the Authority there under.
- 2.4.5 The Bidder will have to prepare detail plan & estimate following the prevailing schedules of all entities of the project and to arrange statutory clearance from the authorities concerned in due course of time to set up the project such as Technical sanction, consent of PCBA, NOC of Airforce, etc.
- 2.4.6 Jorhat Municipal Board will have right to impose whenever felt necessary any condition during setting up of the project.

## **B. DOCUMENTS**

### **2.5 Contents of the RFP**

This RFP comprises the disclaimer set forth hereinabove, the contents as listed below and will additionally include any Addenda issued in accordance with **Clause 2.7**.

#### **Invitation for Bids**

- Section 1. Introduction
- Section 2. Instructions to Bidders
- Section 3. Evaluation of Bids
- Section 4. Miscellaneous

#### **Schedules**

- A. Project Information
- B. Overview of FSM Sector

#### **Appendices**

- I. Letter of Bid
- II. Power of Attorney for signing of Bid
- III. Power of Attorney for the Lead Member of Consortium
- IV. Technical Capacity of the Bidder
- IVA. Certificate for Technical Capacity of the Bidder
- V. Financial Capacity of the Bidder
- VA. Certificate for Financial Capacity of the Bidder
- VI. Technical Proposal
- VII. Financial Bid
- VIII. Specified Technologies

### **2.6 Clarifications**

2.6.1 Bidders requiring any clarification on the RFP may notify the Authority in writing or by e-mail. They should send in their queries before the date specified in the schedule of Bidding Process contained in **Clause 1.3**. The Authority shall respond to the queries no later than 7 (seven) days prior to the Bid Due Date. The responses will be sent by e-mail. The Authority will forward all the queries and its responses thereto to all purchasers of the RFP without identifying the source of queries.

2.6.2 The Authority may also on its own motion, if deemed necessary, issue interpretations and clarifications, on e-procurement portal, website or by email, to all the Bidders. All clarifications and interpretations issued by the Authority shall be deemed to be part of the RFP. Verbal clarifications and information given by the Authority or its employees or representatives shall not, in any way or manner, be binding on the Authority.

## 2.7 **Amendment of RFP**

2.7.1 At any time prior to the deadline for submission of Bid, the Authority may, for any reason, whether at its own initiative or in response to clarifications requested by a Bidder, modify the RFP by the issuance of Addenda.

2.7.2 Any Addendum thus issued will be published on e-procurement portal, website. The published details on the said sources will be binding on the participating Bidders.

2.7.3 In order to afford the Bidders a reasonable time for taking an Addendum into account, or for any other reason, the Authority may, in its sole discretion, extend the Bid Due Date.

## C. **PREPARATION AND SUBMISSION OF BID**

### 2.8 **Format and signing of Bid**

2.8.1 The Bidder shall provide all the information sought under this RFP. The Authority will evaluate only those Bids that are received in the required formats and are complete in all respects. Incomplete and/or conditional Bids shall be liable to rejection.

2.8.2 The Bid shall be typed or written in indelible ink and signed by the authorised signatory of the Bidder who shall also initial each page. In case of printed and published Documents, only the cover shall be initiated. All the alterations, omissions, additions or any other amendments made to the Bid shall be initialled by the person(s) signing the Bid. The Bid shall contain page numbers. The scan copy of the bid shall be clear and distinct. The bidder shall check each page before uploading the same through e-procurement portal.

### 2.9 **Sealing and Marking of Bids**

2.9.1 The Bidder shall submit the Bid in the form as specified.

A Bidder shall submit the Bids as per the format in e-procurement portal.

#### **Technical Bid -**

- (a) Letter of Bid in the prescribed format (**Appendix-I**) along with Annexes and supporting documents
- (b) Bid Security through online portal.
- (c) Power of Attorney for signing the Bid as per the format at **Appendix-II**
- (d) If applicable, Power of Attorney for the Lead Member of Consortium as per the format at **Appendix-III**
- (e) Memorandum of Understanding, in case of a Consortium
- (f) Copies of:

- i. In case of registered partnership/proprietorship firm, copies of registered partnership deed, PAN card, updated GST Return Certificate, updated IT Return certificate, MSME Certificate, Labour license, ISO documents (wherever applicable)
- ii. In case of registered society, copies of Registration Certificate from the Registrar of the State for Societies, Register of Members, PAN card
- iii. In case of companies, copies of Memorandum of Understanding and Articles of Association, Certificate of Incorporation;
- iv. Bidder's duly audited balance sheet and profit and loss account for the preceding three years.

- (g) Technical Capacity in the prescribed format (**Appendix-IV**)
- (h) Certificate for Technical Capacity of the Bidder (**Appendix-IV A**)
- (i) Financial Capacity in the prescribed format (**Appendix-V**)
- (j) Affidavit for Assessment of Bid Capacity of the Bidder (**Appendix-V A**)
- (k) Comprehensive Technical Proposal on parameters set out in **Appendix-VI** along with supporting documents and PowerPoint presentation.

### **Financial Bid -**

2.9.2 The Bidder shall submit the financial bid as per the BOQ format in e-procurement portal.

### **2.10 Modifications/Substitution/Withdrawal of Bids**

2.10.1 The Bidder may modify, substitute or withdraw its Bid before the bid submission date and time as mentioned in the RFP.

### **2.11 Rejection of Bids**

Notwithstanding anything contained in this RFP, the Authority reserves the right to reject any Bid and to annul the Bidding Process and reject all Bids at any time without any liability or any obligation.

### **2.12 Validity of Bids**

The Bid shall be valid for a period not less than 180 days (one hundred and eighty) days from the Bid Due Date. The Validity of the Bids may be extended by mutual consent of the respective Bidders and the Authority.

### **2.13 Confidentiality**

Information relating to the examination, clarification, evaluation and recommendation for the Bidders shall not be disclosed to any person who is not officially concerned with the process or is not a retained professional advisor advising the Authority in relation to, or matters arising out of, or concerning the Bidding Process. The Authority will treat all information, submitted as part of the Bid, in confidence and will require all those who have access to such material to treat the same in confidence. The Authority may not divulge any such information unless it is directed to do so by any statutory entity that has the power under law to require its disclosure or is to enforce or assert any right or privilege of the statutory entity and/ or the Authority or as may be required by law or in connection with any legal process.

### **2.14 Correspondence with the Bidder**

Save and except as provided in this RFP, the Authority shall not entertain any correspondence with any Bidder in relation to the acceptance or rejection of any Bid.

#### **D. BID SECURITY**

##### **2.15 Bid Security**

- 2.15.1 The Bidder shall furnish as part of its Bid, a Bid Security referred to in **Clause 1.2.4**.
- 2.15.2 Bid Security shall be submitted on online portal as per the format of e-procurement portal. The Authority shall not be liable to pay any interest on the Bid Security Deposit so made and the same shall be interest-free.
- 2.15.3 Any Bid not accompanied by the Bid Security shall be summarily rejected by the Authority as non-responsive.
- 2.15.4 Save and except as provided in **Clause 1.2.4** above, the Bid Security of unsuccessful Bidders will be returned by the Authority, without any interest, as promptly as possible on acceptance of the Bid of the Selected Bidder or when the Bidding process is cancelled by the Authority, and in any case within 60 (sixty) days from the Bid Due Date.
- 2.15.5 The Selected Bidder's Bid Security for the Project will be returned, without any interest, upon the Concessionaire signing the Concession Agreement and furnishing the Performance Security in accordance with the provisions thereof.
- 2.15.6 The Authority shall be entitled to forfeit and appropriate the Bid Security as Damages inter alia in any of the events specified in Clause 2.18.7 herein below. The Bidder, by submitting its Bid pursuant to this RFP, shall be deemed to have acknowledged and confirmed that the Authority will suffer loss and damage on account of withdrawal of its Bid or for any other default by the Bidder during the period of Bid validity as specified in this RFP. No relaxation of any kind on Bid Security shall be given to any Bidder.
- 2.15.7 The Bid Security shall be forfeited as Damages without prejudice to any other right or remedy that may be available to the Authority under the Bidding Documents and/or under the Concession Agreement, or otherwise, under the following conditions:
- (a) If a Bidder engages in a corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice as specified in **Section 4** of this RFP;
  - (b) If a Bidder withdraws its Bid during the period of Bid validity as specified in this RFP and as extended by mutual consent of the respective Bidder(s) and the Authority;
  - (c) In the case of Selected Bidder, if it fails within the specified time limit
    - i. to sign and return the duplicate copy of LOA;
    - ii. to sign the Concession Agreement; or
    - iii. to furnish the Performance Security within the period prescribed therefore in the Concession Agreement; or
  - (d) In case the Selected Bidder, having signed the Concession Agreement, commits any breach thereof prior to furnishing the Performance Security.



### 3. EVALUATION OF BIDS

#### 3.1 Opening and Evaluation of Bids

- 3.1.1 The Authority shall open the Bids at the date, place and time mentioned in **Clause 1.3** on e-procurement portal.
- 3.1.2 The Authority will examine and evaluate the Bids in accordance with the provisions set out in this **Section 3**.
- 3.1.3 To facilitate evaluation of Bids, the Authority may, at its sole discretion, seek clarifications in writing from any Bidder regarding its Bid. The Authority reserves the right to seek original documents for verification of any of the documents or any other additional document upon opening of the Bids.
- 3.1.4 Any information contained in the Bid shall not in any way be construed as binding on the Authority, its agents, successors or assigns, but shall be binding against the Bidder if the Project is subsequently awarded to it under the Bidding Process on the basis of such information.
- 3.1.5 The Authority reserves the right not to proceed with the Bidding Process at any time without notice or liability and to reject any Bid without assigning any reasons.

#### 3.2 Tests of responsiveness & Evaluation for Qualification & Financial Bid

- 3.2.1 Prior to evaluation of Bids, the Authority shall determine whether each Bid is responsive to the requirements of the RFP. A Bid shall be considered responsive only if:
- (a) It is received as per the format of **Appendix-I**;
  - (b) It is received as per the format at **Appendix-I** to **Appendix-VIII** and its **Annexures**;
  - (c) It is received by the Bid Due Date, including any extension thereof pursuant to **Clause 2.10.2**;
  - (d) It is submitted in the manner as stipulated in **Clause 2.9**;
  - (e) It is accompanied by valid Bid security for the Project;
  - (f) It is accompanied by the Power of Attorney as specified in **Clause 2.1.8**, as the case may be;
  - (g) It contains all the information (complete in all respects) as requested in this RFP (in formats same as those specified);
  - (h) It is accompanied by the Memorandum of Understanding (for Consortium), specific to the Project, as stipulated in **Clause 2.1.2(f)**;
  - (i) It does not contain any condition or qualification; and
  - (j) It is not non-responsive in terms hereof.
- 3.2.2 The Authority reserves the right to reject any Bid which is non-responsive and no request for alteration, modification, substitution or withdrawal shall be entertained by the Authority in respect of such Bid.

#### 3.3 Evaluation parameters

- 3.3.1 The Bidder's competence and capacity is proposed to be established by the following parameters:
- (a) Technical Capacity; and
  - (b) Financial Capacity.

### 3.4 Eligible Experience

3.4.1 To be eligible, a Bidder shall fulfil the following conditions of eligibility:

(A) **Technical Capacity:** For demonstrating technical capacity and experience (the “**Technical Capacity**”), the Bidder over the past 5 (five) financial years preceding the Bid Due Date shall have;

1. (a) Designed and constructed

i. One FSTP of 10 KLD capacity, using of the specified technologies,

**AND**

(b) Performed operations and maintenance in at least 1 (one) project in

i. FSTP of at least 10 KLD using any of the specified technologies, or

**OR**

2. Designed, constructed and performed operations and maintenance at

i. One FSTP of 10 KLD capacity, using of the specified technologies, or

The Bidders must provide the necessary information relating to Technical Capacity as per format of **Appendix-IV**.

