

**BHAVNAGAR MUNICIPAL CORPORATION
DRAINAGE DEPARTMENT
E-TENDER NO.: B.M.C/Drainage/01/2023**



Name of Work

Comprehensive operation and maintenance work of 45 MLD SBR type Sewage Treatment Plant with MPS (Nr. Excel Industries, Behind Ruvapari Temple, Bhavnagar) including all mechanical, electrical, civil & instrumentation equipments and machineries as per tender terms & conditions for the period of two years.

Tender available on website:	Date: 05/04/2023
Online Tender Submission up to:	Date: 25/04/2023 upto 17.00 Hrs
Physical Tender Submission up to:	Date: 02/05/2023 upto 17.00 Hrs
Tender opening Time & Date: (Only Technical Bid)	Date: 02/05/2023 17.30 Hrs onwards (if possible)
Details and Tenders Available on	www.nprocure.com

Executive Engineer
Drainage Department
Bhavnagar Municipal Corporation
Bhavnagar-364001.
Gujarat, India

Bhavnagar Municipal Corporation



Tender Documents

For

Comprehensive operation and maintenance work of 45 MLD SBR type Sewage Treatment Plant with MPS (Nr. Excel Industries, Behind Ruvapari Temple, Bhavnagar) including all mechanical, electrical, civil & instrumentation equipments and machineries as per tender terms & conditions for the period of two years.

E-TENDER NO : B.M.C/Drainage/01/2023

Volume I: - Technical Bid

1	Tender document shall be available online	From 05/04/2023 on the website of www.nprocure.com
2	Last date and time of submitting the filled up tender online	25/04/2023 up to 17.00 Hrs.
3	Date on or before which the Tender, Volume-I (Technical Bid) - physical copy must reach the office	Up to 02/05/2023 by 17.00 Hrs.
4	Date of Volume-I (Technical Bid) opening	02/05/2023 by 17.30 Hrs or thereafter. (if possible)

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SECTION- I

NOTICE INVITING TENDERS (NIT)

Comprehensive operation and maintenance work of 45 MLD SBR type Sewage Treatment Plant with MPS (Nr. Excel Industries, Behind Ruvapari Temple, Bhavnagar) including all mechanical, electrical, civil & instrumentation equipments and machineries as per tender terms & conditions for the period of two years.

- (A) The BMC invites online e-tender from qualified interested bidders. Also, The bidders are requested to send the sealed super scribed pre-qualification technical bid documents (in physical copy) tenders by Regd. A.D Post/ Speed-Post only for following works so as to reach to the office of Executive Engineer, Drainage Deptt. Bhavnagar Municipal Corporation, Bhavnagar – 364001 on or before due date 02/05/2023 up to 17:00 hrs and should be accompanied by **only a non-refundable Demand draft as tender fee drawn from Nationalized bank** in favour of "Municipal Commissioner Bhavnagar" payable at Bhavnagar. Tender E.M.D. & technical bids will be opened in the office of the Dy. Municipal Commissioner (A), Bhavnagar Municipal Corporation on due date 02/05/2023 by 17:30 hrs or thereafter (if possible).

Sr. No.	Items	Tender Fee Rs.	E.M.D. Rs.
1	Comprehensive operation and maintenance work of 45 MLD SBR type Sewage Treatment Plant with MPS (Nr. Excel Industries, Behind Ruvapari Temple, Bhavnagar) including all mechanical, electrical, civil& instrumentation equipments and machineries as per tender terms & conditions for the period of two years.	Rs. 3,600/-	Rs. 2,80,674/-

- (B) Tender documents can be downloaded from website www.nprocure.com and submitted along with Tender fee, EMD, and along with all requisite documents online.
- (C) Interested bidders may obtain further information and clarification on any matter relating to the tender documents from the office of Executive Engineer (Drainage Department), 1st Floor, Bhavnagar Municipal Corporation, Bhavnagar.
- (D) Tender must be accompanied by the E.M.D. in the form of Bank Guarantee/D.D/F.D.R of any Nationalized Bank and tender fee in the form of Demand Draft drawn from Nationalized Bank in favor of "Municipal Commissioner, Bhavnagar" payable at Bhavnagar with their tender documents. Sealed tender bids must be accompanied with the Tender fee and E.M.D. with technical Bid, without which the bid will not be considered for evaluation and that bid will be rejected.
- (E) Conditional tender will not be considered for evaluation.
- (F) **The Tenderer is required to check the web site for Amendment if any, before 48 hours of tender submission last date and time. The tenderer who quotes the tender without attaching the signed addendum will be rejected.**