The specified technology considered for the purpose of this RFP is set out in **Appendix-VIII**.

(B) **Financial Capacity:** The Bidder shall satisfy the financial criteria (the “**Financial Capacity**”) provided below to demonstrate its Financial Capacity.

1. The Net worth of the Bidder as at the end of the most recent financial year shall be at least 1 Crore (One Crore) only.

2. The Average Annual Turnover of the Bidder in last three financial years shall be at least 1 Crore (One Crore) only.

3. The Available Bid Capacity of the Bidder should be equal or more than the total bid value.

In case of a Consortium, the combined Technical Capacity and Financial Capacity of the Members of the Consortium shall be considered.

### 3.5 Technical Proposal

3.5.1 The Technical Proposal would be evaluated on pass or fail basis considering the submission made as per **Appendix-VI**.

### 3.6 Financial information for purposes of Evaluation

3.6.1 The Bid must be accompanied by the Audited Annual Reports of the Bidder (of each Member in case of a Consortium) for the last financial year, preceding the year in which the Bid is made.

### 3.7 Evaluation of the Financial Bid

3.7.1 In this step, the Financial Bid of all the Technically Qualified Bidders will be opened on e-procurement portal in the presence of the Bidders’ representatives who choose to attend.

- 3.7.2 The Bid Price shall be calculated as the Net Present Value (NPV) of the Construction Cost and O&M Payment over the entire operations period as shown in the **Annex to Appendix-VII**.
- 3.7.3 For calculation of the Bid Price, the discount rate to be adopted by the Bidders for calculating the NPV shall be 12%.
- 3.7.4 **Abnormally Low Bids** are those which appear to be so low that it raises concerns as to the capability of the Bidder to perform the contract for the offered Bid Price. When the offered Bid Price appears to be abnormally low, the Authority shall undertake a three-step review process as follows:
- i. Identify abnormally low costs and unit rates by comparing them with the engineer's estimates, other substantially responsive bids, or recently awarded similar contracts;
  - ii. Clarify and analyse the Bidder's resource inputs and pricing, including overheads, contingencies and profit margins; and
  - iii. Decide whether to accept the Bid with increase in Performance Security proportionate to under-pricing or reject the Bid.
- 3.7.5 **Unbalanced or Front-Loaded Bids.** If the Bid is seriously unbalanced or front-loaded in the opinion of the Authority, the Authority may require the Bidder to produce detailed price analyses for any or all items of the Bill of Quantities, to demonstrate the internal consistency of those prices with the construction methods and schedule proposed, as well as the pricing and sources of materials, equipment and labour. After the evaluation of the information and detailed price analyses presented by the Bidder, the Authority may as appropriate:
- i. Accept the Bid; or
  - ii. Accept the Bid but require that the total amount of the Performance Security be increased at the expense of the Bidder to a level sufficient to protect the Authority against financial loss in the event of default of the successful Bidder under the Contract; or
  - iii. Reject the Bid and make a similar determination for the next-ranked Bid.
- 3.7.6 The O&M Fee quoted for each year shall be paid in monthly instalments ("**Periodic Payment**") in accordance with the terms of the Concession Agreement.
- 3.7.7 The Price Proposal shall be inclusive of all duties, taxes and other levies payable by the Contractor under the Contract, or for any other cause, as of the date of deadline for submission of the Bids.
- 3.7.8 Upon acceptance of the Financial Bid of the lowest evaluated Bidder, the Authority shall declare the Preferred Bidder as the selected Bidder (the "**Selected Bidder**").
- 3.7.9 In the event that two or more Bidders quote the same lowest evaluated price, the Authority shall identify Selected Bidder by draw of lots, which shall be conducted, with prior notice, in the presence of the Tied Bidders who choose to attend.
- 3.7.10 After selection, a Letter of Award (the "**LOA**") shall be issued, in duplicate, by the Authority to the Selected Bidder and the Selected Bidder shall, within 7 (seven) days of the receipt of the LOA, sign and return the duplicate copy of the LOA in acknowledgement thereof. In the event the duplicate copy of the LOA duly signed by the Selected Bidder is not received by the stipulated date, the Authority may, unless it consents to extension of time for submission thereof, appropriate the Bid Security of such Bidder as mutually agreed genuine pre-estimated loss and damage suffered by the Authority on account of failure of the Selected Bidder to acknowledge the LOA, and the next eligible Bidder may be considered.

3.7.11 After acknowledgement of the LOA as aforesaid by the Selected Bidder, it shall submit Performance Security and execute the Concession Agreement within the period of 15 days. The Selected Bidder shall not be entitled to seek any deviation in the Concession Agreement.

### 3.8 **Contacts during Bid Evaluation**

Bids shall be deemed to be under consideration immediately after they are opened and until such time the Authority makes official intimation of award/rejection to the Bidders. While the Bids are under consideration, Bidders and/or their representatives or other interested parties are advised to refrain from contacting by any means, the Authority and/or their employees/representatives on matters related to the Bids under consideration.

#### 4. MISCELLANEOUS

- 4.1 The Bidding Process shall be governed by, and construed in accordance with, the laws of India and the Courts at Guwahati, Assam shall have exclusive jurisdiction over all disputes arising under, pursuant to and/or in connection with the Bidding Process.
- 4.2 The Authority, in its sole discretion and without incurring any obligation or liability, reserves the right, at any time, to:
- Suspend and/or cancel the Bidding Process and/or amend and/or supplement the Bidding Process or modify the dates or other terms and conditions relating thereto;
  - Consult with any Bidder in order to receive clarification or further information;
  - Retain any information and/or evidence submitted to the Authority by, on behalf of, and/or in relation to any Bidder; and/or
  - Independently verify, disqualify, reject and/or accept any and all submissions or other information and/or evidence submitted by or on behalf of any Bidder.
- 4.3 It shall be deemed that by submitting the Bid, the Bidder agrees and releases the Authority, its employees, agents and advisors, irrevocably, unconditionally, fully and finally from any and all liability for claims, losses, damages, costs, expenses or liabilities in any way related to or arising from the exercise of any rights and/or performance of any obligations hereunder, pursuant hereto and/or in connection herewith and waives any and all rights and/or claims it may have in this respect, whether actual or contingent, whether present or future.

#### 4.4 Schedule of Payment (excluding Operations & Maintenance Work):

#	Unit	Percentage
1	On approval of concept of design and detailed drawings.	2
2	On completion of land development works and Intercept & Diversion works	5
3	On completion of excavation and lean concrete work in Foundations	15
4	On completion of foundation up to plinth level in building work and work of raft / RCC footings in other works.	15
5	On completion of balance civil work	25
6	On completion of equipment layout	15
7	On completion and satisfactory testing & commissioning and completion of Performance Guarantee Test	23

#### 4.5 Performance Guarantee Test

Once the Contractor is satisfied with the stabilization of critical units and energy efficiency of the system, it will inform the Employer's representative in writing that it is ready to perform performance guarantee test (PG Test). The performance guarantee test will be conducted at a mutually agreed convenient date.

- The performance test shall be conducted for a continuous period of 3 days (72 hours) hours.
- The output parameters should meet the prescribed discharge standards of the State Pollution Control Board in terms of BoD, CoD, pH, TSS, Oil & grease and any other parameters as deemed necessary for the functioning of the FSTP in compliance with Pollution Control Board of Assam discharge norms

#### 4.6 Tests during O&M period

During O & M period, tests for the mentioned parameters shall be done on quarterly basis. In case the treated samples do not comply with the prescribed discharge norms the vendor will have to take

corrective measures for making the system meet the prescribed norms. Payment due will be released only on successful completion of the rectification undertaken by the vendor.

#### **4.7 Compliance with Labour Regulations**

- 4.7.1 During continuance of the contract, the vendor shall abide at all times by all existing labour enactments and rules made there under, regulations, notifications and bye laws of the State or Central Government or local authority and any other labour law (including rules), regulations, bye laws that may be passed or notification that may be issued under any labour law in future either by the State or the Central Government or the local authority. The Contractor shall keep the Employer indemnified in case any action is taken against the Employer by the competent authority on account of contravention of any of the provisions of any Act or rules made there under, regulations or notifications including amendments. If the Employer is caused to pay or reimburse, such amounts as may be necessary to cause or observe, or for non-observance of the provisions stipulated in the notifications/bye laws/Acts Rules/regulations including amendments, if any, on the part of the Contractor, the EO shall have the right to deduct any money due to the Contractor including his amount of performance security. The EO shall also have right to recover from the Contractor any sum required or estimated to be required for making good the loss or damage suffered by the Employer. The employees of the Contractor in no case shall be treated as the employees of the Employer at any point of time.
- 4.7.2 The Contractor shall ensure that the personnel engaged by him in the performance of its obligations under this Agreement are at all times appropriately qualified, skilled and experienced in their respective functions in conformity with Good Industry Practice.
- 4.7.3 The Contractor shall bear full risk in and take full responsibility for the care of work, and of the Materials, goods and equipment for incorporation therein, from the Date of entry upon the site until the date of completion, defect liability, maintenance period as specified or date of final taking over certificate whichever is the last date.
- 4.7.4 The Contractor shall be responsible for procuring of all power, water and other services that it may require during construction.

#### **4.8 Liquidation Damage**

If contractors fail to comply with time for completion the contractor being given notice to make good the time fails to do so to the satisfaction of engineer he shall be liable to pay LD/Delay Damages for the default. The Delay Damages shall be the sum stated in Contract Data which shall be payable for delay for each week that is caused incompleteness. The total amount of such delay damages shall not exceed 10% of contract value. These damages shall not release the contractor from its obligation to complete the job or from any duties or responsibilities which he may have under the contract.

#### **4.9 Defect Liability Period**

Considered as One Year (1) in parallel with O&M period after development period and commencing after issuance of completion certificate.

#### **4.10 General Indemnity**

The Contractor will indemnify, defend, save and hold harmless the Municipal Board and its officers, servants, agents, Government Instrumentalities and Government owned and/or controlled entities/enterprises, against any and all suits, proceedings, actions, demands and third party claims for any loss, damage, cost and expense of whatever kind and nature, whether arising out of any breach by the Contractor of any of its obligations under this Agreement or from any negligence under the Agreement, or tort or on any other ground whatsoever, except to the extent that any such suits, proceedings, actions, demands and claims have arisen due to any negligent act or omission, or breach or default of this Agreement.

## **SCHEDULE A: PROJECT DETAILS**

### **A. Overview Map**

Faecal Sludge and Septage Management (FSSM) is a used water/wastewater treatment approach and refers to the management of all stages of the sanitation value chain such as collection, emptying, transport, treatment and disposal/reuse of faecal sludge/septage. Faecal sludge is partially digested and septage is the fully digested used water/wastewater that is emptied from onsite sanitation systems such as pit latrines, septic tanks, etc.

A majority of households and establishments in both urban and rural India depend on onsite sanitation systems. Less than 35% households in urban India were served with a sewerage network as per Census 2011. With the efforts of Nirmal Bharat Abhiyan, Swachh Bharat Mission and the declaration of Open Defecation Free (ODF) India in October 2019, it can be safely assumed that the number of newly constructed toilets would have increased exponentially. But there is no indication of proportionate increase in the numbers and length of sewerage networks and other offsite sanitation systems in the same period. Thus, most of the toilets are most likely connected to onsite sanitation systems such as septic tanks and leach pits. Treatment and safe management of faecal sludge and septage that is emptied from such onsite sanitation systems is vital to ensure environmental cleanliness and ensuring public health.

The urban population of Assam as per Census 2011 is 43,98,542 which is just 14.1% of the total population of the state. The State of Assam has 35 districts and 101 Urban Local Bodies. Some ULBs fall under sixth schedule areas. The ULBs are supported by the Department of Housing and Urban Affairs through the Directorate of Municipal Administration and other PMUs set up for every scheme like SBM-U, AMRUT, DAY-NULM, etc. Through Swachh Bharat Mission-Urban more than 46,000 toilets have been constructed in the urban areas in the first phase. There is currently no city-wide wastewater treatment plant in the state. CPCB had identified 44 river stretches which were found to be critically polluted and through a case at National Green Tribunal, Action plans have created for setting up treatment plants in the towns where these critically polluted stretches are located.

Households construct septic tanks and leach pits using the services of masons who are not trained on the BIS standards mentioned in IS code 2470. Some are over-sized and some are under-sized. Some septic tanks are not connected to the soak pits. There is lack of knowledge for constructing the right kind of septic tank and soak pit, neither is it enforced by suitable legislations. From the Rapid Assessments done in the ULBs it is known that in the cities about 70 % and more depend on septic tanks.

### **B. Description of the Project**

Jorhat is an administrative district in the state of Assam with its headquarter at Jorhat town. The area of the Jorhat district is about 1758 km<sup>2</sup>. The population of the district, as per the census report of 2011 is also stated to be 924952 with the literacy rate of 82.78 %. Jorhat district has 842 villages, administered under 2 nos. of Sub-divisions & 5 Nos. of revenue circles. The total area of the town is 9.2 sq. km. The city is served by Jorhat railway station. Jorhat town is having good motorable roads and is integrated into the National Highway system connected to NH 37 providing easy access to important places in Assam.

### **Climate**

Located at an elevation of 94.12 meters (308.79 feet) above sea level, Jorhat has a Humid subtropical, dry winter climate. The district's yearly temperature is 25.67°C (78.21°F) and it is -0.3% lower than India's averages. Jorhat typically receives about 96.46 millimeters (3.8 inches) of precipitation and has 66.44 rainy days (18.2% of the time) annually.

The month with the highest relative humidity is July (87.72 %). The month with the lowest relative humidity is March (57.7 %). The month with the highest number of rainy days is July. The month with the lowest number of rainy days is December. In Jorhat, the climate is warm and temperate. The summers are much rainier than the winters in Jorhat.

### **Soil and Drainage network**

The landscape of Jorhat town consists mainly of plain surfaces. Currently, the entire wastewater is being discharged into the open storm water drains across the length and breadth of the town and this untreated wastewater is directly flowing into River.

Jorhat Municipal Board have 2 nos. of CessPool vehicles of which one vehicle capacity is- 1500 Liters and the other one is- 3000 Liters. Moreover, 1 cesspool having a capacity of 1000 Liters is being used by other agency within the town.

### **C. Designated Disposal Site**

The details of disposal site are as set out below:

<b>Designated Disposal Site</b>	<b>Location</b>
Site for FSTP construction	Village- 2 No. Bamun Gaon, Mouza- Charigaon, JEC Road, Jorhat



## **APPENDIX–I: LETTER OF TECHNICAL BID**

(To be on the letterhead of the Bidder/Lead Member of Consortium)

Dated:

To: The Chairperson/ Executive Officer  
Jorhat Municipal Board  
Jorhat.

**Sub: Bid for Selection of Private Entity for Design, Build, Operation, Maintenance and Transfer of 15 KLD Faecal Sludge Treatment Plant for 3 years in Jorhat Municipal Board**

To;

1. With reference to your RFP document dated \*\*\*\*\*, I/We, having examined the Bid Documents and understood their contents, hereby submit My/Our Bid for the aforesaid Project. The Bid is unconditional and unqualified.
2. All information provided in the Bid and in the Appendices is true and correct.
3. We certify that in the last three years, we/any of the Consortium Members have neither failed to perform on any contract, as evidenced by the imposition of a penalty or a judicial pronouncement or arbitration award, nor been expelled from any project or contract nor have had any contract terminated for breach on our part.
4. I/ We declare that:
  - (a) I/We have examined and have no reservations to the Bidding Documents, including any Addendum issued by the Authority.
  - (b) I/We have not directly or indirectly or through an agent engaged or indulged in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice, in respect of any tender or Request for Proposal issued by or any agreement entered into with the Authority or any other public sector enterprise or any government, Central or State; and
  - (c) I/We hereby certify that we have taken steps to ensure that, no person acting for us or on our behalf has engaged or will engage in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice.
5. I/We understand that you may cancel the Bidding Process at any time and that you are neither bound to accept any Proposal that you may receive nor to invite the Bidders to bid for the Project without incurring any liability to the Bidders.
6. I/We declare that We/any Member of the Consortium are/is not a member of a/any other Consortium submitting a Proposal for the Project.
7. I/We certify that we are not barred by the Central/State Government, or any entity controlled by them, from participating in any project.
8. In the event of my/our being declared as the Selected Bidder, I/We agree to enter into a Concession Agreement in accordance with the draft that has been provided to me/us prior to the Bid Due Date. We agree not to seek any changes in the aforesaid draft and agree to abide by the same.

- 9. The Financial Bid has been submitted by me/us after taking into consideration all the terms and conditions stated in the RFP; draft Concession Agreement, our own estimates of costs and revenues and all the conditions that may affect the Proposal.
  
- 10. I/We agree to keep this offer valid for 180 (One Hundred and Eighty) days from the Bid Due Date specified in the RFP.

Yours faithfully,

Date:

(Signature of the Authorised Signatory)

Place:

(Name and Designation of the of the Authorised Signatory)

Name and Seal of Bidder/Lead Firm

## ANNEX-I DETAILS OF BIDDER

1. (a) Name:  
 (b) Country of incorporation:  
 (c) Address of the corporate headquarters and its branch office(s), if any, in India:  
 (d) Date of incorporation and/or commencement of business:
  
2. Brief description of the Company, including details of its main lines of business and proposed role and responsibilities in this Project:
  
3. Details of individual(s) who will serve as the point of contact/communication for the Authority:  
 (a) Name:  
 (b) Designation:  
 (c) Company:  
 (d) Address:  
 (e) Telephone Number/Mobile Number:  
 (f) E-Mail Address:  
 (g) Fax Number:
  
4. Particulars of the Authorised Signatory of the Bidder:  
 (a) Name:  
 (b) Designation:  
 (c) Address:  
 (d) Phone Number:  
 (e) Fax Number:
  
5. In case of a Consortium:  
 (a) The information above (1-4) should be provided for all the Members of the Consortium.  
 (b) A copy of the Memorandum of Understanding, as envisaged in **Clause 2.1.2(f)** should be attached to the Bid.  
 (c) Information regarding role of each Member should be provided as per **Clause 2.1.2(f)** Table below:

Sl. No.	Name of Member	Role {Lead Member/Member}
1.		
2.		

- (d) The following information shall also be provided for each Member of the Consortium:

Name of Bidder/ member of Consortium:

Sl. No.	Criteria	Yes	No
1.	Has the Bidder/constituent of the Consortium been barred by the Central/State Government, or any entity controlled by them, from participating in any project (DBOT or otherwise)		
2.	If the answer to 1 is yes, does the bar subsist as on the Date of the Bid.		

6. A statement by the Bidder and each of the Members of its Consortium (where applicable) disclosing material non-performance or contractual non-compliance in past projects, contractual disputes and litigation/arbitration in the recent past is given below (Attach extra sheets, if necessary).

## APPENDIX–II: POWER OF ATTORNEY FOR SIGNING OF BID

(On a Stamp Paper of appropriate value)

Know all men by these presents, We..... *(Name of the firm and address of the registered office)* do hereby irrevocably constitute, nominate, appoint and authorise Mr/Ms (Name), ..... son/daughter/wife of ..... and presently residing at ....., who is presently employed with us/the Lead Member of our Consortium and holding the position of ....., as our true and lawful attorney (hereinafter referred to as **the “Attorney”**) to do in our name and on our behalf, all such acts, deeds and things as are necessary or required in connection with or incidental to submission of our Bid in respect of the Project provided in the Letter of Bid for Selection of Private Entity for Design, Build, Operation, Maintenance and Transfer of 15 KLD Faecal Sludge Treatment Plant for 3 years in Jorhat Municipal Board of Chairperson/Executive Officer, (hereinafter referred to as **the Authority**) including but not limited to signing and submission of all Bids and other documents and writings, participate in the Bidding Process and other conferences and providing information/responses to the Authority, representing us in all matters before the Authority, signing and execution of all contracts, including the Concession Agreement, and undertakings consequent to acceptance of our Bid, and generally dealing with the Authority in all matters in connection with or relating to or arising out of our Bid for the said Project and/or upon award thereof to us and/or till the entering into of the Concession Agreement with the Authority.

AND we hereby agree to ratify and confirm and do hereby ratify and confirm all acts, deeds and things lawfully done or caused to be done by our said Attorney pursuant to and in exercise of the powers conferred by this Power of Attorney and that all acts, deeds and things done by our said Attorney in exercise of the powers hereby conferred shall and shall always be deemed to have been done by us.

IN WITNESS WHEREOF WE, ....., THE ABOVE-NAMED PRINCIPAL HAVE EXECUTED THIS POWER OF ATTORNEY ON THIS ..... DAY OF ....., 2.....

For .....

(Signature, Name, Designation and Address)

Witnesses:

- 1.
- 2.

(Notarised)

Accepted

..... (Signature)

(Name, Title and Address of the Attorney)

Notes:

The mode of execution of the Power of Attorney should be in accordance with the procedure, if any, laid down by the applicable law and the charter documents of the executant(s) and when it is so required, the same should be under common seal affixed in accordance with the required procedure.

Wherever required, the Bidders should submit for verification the extract of the charter documents and documents such as a resolution/Power of Attorney in favour of the person executing this Power of Attorney for the delegation of power hereunder on behalf of the Bidder.

## APPENDIX–III: POWER OF ATTORNEY FOR LEAD MEMBER OF CONSORTIUM

(On a Stamp Paper of value of appropriate value)

Whereas the Chairperson/Executive Officer, of Jorhat Municipal Board has invited Bids from interested parties for Selection of Private Entity for Design, Build, Operation, Maintenance and Transfer of 15 KLD Faecal Sludge Treatment Plant (MBBR project) for 3 years in Jorhat.

Whereas, ....., and ..... (collectively the “Consortium”) being Members of the Consortium are interested in bidding for the Project listed in the Letter of Bid in accordance with the terms and conditions of Request for Proposal (RFP) and other connected documents in respect of the Project, and

Whereas, it is necessary for the Members of the Consortium to designate one of them as the Lead Member with all necessary power and the Authority to do for and on behalf of the Consortium, all acts, deeds and things as may be necessary in connection with the Consortium’s bid for the Project and its execution.