- (G) Bidder will have to furnish name of bank, Name of Branch with address, types of A/c with A/c No., MICR No. and PAN No. etc. with technical bid.
- (H) The bidder should provide accurate information on any litigation history or arbitration resulting from contracts completed or under execution by him over the last seven years. This should also include such cases, which are in process/progress. A consistent history of awards of such cases against the bidder or any partner of a joint venture/partnership firm may result in failure/rejection of the bid. In case the bidder has not provided such information and come to the notice of the authority, the tender will be rejected at whatsoever stage and in such case all the losses that will arise out of this issue will be recovered from the tenderer / contractor and he will not have any defense for the same.
- (I) BMC reserves the right to accept or reject any or all tenders without assigning any reason thereof.
- (J) This Tender notice shall form a part of contract document.

Signature of Tenderer

Name

Company Seal

Date:

Executive Engineer

Drainage Department

Bhavnagar Municipal Corporation

SECTION II

INSTRUCTION TO TENDERERS

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1. ELIGIBILITY CRITERIA:-

This invitation for Tender is open to all Contractors who meet all the following eligibility criteria:

- a. The Tenderer must have completed similar type work of:-
At least one contract costing not less than the amount equal to 80% of estimated cost. i.e., Rs. 2,24,53,949/- of Comprehensive operation and maintenance of PLC based automated SBR type STP
Or
At least two contracts costing not less than the amount equal to 50% of estimated cost. i.e., Rs. 1,40,33,718/- of Comprehensive operation and maintenance of PLC based automated SBR type STP
Or
At least three contracts costing not less than the amount equal to 40% of estimated cost. i.e., Rs. 1,12,26,975/- of Comprehensive operation and maintenance of PLC based automated SBR type STP
During last seven years (ending last day of month previous to the one in which tender is invited) in municipalities/municipal corporations/WATER SUPPLY BOARD/any other govt. /semi govt. departments. Copy of work order and its Completion Certificate, signed by HOD, of satisfactory O & M similar work (as mentioned above) completion in municipalities, municipal corporations, WATER SUPPLY BOARD and any other govt. / semi govt. departments shall be enclosed along with the tender.
- Similar work means “Work of Comprehensive Operation and Maintenance of PLC based automated SBR type Sewage Treatment Plant of minimum 22.5 MLD capacity”
- Copy of work order and its completion certificate to be enclosed with the tender. At least one Performance Certificate from the Owner not below the level of H.O.D. that the plant has been satisfactorily operated and maintained needs to be enclosed with the tender.
- b. Tenderer shall have minimum 25 persons on their employment on roll from last 03 year. Valid proof of the same should be attached with tender.
- c. Tenderer must submit electrical inspector contract license/ supervisor license for Electrical works issued by Government department.
- d. Sub Contract / Back to Back Contract Experience shall not be considered.
- e. The bidder should not have been black listed / terminated / debarred from any Govt; Semi Govt. Organisation / Central Govt. / any state Govt. since inception of the firm and this fact must be clearly declared on Rs. 300/- notarized stamp paper. However, if in case of wrong declaration the bid shall be rejected at any stage and also resulting the forfeiture of EMD.
- f. The tenderer must have EPF registration. The registration certificate copy must be attached with tender.
- g. The tenderer has to submit labour licence copy with the tender. (If applicable)
- h. The Bidder must have minimum one year PLC-SCADA Machinery O&M work Experience of WTP/STP of minimum 22.5 MLD capacity.
- i. Experiences of an individual person will not be considered as an experience of firm or organization. Only organization / firm’s experience will be considered.
- j. The bidder / firm in its own name must should have registration in Class “B” with R&B, W.R.D of government department.
- k. Joint Venture for this tender is not permitted.
- l. Site Visit for this tender is mandatory. After award of tender, no cases related to work or site situation will be allowed. All interested firms/contractors must have to visit and inspect all the civil/mechanical/electrical/instrumentation equipments and get acquainted with prevailing conditions and working of these and their O&M related details before taking part in this bid.