NOW THEREFORE KNOW ALL MEN BY THESE PRESENTS

We, \_\_\_\_\_ having our registered office at \_\_\_\_\_, M/s. \_\_\_\_\_, having our registered office at \_\_\_\_\_, and M/s. \_\_\_\_\_, having our registered office at \_\_\_\_\_, [*the respective names and addresses of the registered office*] (hereinafter collectively referred to as **the “Principals”**) do hereby irrevocably designate, nominate, constitute, appoint and authorise M/s \_\_\_\_\_, having its registered office at \_\_\_\_\_, being one of the Members of the Consortium, as the Lead Member and true and lawful Attorney of the Consortium (hereinafter referred to as **the “Attorney”**) and hereby irrevocably authorise the Attorney (with power to sub-delegate) to conduct all business for and on behalf of the Consortium and any one of us during the Bidding Process and, in the event the Consortium is awarded the Concession/ Contract, during the execution of the Project, and in this regard, to do on our behalf and on behalf of the Consortium, all or any of such acts, deeds or things as are necessary or required or incidental to the submission of its Bid for the Project, including but not limited to signing and submission of all applications, Bids and other documents and writings, participate in Bidders’ and other conferences, respond to queries, submit information/documents, sign and execute contracts and undertakings consequent to acceptance of the Bid of the Consortium and generally to represent the Consortium in all its dealings with the Authority, and/or any other Government Agency or any person, in all matters in connection with or relating to or arising out of the Consortium’s Bid for the Project and/or upon award thereof till the Concession Agreement is entered into with the Authority.

AND hereby agree to ratify and confirm and do hereby ratify and confirm all acts, deeds and things lawfully done or caused to be done by our said Attorney pursuant to and in exercise of the powers conferred by this Power of Attorney and that all acts, deeds and things done by our said Attorney in exercise of the powers hereby conferred shall and shall always be deemed to have been done by us/Consortium.

IN WITNESS WHEREOF WE THE PRINCIPALS ABOVE NAMED HAVE EXECUTED THIS POWER OF ATTORNEY ON THIS ..... DAY OF .....20\_\_

For\_\_\_\_\_ (Name & Title)

For\_\_\_\_\_ (Name & Title)

For\_\_\_\_\_ (Name & Title)

Witnesses:

- 1
- 2

(Executants)

(To be executed by all the Members of the Consortium)

Notes:

- *The mode of execution of the Power of Attorney should be in accordance with the procedure, if any, laid down by the applicable law and the charter documents of the executant(s) and, when it is so required, the same should be under common seal affixed in accordance with the required procedure.*
- *Also, wherever required, the Bidder should submit for verification the extract of the charter documents and documents such as a resolution/Power of Attorney in favour of the person executing this Power of Attorney for the delegation of power hereunder on behalf of the Bidder.*

## APPENDIX–IV: TECHNICAL CAPACITY OF THE BIDDER

### 1. Experience in Terms of Design and Construction (Claimed in accordance with Clause 3.4.1 (A))

Bidder Type	Name of the Project	Experience	
		<b>Design and Construction of FSTP Using any of the Specified Technologies (Equivalent to 15 KLD)</b>	
<b>(Strikeout whichever is not applicable in the above)</b>			
<b>Single Entity Bidder</b>			
<b>Consortium – Lead Member</b>			
<b>Consortium – Other Member</b>			
<b>Consortium – Other Member</b>			

### 2. Experience in Terms of Operation and Maintenance (Claimed in accordance with Clause 3.4.1 (A))

Bidder Type	Name of the Project	Experience	
		<b>Operation and Maintenance of FSTP Using any of the Specified Technologies (Equivalent to 15 KLD)</b>	
<b>(Strikeout whichever is not applicable in the above)</b>			
<b>Single Entity Bidder</b>			
<b>Consortium – Lead Member</b>			
<b>Consortium – Other Member</b>			
<b>Consortium – Other Member</b>			



**3. Experience in Terms of Development and Operation (Claimed in accordance with Clause 3.4.1 (A))**

<b>Bidder Type</b>	<b>Name of the Project</b>	<b>Experience</b>	
		<b>Development and Operation of FSTP Using any of the Specified Technologies (Equivalent to 15 KLD)</b>	
		<b>(Strikeout whichever is not applicable in the above)</b>	
<b>Single Entity Bidder</b>			
<b>Consortium – Lead Member</b>			
<b>Consortium – Other Member</b>			
<b>Consortium – Other Member</b>			

**Instructions:**

1. Bidders are expected to provide information in respect of each project in this Appendix.
2. The Bidders should provide details of only those projects that have been undertaken by the Bidder under its own name.
3. A separate sheet should be filled for each project.
4. In case of Consortium Bidder, experience of any activity relating to a project shall not be claimed by two or more members of the Consortium. In other words, no double counting by a Consortium in respect of the same experience shall be permitted in any manner whatsoever.
5. A Bidder consisting of a single entity should fill in details as per the row titled Single Entity Bidder and ignore the rows titled Consortium Member. In case of a Consortium, the row titled Single Entity Bidder may be ignored.

## APPENDIX–IVA: CERTIFICATE FOR TECHNICAL CAPACITY OF THE BIDDER

### 1. Experience in terms of Design and Construction (Claimed in accordance with Clause 3.4.1 (A))

<b>Name of ULB</b>	
<b>Title of the Project</b>	
<b>Scope of the Project</b>	
<b>Name of the Client</b>	
<b>Project Location</b>	
<b>Term of the Contract in Months</b>	
<b>Date of Commencement</b>	
<b>Date of Completion</b>	
<b>Technology Used (applicable for FSTP)</b>	

**Format for Certificate from the Client for Technical Capacity**  
*(On the letterhead of the Client)*

Date:

**TO WHOMSOEVER IT MAY CONCERN**

This is to certify that \_\_\_\_\_ (name of the Bidder) has carried out the following activity:

- a) Construction of FSTP of \_\_\_\_ KLD using \_\_\_\_\_ technology

**[Strike out whichever is not applicable in the above]**

This certificate is being issued to be produced before \_\_\_\_\_ (“\_\_\_\_”), for the Project “Selection of Private Entity for Design, Build, Operation, Maintenance and Transfer of \_\_\_\_ KLD Faecal Sludge Treatment Plant for [\_\_\_\_] years in [Name of the Location]”.

Signature and Seal of the  
Authorised Signatory of the Client

**2. Experience in terms of Operation and Maintenance (Claimed in accordance with Clause 3.4.1 (A))**

<b>Name of ULB</b>	
<b>Title of the Project</b>	
<b>Scope of the Project</b>	
<b>Name of the Client</b>	
<b>Project Location</b>	
<b>Term of the Contract in Months</b>	
<b>Date of Commencement</b>	
<b>Date of Completion</b>	
<b>Technology Used (applicable for FSTP)</b>	

**Format for Certificate from the Client for Technical Capacity**

*(On the letterhead of the Client)*

Date:

**TO WHOMSOEVER IT MAY CONCERN**

This is to certify that \_\_\_\_\_ (*Name of the Bidder*) has carried out the following activity:

- a) Operation and Maintenance of FSTP of \_\_\_\_ KLD using \_\_\_\_\_ technology

**[Strike out whichever is not applicable in the above]**

This certificate is being issued to be produced before \_\_\_\_\_ (“\_\_\_\_”), for the Project “Selection of Private Entity for Design, Build, Operation, Maintenance and Transfer of \_\_\_\_ KLD Faecal Sludge Treatment Plant for [\_\_\_\_] years in [*Name of the Location*]”.

Signature and Seal of the  
Authorised Signatory of the Client

**3. Experience in terms of Development and Operation (Claimed in accordance with Clause 3.4.1 (A))**

<b>Name of ULB</b>	
<b>Title of the Project</b>	
<b>Scope of the Project</b>	
<b>Name of the Client</b>	
<b>Project Location</b>	
<b>Term of the Contract in Months</b>	
<b>Date of Commencement</b>	
<b>Date of Completion</b>	
<b>Technology Used (applicable for FSTP)</b>	

<p><b>Format for Certificate from the Client for Technical Capacity</b> (On the letterhead of the Client)</p> <p>Date:</p> <p style="text-align: center;"><b>TO WHOMSOEVER IT MAY CONCERN</b></p> <p>This is to certify that _____ (Name of the Bidder) has carried out the following activity:</p> <p style="padding-left: 40px;">a) Developed and Operated FSTP of 15KLD using MBBR technology</p> <p><b>[Strike out whichever is not applicable in the above]</b></p> <p>This certificate is being issued to be produced before _____ (“_____”), for the Project “Selection of Private Entity for Design, Build, Operation, Maintenance and Transfer of 15KLD Faecal Sludge Treatment Plant for 5 years in Jorhat”.</p> <p>Signature and Seal of the Authorised Signatory of the Client</p>
--

**Instructions:**

1. Bidders are expected to provide information in respect of each project in this Appendix.
2. The Bidders should provide details of only those projects that have been undertaken by the Bidder under its own name.
3. A separate sheet should be filled for each project.
4. In case of Consortium Bidder, experience of any activity relating to a project shall not be claimed by two or more Members of the Consortium. In other words, no double counting by a Consortium in respect of the same experience shall be permitted in any manner whatsoever.

## APPENDIX–V: FINANCIAL CAPACITY OF THE BIDDER

(In Rs.)

Bidder Type	Net Worth in the Latest Completed Financial Year	Average Annual Turnover for past [three years]		
		Year 1	[Year 2]	[Year 3]
Single entity Bidder/ Lead Member				
Second Member of Consortium				
Third Member of Consortium				
<b>Total</b>				
<b>Average Annual Turnover for the Years Mentioned</b>		<b>Rs _____ (Rupees _____ only)</b>		

**Name & Address of Bidder's Bankers:**

**Instructions:**

1. A Bidder consisting of a single entity should fill in details as per the row titled Single entity Bidder and ignore the rows titled Consortium Members. In case of a Consortium, row titled Single entity Bidder may be considered as Lead Member.
2. Bidder shall submit Turnover details.
3. The Bidder/its constituent Consortium Members shall attach copies of the balance sheets, financial statements and Annual Reports for the last three financial years. The financial statements shall:
  - (a) Reflect the financial situation of the Bidder or Consortium Members;
  - (b) Be audited by a statutory auditor/chartered accountant in case of a registered society and registered partnership firm;
  - (c) Be complete, including all notes to the financial statements; and
  - (d) Correspond to accounting periods already completed and audited (no statements for partial periods shall be requested or accepted).
4. The Bidder shall provide a Statutory Auditor's/Chartered Accountant's Certificate specifying the Turnover and Net worth of the Bidder.
5. Experience (Technical Capacity and Financial Capacity) of only the Bidder shall be considered. Experience of associate company/parent company/subsidiary company shall not be considered for qualification purposes.

## APPENDIX–VA: BID CAPACITY OF THE BIDDER

(On a Rs. 100 Non-judicial Stamp Paper)

**Assessment of Bid Capacity:** The bidding capacity of the Contractor should be equal to or more than the amount specified under Clause 3.4.1(B)(3). The bidding capacity shall be worked out by the following formula: **Bidding Capacity = [A x N x 2] – B**

Where,

A = Maximum value of construction works executed in any one year during the last five years taking into account the completed as well as works in progress

N = Number of years prescribed for completion of work for which bids have been invited

B = Value of existing commitments and ongoing works to be completed during the period of completion of work for which bids have been invited.

<b>List of existing commitments and ongoing projects</b>							
Sl. No.	Name of project	Client name and address	Value as per work order (Rs)	Work executed till date (Rs)	Balance amount of work to be completed (Rs)	Remaining duration of project (Months)	Work to be completed in the next [12 months]
(1)	(2)	(3)	(4)	(5)	(6)=(4)-(5)	(7)	(8)
<b>B:</b> Total amount of works to be completed in the next [12 months] (Rs)							
<b>A:</b> Maximum value project for the past five years (Rs)							
<b>Bid capacity:</b> (A x N x 2 – B) (Rs)							

This is to certify that the above particulars furnished, and the bid capacity calculation are true and correct. I/we agree that if any information is found to be concealed at a later date, the Contract will be terminated forthwith without prejudice to the rights consequent on termination and that we will be blacklisted for a period of one year.

Date:

(Signature of the Authorised Signatory)

Place:

(Name and Designation of the Authorised Signatory)

Name and Seal of Bidder/Lead Firm

(Notarised)

Accepted

..... (Signature)

(Name, Title and Address of the Attorney)

## APPENDIX VI: TECHNICAL PROPOSAL

(To be submitted on the letterhead of the Bidder and in case of Consortium on the letterhead of the Lead Member)

This document provides guidance on the minimum expected content of a technical proposal document to the Bidders to ensure good quality bid submissions. This guidance is indicative only.

1. State which of the specified technologies from **Appendix-VIII** is proposed.
2. A description of the treatment process with schematic diagram and why this approach is suitable for the given conditions.
3. Total area required with footprint of treatment modules and other infrastructure
4. Description of each module in the treatment process.
5. A hydraulic flow diagram.
6. Mass balance and energy balance charts as applicable showing pollution removal at each step.
7. Specifications of any treatment products and disposal plan for each.
8. List of consumables during regular operations with quantities per month (or as applicable) for each.

9. List of mechanical equipment with power consumption details.
10. List of workers required with skill set of each worker specified for O&M of proposed plant.
11. Brief description of other infrastructure being provided - amenities for workers, landscaping plan, roads, parking, streetlights, security room etc.

## APPENDIX–VII: FINANCIAL BID

(To be submitted on the letterhead of the Bidder and in case of Consortium on the letterhead of the Lead Member)

Date: \_\_\_\_\_

To,

The Chairperson/Executive Officer  
Jorhat Municipal Board  
Jorhat

**Sub: Bid for Selection of Private Entity for Design, Build, Operation, Maintenance and Transfer of 15 KLD Faecal Sludge Treatment Plant for 3 years in Jorhat Municipal Board**

**Ref: Your Notification No: \_\_\_\_\_ dated: \_\_\_\_\_**

Dear Sir,

Having gone through this RFP document and the draft Concession Agreement and having fully understood the Scope of Work for the Project as set out by [the Authority] in the RFP document, I/We are pleased to inform that our bid is as set out below for carrying out the Project envisaged under the Scope of Work indicated in this RFP document and draft Concession Agreement.

	Amount in Words (in Rs.)	Amount in Figures (in Rs.)
<b>Construction Cost</b>		
<b>FSTP O&amp;M Payment per year</b>		

I/We have reviewed all the terms and conditions of the Request for Proposal, including the draft Concession Agreement, and would undertake to abide by all the terms and conditions contained therein. I/We hereby declare that there are, and shall be, no deviations from the stated terms in the RFP document.

Yours faithfully,

For and on behalf of (*Name of Bidder*)

*Duly signed by the Authorised Signatory of the Bidder*  
(*Name, Designation and Address of the Authorised Signatory*)



## ANNEX TO APPENDIX – VII: EXAMPLE SHOWING CALCULATION OF BID PARAMETER FROM FINANCIAL BID

An illustration of how the final Bid Price is calculated from the Financial Bid submitted is presented below:

Project parameters	Value
Selected Technology-	
Cost escalation every 3 years	
FSTP O&M fee per year in Rs (as per Financial Bid submitted)	

Year	Construction cost (in Rs.)	Escalation	FSTP O&M cost per year (in Rs.) with escalation	Total cost (in Rs.)
0				
1				
2				
3				
4				
5				
Bid price (Net present value of all payouts at the beginning of year zero)				₹

**General formula for Bid Price calculation:**

*Bid Price = Net present value (Construction Cost + (FSTP O&M fee per year with escalation) for all years of operation, calculated at a discount rate of 12% per annum*

## APPENDIX: SPECIFIED TECHNOLOGIES

This is a “Procurement and Construction Contract” in which the contractor is responsible for the execution of the work including the supply and installation of all materials, machineries, equipment etc. in accordance with the specifications stipulated in the Bid Document and in conformity with the Quality Parameters laid down in the relevant BIS, CPHEEO, Bid Document etc. and completing the entire work in all respect satisfactorily and commissioning within the stipulated time period. and the contractor is responsible for engineering of shed over the sludge drying beds, sludge temporary storage shed and other minor piping details along with execution of the work including the supply and installation of all materials, machineries, equipment etc. Since the civil components are to be utilized for biological treatment processes, it is necessary that all the components are constructed meticulously as per design, drawings and specifications to avoid process failure due to insufficient provisions & improper construction. The agency is advised to carefully study the detailed scope of the work along with the available drawing and design and proceed as per the direction of the Engineer-in-charge. The bidder must visit the site to familiarize with the nature & type of work for the set-up of the Faecal Sludge Treatment Plant (FSTP) based on MBBR technology. The general, technical specifications have been provided in the bid document. In case of confusion, lack of clarity or insufficiency in the technical documentation as provided, it shall be decided by the Engineer-in-charge.

**Table No. 1**

#	<u>Components (For 15KLD design)</u>	<u>Quantity</u>	<u>L (in metres)</u>	<u>W (in metres)</u>	<u>H (in metres)</u>	<u>Remarks, if any</u>
1	RCC Ramp	01 no.	10.0	3.0	-	Above ground
2	Bar Screen Chamber	01 no.	1.2	1.2	1.7	Below ground
3	Collection Tank	01 no.	2.0	3.0	2.5	Below ground
4	Solid Separation Zone 1 Solid Separation Zone 2	02 nos.	1.5	3.0	2.5	Below ground
5	Aeration Zone 1 Aeration Zone 2	02 nos.	4.5	3.0	2.5	Below ground
6	Sedimentation Zone	01 no.	1.2	3.0	2.5	Below ground
7	Filter Feed Tank	01 no.	1.2	3.0	2.5	Below ground
8	Treated Water Storage Tank	01 no.	1.5	3.0	2.5	Below ground
9	Equipment Room	01 no.	3.0	3.0	3.2	Above Ground
10	Open shed for sludge storage	01 no.	6.0	3.0	3.0	Above Ground
11	Sludge Drying Bed	06 nos.	3.0	2.0	2.0	Above Ground
12	Guard Room	01 no.	3.0	3.0	3.2	Above Ground
13	Boundary Wall, Approach Road, Lanscaping, Production Borewell and Storm water drain	As per site condition				

Note: Height including Freeboard of 0.5 metres

**Table No. 2**

<b>#</b>	<b><u>Other Components (For 15KLD design)</u></b>	<b><u>10 KLD</u></b>
1	Electrical Substation	25KVA
2	Production Well (Depth)	01 no. x <b>Depth as per site conditions</b>
3	Overhead Tank for potable water (Capacity)	01 no. x 5,000 litres
4	Internal Road	As per site requirement
5	Storm Water Drain	As per site requirement
6	Filter Media for PSF	As per FRP vessel dimension of 16" x 54"
7	Filter Media for ACF	As per FRP vessel dimension of 16" x 54"
8	Filter media for Sludge Drying Beds x 04 nos.	100.0 m <sup>3</sup>
9	Chlorine Dosing Pump	01 no. x (Dosing Tank, Dosing Pump and Pipping accessories)
10	Bar Screen	02 nos. x SS304
11	MBBR media	Polypropylene; Size: 200-400 m <sup>2</sup> /m <sup>3</sup>
12	Silicon Diffuser	01 lot
13	Piping & Cabling	01 lot
14	Electric Control Panel	01 no.
15	Electrification work (internal + external) including MEP	As per site condition

The detailed scope of work for each component of the FSTP are described below:

**Table No.-3: List of Pumps (Submersible/Monobloc Type)**

<u>Sl. No.</u>	<u>Location of installation</u>	<u>Quantity per each FSTP</u>	<u>Capacity</u>	<u>Remarks</u>
A	Sludge Pump (in Collection Tank)	02 nos.	1.50 kW	1 active and 1 spare
B	Sludge Pump (in Solid Separation Zone 1 & 2)	04 nos.	1.50 kW	1 active and 1 spare (each)
C	Sludge Pump (in Sedimentation Zone)	02 nos.	1.50 kW	1 active and 1 spare
D	Filter Feed Pump	02 nos.	1.50 kW	1 active and 1 standby
E	Treated Water Outlet Pump	02 nos.	1.50 kW	1 active and 1 standby
F	Production Well	1 no.	1.50 kW	1 active
G	Air Blowers	04 nos.	4.50 kW	2 working and 2 spare

**A. BAR SCREEN CHAMBER:**

- i. The Collection Tank shall be preceded by one bar screen chamber of RCC M-25 grade.
- ii. The floor of bar screen chamber will be approx. 1.2 m from the finished ground level (depending on site requirement) in order to provide required hydraulic head for flow to the collection tank by gravity.
- iii. The bar screen chamber shall be supported by columns of appropriate dimension as per the approved drawing.
- iv. In the column foundation, sand filling of 0.15 m thickness and PCC (1:3:6) of 0.1 m thickness shall be provided. A RCC raft of 0.3 m thickness shall also form the foundation for the columns supporting bar screen chamber.
- v. The bar screen chamber shall be neatly plastered both outside & inside over the RCC work with punning inside. The plaster shall be 6 mm thick cement plaster (1:4) to RCC surfaces finished smooth and applied over the RCC surface after filling up any honeycomb that might exist.
- vi. The inside surface of bar screen chamber shall be painted with epoxy paint to minimize seepage of water and prevent corrosion of the reinforcement.
- vii. Two coats of wall painting with weather coat of approved shade on outside portion with primer of one coat of approved make/brand or as per the directions of Engineer-in-charge shall be applied.
- viii. The bar screen chamber shall contain a flexible pipe with coupling of HDPE material or any other durable material cast at 1.0 m above the sludge receiving chamber floor for a length of about 4 m suitable for coupling with the cesspool emptier discharge pipe at the time of delivery of septage into the chamber.
- ix. Walkway of 1.0 m wide in RCC M-25 shall be provided on both sides of bar screen chamber with chequered tiles over the surface.
- x. The bar screen chamber shall run up to the Collection Tank and will be bifurcated into two channels along the width of the tank of size 1.2m x 1.2m
- xi. The bar screen chamber shall be neatly plastered both outside & inside over the RCC work with punning on all surfaces. The plaster shall be 6 mm thick cement plaster (1:4) to RCC surfaces finished smooth and applied over the RCC surface after filling up any honeycomb that might exist after casting.
- xii. The inside portion of screen chamber shall be painted with epoxy painting.
- xiii. Wall painting 2 coats with weather coat of approved shade on outside portion with priming one coat of approved make/brand or as per the directions of Engineer-in-charge shall be applied.

- xiv. The bar screen chamber shall be provided with two nos. of 25 mm bar screen, vertically placed inside the channel having sufficient recess on the side walls for placement and removal of the screen.
- xv. The screens shall be of removable type and shall be **made of SS 304**.
- xvi. The height and width of the screen shall be 1.00 m and 0.60 m respectively. The width of the screen channel is 0.60m.
- xvii. The thickness of the bar shall not be less than 10 mm built into a **SS** frame of 1.00 m height and 0.75 m width  $\pm 25$  mm. Two such screens shall be provided.
- xviii. The required T&P shall be supplied by the agency for removal of solid waste from the septage receiving bar screen chamber along with wheel barrow for its transport to storage before final disposal. These T&Ps will not be returned to the Agency.
- xix. Stainless steel of 304 grade hand railing using 50mm dia. of 2mm thick circular pipe with Balustrade of size 32mm x 32mm x 2mm @ 0.90mtr. C/C and stainless still square pipe bracing of size 32 mm x 32 mm x 2 mm in 3 rows shall be provided as per the requirement at site on the perimeter of the 1 m wide walkway on the sides of bar screen chamber.
- xx. Any other minor items (pipes, valves, sundry items) that are essentially required shall be taken up by the agency as per the direction of the Engineer-in-charge.