1a. FINANCIAL CRITERIA

- a. The average annual turnover of the company during the last three financial years (i.e. 2019-20, 2020-21 and 2021-22) should not be less than Rs. 1,40,33,718/- (50% of Estimated Cost). The turnover certificate certified by C.A. should be attached.
- b. The tenderer should submit a solvency certificate from a Nationalized Bank/Scheduled Bank of an amount of at least of Rs. 56,13,487/- (20% amount of estimated cost of tender). Bank solvency shall be fresh and shall not be older than one year.
- c. Current Financial Net Worth of the Bidder should not be less than Rs. 70,16,859/- (25% of Estimated Cost of the Tender.)
- d. The Bidder should have not made loss in the last 3 years (i.e. Financial Years – 2019-20 to 2021-22)
- e. The Bidder should have positive cash flow in the last 3 years (i.e. Financial Years – 2019-20 to 2021-22)
- f. The bidder shall have positive net worth as per the audited balance sheet of last financial year.
- g. The bidder shall have to submit three financial years IT return copies. (2019-20 to 2021-22)

1b. GENERAL:

- a. The evaluation will be done only on the basis of information submitted by the tender.
- b. Fresh details of Experience and Work orders shall have to be submitted.
- c. All certificates & reports regarding financial & technical capacity & experience shall be fresh and issued by officer not less than H.O.D of the concerned department/organisation.
- d. Audited Balance sheet of last three years shall have to be submitted along with the technical bid.
- e. Bidder shall have to obtain labour license from labour department within one month after issuing the Letter of Acceptance / Work Order (if applicable).
- f. Bidder shall have to obtain employees provident fund registration number from competent authority within one month after issuing the Letter of Acceptance / Work Order.
- g. Bidder must have GST Number. The copy of the registration shall be submitted along with the tender.
- h. All financial details have to be supported by C.A. audited balance sheet / annual report should be submitted with the tender.
- i. If additional sheet format required the same may be attached to give full details.

2. CONTENT OF TENDER DOCUMENTS

2.1. In addition to the Invitation for Tenders, the Tender Documents shall include:

- (a) Instructions of Tenderers.
- (b) General Conditions of Contract
- (c) Special Conditions of Contract
- (d) Technical Specifications and Scope of Services
- (e) Schedules
- (f) Bank Guarantee/D.D/F.D.R for Earnest Money Deposit (EMD), D.D for tender fee.
- (g) Signed Tender Form documents & Price Schedules Format

2.2. The tenderer is expected to go through all instructions, forms, terms and conditions mentioned in the Tender Documents.

2.3. The tenderer is expected to visit site and determine local conditions which may affect the work including the prevailing wages and other pertinent cost factor.

- 2.4. The tenderer is expected to familiarize himself with all central, state and local laws, ordinance, rules, regulations and codes affecting the material supply, Labours and services including the cost of permits and licenses required for the work.
- 2.5. The tenderer is expected to co-relate his observations & investigations required for submitting the tender. Tender once submitted, no additional claim shall be entertained after opening of tender.
- 2.6 To furnish all information required as per the Tender Document in every respect will be at the Tenderer's risk. Non furnishing of required details may result in the rejection of their Tender.

3 AMENDMENT OF TENDER DOCUMENTS

- 3.1 At any time prior to the deadline for submission of Tenders, the Corporation, may for any reason whether at its own initiative or in response to a clarification requested by a prospective Bidder, will, if required, modify the Tender Documents by amendment.
- 3.2 The amendment if any will be placed on Website, which may be downloaded by the bidder and shall be attached with tender duly signed in two sets.
- 3.3 The bidder shall check on website for any amendment before 48 hrs of last submission date and time of the tender.

4. LANGUAGE OF TENDER

All the correspondence related to tender documents shall be in English/Gujarati.

5. DOCUMENTS COMPRISING THE TENDER

- 5.1 The Tender submitted by the Tenderer shall comprise the following components:
 - (a) Schedules and Price Schedules format completed in accordance with mentioned in Clauses.
 - (b) Documentary evidence established in accordance with Clause 1 that the Tenderer is eligible and qualified to perform the Contract if its Tender is accepted.
 - (c) Documentary evidences establish the goods supplied and ancillary services to be rendered by the Tenderer are eligible goods and services conform to the Tender specifications, and
 - (d) Tender security furnished in accordance with Clause 6.
- 5.2 The tender submitted by the tenderer shall be in two Volumes, **Volume I - Technical Bid and Volume II - Price schedules (sample form)**.