## **B. COLLECTION TANK:**

- a. The collection tank shall be built as an underground tanks of M25 grade RCC. The tanks shall have a common wall of 0.25 m thickness.
- b. Outer RCC walls shall have 0.25 m average thickness. Base of the wall having a thickness of 0.3 m and top with a thickness of 0.2 m. The outside of the wall shall be tapered towards the top.
- c. In the foundation for walls, sand filling of 0.15 m thickness and PCC (1:3:6) of 0.1 m thickness shall be provided. A RCC raft of 0.3 m thickness and 0.6 m wide shall also form the foundation. The foundation shall be built on firm surface not less than 1.0 m below GL.
- d. The collection tank shall be provided with 1 m wide walkway along the perimeter of the outer walls towards outside for operation and maintenance purpose. Stainless steel of 304 grade hand railing using 50mm dia of 2mm thick circular pipe with balustrade of size 32mm x 32mm x 2mm @ 0.90mtr. C/C and stainless square pipe bracing of size 32 mm x 32 mm x 2 mm in 3 rows shall be provided. A SS 304 grade ladder with tread of 0.25 m and rise of 0.15 m shall be provided for access to collection tank.
- e. Chequered tiles on 25mm. thick bed of CM (1:1) jointed with cement slurry shall be provided on the walkway.
- f. Size of manhole: 600 mm x 600 mm. All compartments shall have one manhole each for sludge removal.
- g. Adequate ventilation of all the compartments through piping shall be provided at the top of the roof.
- h. Freeboard in Collection Tank is 0.5 m.
- i. Adequate ventilation of all the compartments through piping shall be provided at the top of the roof.

## **C. SLUDGE DRYING BEDS WITH SHEDDING STRUCTURE:**

### **1) SLUDGE DRYING BEDS:**

- i. The Sludge Drying Beds (SDB) shall be in the form of a battery of required no of beds as per the approved layout plan with common wall in between.
- ii. The foundation work shall be of 0.15 m thickness for sand filling & PCC (1:3:6) of 0.10 m thickness. The depth of foundation is minimum 1.0 m below GL.
- iii. The walls of the SDBs shall be of RCC M-25 grade of 0.20 m thickness.
- iv. The under drainage shall be one main drain for each bed and laterals @ 1.0 m interval.
- v. The main drain size is 200 mm (W) x 250 mm (D) minimum in fly ash brick in CM 1:4.
- vi. The lateral drains shall be connected to main longitudinal drain on the floor for leachate collection. The lateral drain size is 100 mm (W) x 100 mm (D).

- vii. The size of RCC connection chambers shall be 1.0 m x 1.0 m. Connection chamber will be provided @7.5 m c/c and also at change of direction. They will be connected with 200 mm diameter HDPE pipes up to leachate sump for flow by gravity. The pipe slope is 1 in 100.
- viii. Bed slope of 10% shall be provided in the laterals.
- ix. The slope of main drain shall be 1 in 100.
- x. The floor shall be constructed in fly ash brick on edge flooring in CM (1:8). The brick size is 230mmx110mmx75 mm.
- xi. Perforated slabs of size 1000 mm x 1000 mm x 100 mm shall be provided on top of drains for supporting the gravel layer. The size of perforations is 20-25 mm.
- xii. 12 mm thick cement plaster (1:6) over brick work including cement punning shall be provided.
- xiii. Sand bed of 0.15m thickness with Uniform Co-efficient (UC) less than 4 shall be provided as top layer on the sludge drying bed. Below the sand bed, gravel shall be placed in 2 layers.
- xiv. The bottom most layer shall be gravel of 20-40 mm size and above this, the gravel size shall be 6 to 12 mm. The thickness of two layer of gravel bed at the side wall is 0.3m and increasing towards the center of the bed.
- xv. The beds shall be provided with a plastic wire hexagonal mesh or metal wire mesh coated with plastic of durable type to protect sand bed from being removed with the dried sludge.
- xvi. RCC collection chambers shall be constructed as per site and directions of Engineer-in-charge. The chambers shall project 0.3m above FGL with RCC cover slab and RCC cover ring.
- xvii. The freeboard above the sand surface shall be at least 0.5 m. The height of sludge drying beds shall be 2.0m above FGL.
- xviii. MS Splash plate of size 1.0 m x0.6 m shall be fixed to the walls through brackets which can be removed during maintenance. A gate valve provided in the pumping pipe line in each bed shall control inflow of sludge on the splash plate.
- xix. The splash plate shall be affixed to the wall of the bed and the gap between the valve opening and splash plate shall be 25 mm.
- xx. All piping to the SDB shall be 200 mm size of HDPE / DI material.
- xxi. All valves shall be of DI make.
- xxii. Wall painting 2 coats with weather coat of approved shade with priming one coat of approved make/brand or as per the directions of Engineer-in-charge shall be applied.
- xxiii. Crusher broken hard granite metals may be used if gravel is not available within 15 km of the ULB with approval by Engineer-in-charge.

## 2) SHED STRUCTURE:

- i. 50% of the sludge drying beds shall be provided with a movable cover with a roof to protect them from rain to avoid rewetting of the drying sludge. The shed should extend at least 0.3 m away from the outer walls to prevent rain water entering the beds.
- ii. The roof structure shall be of MS truss and movable i.e. sliding on wheels over two rails along the lengths of the drying beds. Sliding should be possible by pushing manually. The two rails shall be fixed over the RCC walls. The MS truss, rails and rollers shall be designed by the Agency.
- iii. The truss shall be fixed with GCI sheets (preferably TATA dura shine). The truss shed shall be sloped to both sides of the bed to drain the rain water away from drying beds.
- iv. The MS truss shall be made from angle and channel section duly welded & designed to withstand all loads including wind loads for the area.
- v. Arrangements shall be made for Fitting & Fixing of Ridges & Wind Ties to fix / lock the moving roof over a bed during the storm so that they are not displaced by strong winds.
- vi. The painting of truss structure shall be done with painting of two coats of enamel paint over a coat of Primer.

**D. SOLID SEPARATION ZONE 1 & 2:**

- a. Solid Separation Zone 1 & 2 shall be constructed as an underground tank with M25 grade RCC.
- b. Outer RCC walls shall have 0.25 m average thickness. Base of the wall having a thickness of 0.3 m and top with a thickness of 0.2 m. The outside of the wall shall be tapered towards the top.
- c. In the foundation for walls, sand filling of 0.15 m thickness and PCC (1:3:6) of 0.1 m thickness shall be provided. A RCC raft of 0.3 m thickness and 0.6 m wide shall also form the foundation. The foundation shall be built on firm surface not less than 1.0 m below GL.
- d. The solid separation zone 1 & 2 shall be provided with 1 m wide walkway along the perimeter of the outer walls towards outside for operation and maintenance purpose. Stainless steel of 304 grade hand railing using 50mm dia of 2mm thick circular pipe with balustrade of size 32mm x 32mm x 2mm @ 0.90mtr. C/C and stainless square pipe bracing of size 32 mm x 32 mm x 2 mm in 3 rows shall be provided. A SS 304 grade ladder with tread of 0.25 m and rise of 0.15 m shall be provided for access to collection tank.
- e. Chequered tiles on 25mm. thick bed of CM (1:1) jointed with cement slurry shall be provided on the walkway.
- f. Size of manhole: 600 mm x 600 mm. All compartments shall have one manhole each for sludge removal.
- g. Adequate ventilation of all the compartments through piping shall be provided at the top of the roof.
- h. The freeboard is 0.50 m.
- i. Adequate ventilation of all the compartments through piping shall be provided at the top of the roof.

**E. AERATION ZONE 1 & 2:**

- a. Aeration Separation Zone 1 & 2 shall be constructed as an underground tank with M25 grade RCC.
- b. Outer RCC walls shall have 0.25 m average thickness. Base of the wall having a thickness of 0.3 m and top with a thickness of 0.2 m. The outside of the wall shall be tapered towards the top.
- c. In the foundation for walls, sand filling of 0.15 m thickness and PCC (1:3:6) of 0.1 m thickness shall be provided. A RCC raft of 0.3 m thickness and 0.6 m wide shall also form the foundation. The foundation shall be built on firm surface not less than 1.0 m below GL.
- d. The aeration zone 1 & 2 shall be provided with 1 m wide walkway along the perimeter of the outer walls towards outside for operation and maintenance purpose. Stainless steel of 304 grade hand railing using 50mm dia of 2mm thick circular pipe with balustrade of size 32mm x 32mm x 2mm @ 0.90mtr. C/C and stainless square pipe bracing of size 32 mm x 32 mm x 2 mm in 3 rows shall be provided. A SS 304 grade ladder with tread of 0.25 m and rise of 0.15 m shall be provided for access to collection tank.
- e. Chequered tiles on 25mm. thick bed of CM (1:1) jointed with cement slurry shall be provided on the walkway.
- f. Size of manhole: 600 mm x 600 mm. All compartments shall have one manhole each for sludge removal.
- g. Adequate ventilation of all the compartments through piping shall be provided at the top of the roof.
- h. The freeboard is 0.50 m.
- i. Adequate ventilation of all the compartments through piping shall be provided at the top of the roof.

**F. SEDIMENTATION ZONE:**

- j. Sedimentation Zone 1 shall be constructed as an underground tank with M25 grade RCC.
- k. Outer RCC walls shall have 0.25 m average thickness. Base of the wall having a thickness of 0.3 m and top with a thickness of 0.2 m. The outside of the wall shall be tapered towards the top.

- l. In the foundation for walls, sand filling of 0.15 m thickness and PCC (1:3:6) of 0.1 m thickness shall be provided. A RCC raft of 0.3 m thickness and 0.6 m wide shall also form the foundation. The foundation shall be built on firm surface not less than 1.0 m below GL.
- m. The sedimentation zone shall be provided with 1 m wide walkway along the perimeter of the outer walls towards outside for operation and maintenance purpose. Stainless steel of 304 grade hand railing using 50mm dia of 2mm thick circular pipe with balustrade of size 32mm x 32mm x 2mm @ 0.90mtr. C/C and stainless square pipe bracing of size 32 mm x 32 mm x 2 mm in 3 rows shall be provided. A SS 304 grade ladder with tread of 0.25 m and rise of 0.15 m shall be provided for access to collection tank.
- n. Chequered tiles on 25mm. thick bed of CM (1:1) jointed with cement slurry shall be provided on the walkway.
- o. Size of manhole: 600 mm x 600 mm. All compartments shall have one manhole each for sludge removal.
- p. Adequate ventilation of all the compartments through piping shall be provided at the top of the roof.
- q. Adequate ventilation of all the compartments through piping shall be provided at the top of the roof.
- r. The freeboard is 0.50 m.

#### **G. FILTER FEED TANK:**

- s. Filter Feed Tank shall be constructed as an underground tank with M25 grade RCC.
- t. Outer RCC walls shall have 0.25 m average thickness. Base of the wall having a thickness of 0.3 m and top with a thickness of 0.2 m. The outside of the wall shall be tapered towards the top.
- u. In the foundation for walls, sand filling of 0.15 m thickness and PCC (1:3:6) of 0.1 m thickness shall be provided. A RCC raft of 0.3 m thickness and 0.6 m wide shall also form the foundation. The foundation shall be built on firm surface not less than 1.0 m below GL.
- v. The sedimentation zone shall be provided with 1 m wide walkway along the perimeter of the outer walls towards outside for operation and maintenance purpose. Stainless steel of 304 grade hand railing using 50mm dia of 2mm thick circular pipe with balustrade of size 32mm x 32mm x 2mm @ 0.90mtr. C/C and stainless square pipe bracing of size 32 mm x 32 mm x 2 mm in 3 rows shall be provided. A SS 304 grade ladder with tread of 0.25 m and rise of 0.15 m shall be provided for access to collection tank.
- w. Chequered tiles on 25mm. thick bed of CM (1:1) jointed with cement slurry shall be provided on the walkway.
- x. Size of manhole: 600 mm x 600 mm. All compartments shall have one manhole each for sludge removal.
- y. Adequate ventilation of all the compartments through piping shall be provided at the top of the roof.

#### **H. TREATED WATER STORAGE TANK:**

- a. Treated Water Storage Tank shall be constructed as an underground tank with M25 grade RCC.
- b. Outer RCC walls shall have 0.25 m average thickness. Base of the wall having a thickness of 0.3 m and top with a thickness of 0.2 m. The outside of the wall shall be tapered towards the top.
- c. In the foundation for walls, sand filling of 0.15 m thickness and PCC (1:3:6) of 0.1 m thickness shall be provided. A RCC raft of 0.3 m thickness and 0.6 m wide shall also form the foundation. The foundation shall be built on firm surface not less than 1.0 m below GL.
- d. The sedimentation zone shall be provided with 1 m wide walkway along the perimeter of the outer walls towards outside for operation and maintenance purpose. Stainless steel of 304 grade hand railing using 50mm dia of 2mm thick circular pipe with balustrade of size 32mm x 32mm x 2mm @ 0.90mtr. C/C and stainless square pipe bracing of size 32 mm x 32 mm x 2 mm in 3 rows shall be provided. A SS 304 grade ladder with tread of 0.25 m and rise of 0.15 m shall be provided for access to collection tank.



- e. Chequered tiles on 25mm. thick bed of CM (1:1) jointed with cement slurry shall be provided on the walkway.
- f. Size of manhole: 600 mm x 600 mm. All compartments shall have one manhole each for sludge removal.
- g. Adequate ventilation of all the compartments through piping shall be provided at the top of the roof.

**I. EQUIPMENT ROOM and GUARD ROOM:**

- a. Area requirement: 9 m<sup>2</sup>.
- b. The size of the shed should preferably be 3.0 m x 3.0 m having AS flooring as per CPWD specification.
- c. The maximum height of the shed at the apex shall not be more than 8 meters.

**J. OPEN SHED FOR SLUDGE STORAGE:**

- a. Area requirement for open shed for sludge storage before transfer to compost plant: 18.0 m<sup>2</sup>.
- b. The size of the shed should preferably be 4.0 m x 3.0 m having AS flooring as per CPWD specification.
- c. The maximum height of the shed at the apex shall not be more than 8 meters.
- d. The roof may be of gable type supported on a column structure.
- e. The columns shall be of RCC M-25 grade with minimum lateral dimension of 250 mm x 300 mm or as approved by the Engineer-in-charge.
- f. The columns shall be designed with steel beams of appropriate size as bracing at the bearing level.
- g. The gable roof truss shall be designed as per the standard by the agency and to be approved by the Engineer-in-Charge before execution.
- h. Non-corrosive metal sheets shall be provided on the roof truss and adequately extended into the soffit for better draining of storm water.
- i. The spacing between adjacent columns shall not be less than 5 m. only two columns shall be provided on the width of the shed, i.e. the span of the gable truss.
- j. Three sides of the shed, except the entrance side, shall be provided with a 1.2 m height brick wall (250 mm thickness).
- k. The floor shall be built as A.S flooring with punning built over a well compacted base of 0.15 m sand and 0.1 m P.C.C (1:3:6).
- l. The floor level shall be kept at least 300 mm above the FGL with gentle sloping outside for ease of vehicle entry etc.
- m. The truss and roof shall be painted with protective painting of two coats of anti-corrosive paint over a coat of primer of approved quality by the Engineer-in-charge.
- n. The approach to the shed shall be made of concrete pavement of width not less than 3.5 m.
- o. The design of truss and supporting columns shall be made by the Agency.

**K. INTERNAL CEMENT CONCRETE ROAD & RCC STORM WATER DRAIN.**

- a. Cement concrete road (on cutting & filling as per site condition) inside plant shall be provided.
- b. Sub base shall be filled with 0.30 m sand compacted, CC 1:3:6 of 0.15 m thick with metal size 40 mm, wearing coat of CC M-25 of 0.10 m thickness.
- c. The minimum width shall be 3.5 m. The length of road shall be as per the actual length as per the approved layout plan. In the curve portion, width of the road shall be increased to 4.0 m to accommodate plying of cesspool trucks.
- d. RCC M-20 drains shall be constructed on one side of the internal roads with slope for discharge of the storm water at the outlet point as per site condition. The width of drain is 0.4 m, depth varying from 0.3 m to 0.9 m towards the outlet. Bed slope is 1 in 500. Wall and bed thickness are 0.15 m. The length of the drain shall be as per site layout & disposal/outlet point.

**L. CONSTRUCTION OF WATER PRODUCTION WELL:**

- a. One 200 mm x 150 mm size (if hard rock strata) or 200 mm dia. size throughout (if alluvial soil strata) depending on the ground strata production well shall be constructed for a depth suitable to the site in the premises of the FSTP plant.
- b. The location should be decided by the Engineer-in-charge.
- c. In soft strata, the entire formation shall be cased with suitable casing pipe designed for higher depths (ASTM standard pipes) along with strainer at aquifer zones.
- d. The PVC strainer of size equal to that of the casing shall be provided and the bore shall be developed using a compressor.
- e. The well shall be sealed against saline intrusion in saline affected areas along with a sanitary seal extending from ground level up to a depth not less than 5 meters.
- f. The bore should provide sufficient discharge which shall be compressed and developed for a period of at least 3 days to ensure a continuous discharge and turbidity below 10 NTU.
- g. Layer chart shall be approved by the Engineer-in-charge before lowering of strainer and casing pipes. The layer chart shall be prepared by the agency which shall be approved by the Engineer-in-charge before lowering of the casing/strainer is commenced.
- h. A 1 m x 1 m size PCC (1:2:4) platform 0.5m above FGL shall be built around the production well.
- i. Depending upon the discharge, a submersible pump set shall be supplied and fitted along with 25 mm dia. PVC delivery pipe line up to the roof top water tank along with PVC fittings, NRV and a full way valve.
- j. A tap/brass stop cock with pipeline for water supply shall be provided at outlet connections.
- k. A submersible pump set of about 1.5 KW capacity shall be installed.
- l. The pipe size shall not be less than 100 mm.
- m. The pump control panel shall be placed in the panel room separately built for the purpose of operation of all pumps installed in septage treatment plant.
- n. Underground cabling with required electrical specification confirming to the technical specifications as provided in the bid document shall be provided.
- o. The length of cabling shall be decided as per the direction of the Engineer-in-charge keeping in mind that the cable routes is not taken in garden area, pavements or in vicinity of structures.
- p. Adequate safety measures shall be adopted while laying of the cables and the cable trenches shall be marked with an over ground marker protruding from the surface indicating the alignment of the cable.

**M. ROOF TOP WATER TANK:**

- a. Roof top PVC water tank of 5,000 liters capacity shall be provided over the admin building with RCC support and piping arrangements.
- b. Adequate bracing is to be done to protect the overhead PVC tank from the heavy winds.
- c. All pipes shall be of PVC/other polyethylene types.
- d. All full way valves shall be of brass/CP type.
- e. The delivery pipe from the roof tank shall be connected to different fixtures inside the Admin building such as laboratory sink, wash basins, lavatories, water closet, taps etc.

**N. PIPING WORKS:**

- a. All piping works are to be executed in accordance with the technical specifications provided in the bid document.
- b. The pipe sizes shall vary as per the specific requirement in case of a component.
- c. The length of piping work shall be finalized along with the plant layout plan and approved by the Engineer-in-charge.

- d. Valves of different sizes wherever required as per the design shall be provided.
- e. Butterfly valves/Penstock/Gate valves of **DI make only** shall be provided.
- f. Pipes of HDPE/DI as approved by the Engineer-in-charge shall be provided.

**O. CONSTRUCTION OF COMPOUND WALL:**

- a. The septage treatment facility shall be protected from trespassing with the provision of a compound wall using fly ash bricks.
- b. The compound wall is to be constructed with RCC column & beam, brick panels. RCC frame having column (250 mm x 250 mm) minimum foundation depth of 0.90 m below GL, column spaced @ 3 m c/c with tie beam (300 mm depth). Fly ash bricks shall be used.
- c. The height of wall in all types of construction shall be 1.8 m above the GL.
- d. CC coping shall be provided on the top of the wall. Minimum thickness of the wall shall be 250/112 mm as necessary and directed.
- e. Expansion joints @ 30 m shall be provided in compound wall.
- f. 12 mm Cement Plaster in CM (1:6) on both side of the wall shall be provided as approved by the Engineer-in-charge.
- g. 1 no. of M.S Grill gates made of angle, flat and square bar of 2.0 m height suitable for 5.00 m opening including two coats of enamel painting over one coat of red oxide primer
- h. The gate to be fixed to RCC gate pillars of the compound wall.
- i. M.S. Iron spike made of M.S. Square Bar & M.S. flat and MS grill shall be fitted on the top portion of the compound wall including two coats of enamel painting over one coat of red oxide primer.
- j. The length of the compound wall in this project shall be as per the actual length provided in the approved layout plan.

**P. YARD LIGHTING:**

- a. The septage treatment facility shall be provided with yard lighting for lighting during night hours.
- b. Yard lighting using GI, tubular poles single/double arm and energy saving lighting devices i.e. LED units shall be provided.
- c. The height of the pole shall be at least 20 feet (**6.0m**) and diameter not less than 100 mm and shall be of the heavy duty type.
- d. Electric poles @ 15.0 m c/c & double armed shall be provided and in case of specific requirement as decided by the Engineer-in-charge extra poles shall be provided.
- e. The poles shall be provided with S.S. bracket suitable for installation of LED lamp.
- f. The poles and brackets shall be adequately painted with anti-corrosive paints and enamel paints to protect against corrosion.
- g. Adequate and proper arrangements shall be made to make cable connection running inside the poles up to the LED point fixed on the bracket. All cable connections shall be provided with proper sealing against water leakage inside the pole.
- h. The LED bulb shall not be less than 70 watt per pole and only white LED shall be used.
- i. The location of LED posts shall be approved by the Engineer-in-charge before execution.

**Q. ELECTRICAL SUB- STATION:**

- a. The agency will access and execute required length of high transmission (HT)/Low transmission (LT) poles for external power supply to Septage treatment plant.
- b. One 25 kVA capacity transformer with electrical sub-station is to be erected inside Septage treatment plant. OWSSB/PHEO will obtain necessary permission from CESU/NESCO/WESCO/SOUTHCO before the execution.
- c. Supply, installation, testing and commissioning of HT/LT/Transformer/Sub-station/Connection to Panel room etc. shall be done by the agency.