Tender documents (Volume – I including addendum if any), duly signed and completed in all respects shall be submitted as described further, so as to reach on or before the date and time mentioned in tender notice/terms & conditions. Price shall be quoted in Indian Rupees in online Price Schedule only. Price Schedule in physical copy will not be accepted and their tender will be rejected.

Technical and financial bid/Price Schedules with required data shall be submitted on-line on www.nprocure.com

- 5.3 Volume I: Technical Bid shall comprise:

Earnest Money Deposit (EMD) AND TENDER FEE

A Tender Security furnished in accordance with Clause 6.

(b) Power of Attorney

A power of attorney, duly authorized by a Notary Public, Indicating that the person(s) signing the Tender has the authority to sign the Tender and thus that the Tender is binding upon the Tenderer.

During the full period of its validity in accordance with Clause 7.

(c) Tenderer's Eligibility and Qualifications

Documentary evidence established in accordance with Clause 1, that the Tenderer is eligible to Tender and is qualified to perform the contract if its Tender is accepted as copy of work orders of the contract that meets the pre qualification criteria must be submitted along with the tender supporting documents.

(d) Audited Balance Sheet

The audited and C.A. certified balance sheet for the last three financial years (i.e. 2019-20, 2020-21 and 2021-22) shall be submitted.

(e) Employee details

The details of employees working with the bidder who meet the qualification and experience requirements specified or a letter confirming that the bidder will hire persons having the required qualification and experience on their employment roll within one week of placement of work order.

(f) Income tax Returns:

The latest income tax returns for last three years clearly indicating income tax circle / ward / district and reference number for the assessment must be attached with the tender.

(g) Schedules

All schedules duly filled in and signed. **The price schedules must not be included in this attachment. Only Price Schedule format (Sample form) with sign should be attached.**

(h) Solvency Certificate

As mentioned in Clause 1a - financial criteria.

5.4 The Volume II: Financial part/Price Schedules shall comprise of the following documents:

Financial Bid/Price Bid Schedule of Quantities & Rates – To be submitted Online Only. (NO HARD COPY SUBMISSION ALLOWED)

5.5 Tenders through telegraph, fax and e-mail will not be accepted under any circumstances.

6. Earnest Money Deposit (E.M.D.)

Tenders received without EMD (Scanned copy at time of online submission and in ORIGINAL before due date and time of physical bid submission) will be considered as Non-Responsive and will be rejected outright.

- 6.1 The E.M.D. is required to protect the Corporation against the risk of Tenderer's conduct, which would warrant the security's forfeiture, pursuant to Para 6.7.
- 6.2 The E. M .D shall be denominated in Indian Rupees, A bank guarantee/D.D/F.D.R issued by a bank acceptable to the Corporation in the form provided in the Tender Documents (In case of B.G) and valid for 60 days beyond the validity of the Tender.
- 6.3 Any Tender not secured in accordance tender eligibility will be rejected by the corporation as non-responsive.
- 6.4 Unsuccessful Tenderer's E. M. D. will be returned after award of the contract.
- 6.5 The successful Tender's Tender security will be discharged after execution the Contract, pursuant to Clause 12 and furnishing the performance security deposit, pursuant to Clause 14.
- 6.6 The Tender security may be forfeited:
 - (a) If a Tenderer withdraws its tender during the period of Tender validity specified in the Tender Form.
 - (b) In the case of successful tenderer, if the Tenderer fails:
 - i. To sign the Contract in accordance with clause 12
 - ii. To furnish performance security deposit in accordance with Clause 14.
 - (c) If the tenderer submits false details with the tender.
- 6.7 No interest will be paid on Tender security.

7. PERIOD OF VALIDITY OF TENDERS

- 7.1. Tenders shall remain valid for 180 days after the date of opening of price bid. The tenderers shall not be entitled during the said period of 180 days, without the consent of writing of the owner to revoke or cancel his tender or to vary the tender given or any terms thereof. In case of tenderer revoking or cancelling his tender or vary any term in regard to thereof without the consent of owner in writing, the owner shall forfeit earnest money paid by him along with the tender.
- 7.2. In exceptional circumstances, the corporation may solicit the Tenderer's consent to an extension of the period of validity with same terms and conditions. The request and the responses thereto shall be made in writing (or by fax/ telex). The E.M.D. provided under Clause 6 shall also be suitably extended.

8. FORMAT AND SIGNING OF TENDER

- 8.1 The Tender shall be typed or written in indelible ink and shall be signed by the tenderer or a person or persons duly authorized to bind the Tenderer to the Contract. The letter of authorization shall be indicated

by the power of attorney accompanying the Tender. The person or persons signing the Tender shall initial all pages of the Tender.

- 8.2 The Tender shall contain no interlineations, erasures or overwriting except as necessary to correct errors made by the Tenderer, in which case such corrections shall be initialed by the person or persons signing the Tender.
- 8.3 The Tender shall contain the name, residence and place of business of person or persons making the Tender and shall be signed by the Tenderer with his usual signature. Partnership firms shall furnish the full names of all the partners or, by duly authorized representative followed by the name and designation of the person signing Tender by a Corporation shall be signed by an authorized representative and a Power of Attorney in that behalf shall accompany, the Tender copy of the constitution of the firm with names of all partners shall be furnished when a tenderer signs a tender in a language other than English, the total amount tendered should in addition, be written in the same language, the signature should be attested by the at least one witness.
- 8.4 Transfer of Tender documents is not permissible.

9. OPENING OF TENDERS BY EMPLOYER

- 9.1 The first Pre-Qualification-Technical Bid (Hard-copy) envelope containing technical bid documents from the bidders received will be opened in the presence of tender committee of Bhavnagar Municipal Corporation at the office of the Dy. Municipal Commissioner (A), Bhavnagar Municipal Corporation. The technical bids will be scrutinized by BMC for satisfying various eligibility criteria prescribed for the bidders for this work.
- 9.2 After opening of Technical Bid, the procedure for the pre-qualification shall be adopted and the Price Bid of only successful qualified bidder shall be opened for final evaluation of the contract. The decision of Municipal Commissioner regarding the pre-qualification shall be final and binding to all the bidders.
- 9.3 The Tender of those bidder(s) who fails to submit the required documents physically within the stipulated date and time will be treated as non responsive and their Price Bid will not be opened.

10. CLARIFICATION OF TENDERS

- 10.1 To assist in the examination, evaluation and comparison of Tenders the Corporation may, at its discretion prevailing & as per rules ask the Tenderer for a clarification of its Tender. The request for clarification and the response shall be in writing and no change in the price or substance of the Tender shall be sought, offered or permitted.

11. CORPORATION'S RIGHT TO ACCEPT ANY TENDER AND TO REJECT ANY OR ALL TENDERS

Municipal Commissioner reserves the right to accept or reject any tender without giving any reasons thereof. The Municipal Commissioner reserves the right to reject any or all Tenders at any time prior to award of Contract, without assigning any reason thereof.

12. SIGNING OF CONTRACT AGREEMENT

- 12.1 At the same time that the employer notifies the successful bidder that their bid has been accepted, and after getting approval from competent authority, the Employer will send the bidder the form of contract Agreement provided in the bidding documents, incorporating all agreements between the parties.
- 12.2 Within 07 days of receipt of the letter of acceptance, and subject to payment of the performance security by the successful bidder to the employer, the successful bidder shall sign the form of agreement and return it to the employer. In the event of failure on the part of the successful tenderer to sign the agreement within above stipulated period, the earnest money of his initial security deposit will be forfeited.

13. SPECIAL IMPORTANT INSTRUCTION TO BE FOLLOWS MANDATORY TO THE SUCCESSFUL TENDERER

- 13.1 **Tenderer shall have to visit 45 MLD plant before quoting the tender to consider all aspects related to equipments installed at existing treatment plant.** Tenderer shall have to estimate its own to replace old equipments if found necessary (based on life of equipment considering the sewage characteristics and its environment) during entire 2 years O & M period. This tender is totally comprehensive and performance based so all liabilities to achieve desired said quality of treated sewage as per GPCB norms, will be on bidders head.
- 13.2 **All repairing/replacement works mentioned in the tender terms & conditions/necessary for the smooth operation of STP is included in the scope & responsibility of contractor.**
- 13.3 **Prior to tendering, the contractor/ intending tenderer has to visit the site, examine the site details, including geological and geo hydrological conditions and verify the technical details, analyze the required quantum of work that has to be done for repairing & replacement of the Civil/Mechanical/Electrical/Instrumentation equipments given in the tender collect additional or supplementary data as may be required and formulate their offer accordingly.**
- 13.4 **It will also be in the scope of contractor to maintain smooth operating of all existing& Replaced / Repaired Civil/Mechanical/Electrical/Instrumentation equipments during the entire contract of 2 years.**
- 13.5 **The Contractor will not be entitled to subcontract any part of his obligation to any third party.**