- d. The sub-station shall have a separate enclosure within the boundary of the FSTP as per the requirement of the Electrical Authorities.
- e. Adequate safety measures shall be taken to avoid any unwarranted hazards.
- f. One no. of 3 Phase 10 KVA diesel generator shall be supplied by the agency for use in case of power outage. Change over switch and control panel shall be provided. Change over shall be manual.

**R. ELECTRICAL OVERHEAD LINE UPTO FSTP SITE**

- a. Construction of 3 phase 11 KV Line on 150 mm x150 mm, 11 meter long RS joist using 100 mm square AAC with double disc insulator at tension point from the nearest electrical supply point to FSTP premises including supply of all material, labour, fees, installation, testing & approval by the Electrical Authorities.
- b. The cost of testing and other fees shall be borne by the agency.
- c. Necessary permission from electrical department shall be taken before for execution by Jorhat Municipal Board
- d. Adequate safety measures shall be taken to avoid any unwarranted hazards.

**S. SIGN BOARDS:**

- a. Sign boards for each component, glow boards at entrance and inside FSTP, caution boards shall be provided by the Agency as per the direction of Engineer- in-charge.
- b. Layout plan and process description display boards shall be provided inside Admin Room.
- c. The two display boards inside the Admin room shall be printed in flex and glass bound in metal frame.

**T. SITE DEVELOPMENT & LANDSCAPING:**

- a. The approximate area for landscaping in each septage treatment plant may vary depending on the plant layout and site condition.
- b. The agency shall have the provision of digging holes in all kinds of soil and refilling the same with the excavated earth mixed with manure or sludge in the ratio of 2:1 by volume (2 parts of stacked volume of earth after reduction by 20% : 1 part of stacked volume of manure after reduction by 8 %) flooding with water, dressing including removal of rubbish and surplus earth if any with all leads and lifts (cost of manure, sludge etc.).
- c. Spreading of dump manure and/or good earth in required thickness as per direction of office in-charge.
- d. Mixing earth and manure in the required proportion specified as directed by the Officer-in-charge.
- e. Supplying and stacking at site dump manure from approved source including carriage.
- f. Planting of following varieties of trees at specific locations as per the directions of Engineer-in-Charge.
  - a) Cocos Nucifera (Coconut)– (4’0” height)-25 nos.
  - b) Bottle Brush (Yellow) – (6’0” height)-25 nos.
  - c) Foxtml Plam – (10’0” height)-29 nos.
  - d) Bauhinia Blakeana– (6’0” height)-17 nos.
  - e) Mini Ixora (New)– (1’0” height)-489 nos.
  - f) Manilkara Zaputa (Chiku)– (6’height)-27 nos.
  - g) Variegated Lilly– (0’9” height)-160 nos.
  - h) Mini Allmanda – (1’0” height)-376 nos.

- i) Acalypha – (1'0" height)-235 nos.
  - j) Variegated Tager– (1'6" height)-333 nos.
  - k) F. Blaki (Topiary)– (3'0" height)-14 nos.
  - l) F. Prestige (Topiary)– (3'0" height)-01nos.
  - m) F. Starlight– (3'0" height)-02 nos.
  - n) Juniper Africana – (3'0" height)-22 nos.
  - o) Amrapalli Mango – (5'0" height)-05 nos.
  - p) CollismanPolandi – (3'0" height)-47 nos.
  - q) IxoraDafic – (21'0" height)-57 nos.
- g. Application of the pesticide such as 2-4 D Sodium salt/glyphoctparaquat 5ml per liter of water over vegetation area (wildly grown, unwanted wild bushes) two applications at an interval of 15 days.
  - h. Turfing with grass selection No 1 grass including water and Maintenance of the lawn for 60 days or more till the grass forms a thick lawn, free from weeds and fit for mowing including supply of good earth of required quantity as per the sitecondition and to achieve adequate height for drainage.
  - i. Anti-termite treatment of lawn area through premises 30.50% I P. One liter premise diluted
  - j. in 499 liters water and applying solution @ 1.00 liter solution per sqm lawn or bed area. (two application including cost of chemical) and as per direction of Officer-in-charge.
  - k. Required quantity of good earth for the entire landscaping area to achieve adequate elevation for aesthetic as well as drainage purposes shall be brought and spread. Unsuitable earth shall be removed from the site if required.
  - l. A sprinkler system consisting of water sprinkler set and associated accessories with delivery pipe of length about 40 m shall be provided at regular intervals in the periphery of the landscaping area for proper watering and maintenance of the garden and plants.
  - m. Effluent discharge system from the polishing pond shall consist of PVC pipeline of 40 mm & 25 mm dia shall be installed with brass stop cock. The openings forthe fixing of taps for discharge shall be 20 meter c/c.

#### **AA. TRIAL RUN, OPERATION & MAINTENANCE:**

- i. The trial run & operation & maintenance shall be for a duration of three years after successful completion of all works and commissioning of the FSTP.
- ii. The agency shall provide required manpower as directed by the Engineer-in- charge for operation of the facility for a period of three years from date of completion of the project (written confirmation to be issued by the Engineer-in- charge) the cost of which shall be borne by the agency.
- iii. The cost of electrical energy during the trial run period shall be borne by Jorhat Municipality.
- iv. Warranty of equipment, electrical parts and all such items procured as finished items, shall have the manufacturer's warranty and in absence of the same, the agency shall take the responsibility of its repair/replacement within the period of defect liability described elsewhere in the bid document.
- v. All the watch and ward round the clock shall be provided by the Agency till completion of project including trial run and operation and maintenance period of three years in the septage treatment plant.

**Note:** The scope of work, if described elsewhere in the bid document is different or contradicts what has been described in this scope of work, the details

provided in this scope of work shall supersede all such descriptions. However, if such descriptions are additive in nature and supplements the description provided in this scope of work, the same shall prevail along with this scope of work.

### Personnel for Operation and Maintenance

SL. No	Name of Personnel	Unit	Quantity
1	Security	Nos	3
2	Electrician	Nos	1

3	Pump operator	Nos	1
4	Sweeper	Nos	2
5	Gardener	Nos	1

### Detailed Designs & Drawings, submission and Approval for:

The contractor shall be entirely responsible for the detailed design of FSTP at identified spot etc. including civil, PH works, Pipe laying, structural designs for the capacities specified. The preparation of detail, plan, design & estimate on the basis of prevailing schedule and to arrange necessary approval from the competent authority are the responsibilities of the contractor. The contractor has to conduct all necessary survey's, tests at site at his own cost, such as, plate load test, bore log up-to required depth, SPT, Ground water table etc. for determination of SBC which are required for design purpose.

#### i) Design Submission Guidelines:

All designs shall be submitted in the form of booklets in complete shape along with relevant drawings & in a presentable manner neatly type written/computer printed on **A4** size bond paper.

- 1) All design calculations/findings shall be supported with illustrative drawings in form of plans, sections etc. as applicable which shall form a part of the design booklet.
- 2) All references made in the design shall be indicated in "Reference chapter" of the design booklet. On demand, the contractor shall furnish reference materials to the Department to facilitate checking of the designs.
- 3) All drawings shall be with black lines on white tracing paper in metric scale in size **560mm X 810** mm & shall be titled, cross referenced & fully explanatory with the contractor's name, date, seal & signature on it. Additionally, each drawing shall contain the title at the bottom right hand corner. Alternatively, the contractor may submit computer aided drawings drawn in different colors conforming to other specifications as described above.
- 4) In case of computer aided designs, the firm shall also additionally submit the soft copy containing the software & the design to the Department to facilitate checking of the designs. The contractor shall also furnish the design calculations through manual methods if demanded by Department.

#### ii) Design Basis:

All designs shall be based on the best modern practices enumerated in the Standard Text Books/Reference Books & Handbooks by authors of International & National repute. Reference books like the Manual on Water Supply & Treatment/Sewage Treatment by CPHEEO, Government of India, latest Indian Standards, Codes of Practices & Specifications, norms fixed by Pollution Control Boards of State/Central & Central Electricity Authority, European Union/

British/ **AWWA** Standards shall also be followed wherever required. In case of any contradiction, the decision of the Competent Authority of the Department shall be final.

For computer aided design, the contractor shall use only widely accepted standard software of International/ National repute.

**Thumb rule designs based on the contractor's own experience/sub-standard books & literature/ sub-standard software's shall be out rightly rejected.**

**iii) Submission & Approval of Detailed Designs & Drawings:**

1. The contractor shall submit to the Department two sets of process & hydraulics designs & drawings & layout drawings along with rainwater drainage and wastewater drainage scheme in keeping with the specifications in this DTCN & in a manner as described in the preceding paragraphs within **20 days** of issue of letter of intent even if he fails to sign the agreement within stipulated 7 days provided the firm has deposited the Initial Security deposit. However, if the agreement is not signed eventually, the contractor shall have no claim of payment on account of whatever designs and drawings, the firm has furnished.
2. These designs and drawings shall be checked by the Competent Authority. After checking, these designs shall be preliminarily approved by the Department after incorporating the corrections/ modifications/ observations etc. as may be required and one set of preliminarily approved designs & drawings shall be communicated to the contractor for re-submission of **5 (five) sets** of detailed corrected designs & **10 (ten) sets** of detailed corrected drawings to Department within 10(ten) days of preliminary approval by Department. The time span between the receipt of the design & drawings by Department & the date of preliminary approval shall not normally exceed **30 days** time.
3. The final approval of the designs & drawings shall be communicated to the contractor within **15 days** time from the date of receipt of the final designs & drawings if all the corrections/ modifications/ observations as indicated during preliminary approval are duly incorporated.
4. To expedite the design submission & approval process, the contractor shall submit the complete structural designs & drawings of all the components with General Arrangement, Electrical, Process & Instrumentations and Mechanical designs & drawings based on the preliminarily approved process, hydraulic & layout designs & drawings within **15 (fifteen)** days of communication of the preliminary approval. Submission of designs & drawings in piece meal shall not be accepted.
5. Same procedure shall be followed as described in Sl. 2 & 3 for approval of these designs & drawings.
6. The work shall start after final approval of all the designs & drawings.

**iv. Soil Investigation Report:**

For structural design purposes, SBC at required depths and different locations below ground level at respective places for all units of the FSTP shall be found out by the bidder through Govt./Govt. approved laboratory confirming to relevant IS code. The soil test shall include bore log, SPT, UDS test, Tri-axial test, Vane shear test, core sample test, plate load test depending upon requirement of the structure. Before detailed engineering & design the contractor shall submit detailed soil test report to the Engineer-in-Charge for approval of SBC to be adopted for structural design. Accordingly, the contractor has to design the structures. In case further data would be necessary before or after submission of tender/ during execution of the work, the tenderer/ contractor shall collect the same of his own & at his cost.

Ignorance of any data shall not relieve the contractor of his obligation to complete & commission the work as per the provisions of the DTCN. The data are provided here are indicative only. However, for detail structural design of the FSTP, the bidder has to collect all the required hydraulic & flow parameters as will be required for detail design and drawing where the FSTP to be constructed from the Department and other data as will be required at his own cost and risk & shall submit to the Engineer-in-charge of work for approval. Then based on the approved data the bidder has to prepare detail design & drawing of FSTP. Before detailed engineering & design the bidder shall submit detailed soil test report and all above information to the Engineer-in-Charge for approval of SBC and related all other design parameters to be adopted for structural design. Accordingly, the bidder has to design the structures. While designing of the structures, it shall be ensured that the weight of the structure including foundation, water, over burden earth on foundation/ slab/ raft etc. as applicable shall be within the permissible limit of S.B.C. allowed by Department.