14. PERFORMANCE SECURITY DEPOSIT

- 14.1 Within 7 days of the receipt of notification of award (letter of acceptance) from the Corporation, the successful tenderer shall furnish to the Employer a security in an amount of 5 % of the contract price in the form of bank guarantee/FDR of any nationalized bank (of Bhavnagar Branch as specified in the tender) having validity of 42 months from the date of award of contract.
- 14.2 Failure of the successful bidder to comply with the above requirements shall constitute sufficient grounds for the annulment of the award and forfeiture of the bid security.

15 JOINT VENTURES

Joint Ventures are not allowed.

16 LITIGATION HISTORY

The bidder shall provide accurate information on any litigation history or arbitration resulting from contracts completed or under execution by him over the inception of firm, this shall also include such cases, which are in process/progress. A consistent history of awards against the bidder may result in failure of the bid. In case the bidder has not provided such information and has come to the notice of the Authority, the tender will be rejected at whatsoever stage and in such case all the losses that will arise out of this issue will be recovered from the bidder contractor and he shall not have any defense for the same.

17 METHOD OF TENDERING

If the tender is submitted by a Proprietary concern, it shall be signed by the Proprietor with his full name and the full name of his firm with its current address.

If the tender is submitted by a partnership firm, it shall be signed by all Partners of the firm with their full name and current address, or by a partner holding the Power of attorney. The partnership deed of the firm and a certified copy of power of attorney shall accompany the tender.

A certified copy of the Partnership Deed, Current Address of the firm and the full names and the current address of all the Partners of the firms shall also accompany the tender.

If the tender is submitted by a limited company or a limited corporation the tender shall be signed by an authorised signatory having such power of attorney to sign on behalf of the company or corporation and in which case a certified copy of the Power of Attorney with evidence of its currency shall accompany the tender. Such limited company or Corporation may be required to furnish satisfactory evidence of its existence before the contract is awarded.

All witnesses and sureties shall be persons of status and probity and their full names, occupation and addresses shall be stated below their signatures.

All signatures in the tender document shall be dated.

Signature of Tenderer:

Name :

Company Seal

Date:

Executive Engineer

Drainage Department

Bhavnagar Municipal Corporation

SECTION III

GENERAL CONDITIONS OF CONTRACT

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1. DEFINITIONS

In this Contract, the following terms shall be interpreted as indicated below:

- 1.1** "The Contract" means the agreement entered into between the Employer and the Contractor, as recorded in the Contract Form signed by the parties. Including all attachments and appendices and all documents incorporated by reference therein;
- 1.2** "The contract Price" means the price payable to the Contractor under the Contract for the full and proper performance of its contractual obligations;
- 1.3** "The Goods" means all of the equipment, machinery, and/or other materials, which the Contractor is required to supply to the Employer under the Contract;
- 1.4** "Services" means Operation & Maintenance of 45 MLD STP and any other incidental services such as technical assistance, supply of spare parts etc. as per the Contract. This also includes services ancillary to the supply of the Goods, such as transportation & insurance, and any other incidental services, such as installation, commissioning, provision of technical assistance, training and other such obligations of the Contractor covered under the Contract;
- 1.5** "The Employer" means BMC.
- 1.6** "The Contractor" shall mean the firm, company or organization undertaking work of operation and maintenance of the plant and shall include all their legal representatives. This also means the individual or firm providing services and supplying the Goods under this Contract.
- 1.7** The 'Corporation' shall mean Bhavnagar Municipal Corporation.
- 1.8** 'Engineer' shall mean any Engineer or other official of Bhavnagar Municipal Corporation who is authorized by the Corporation to carry out the functions of an Engineer.
- 1.9** 'Engineer's representative; shall mean any Engineer, Consulting engineer or assistant appointed from time to time by the Engineer to perform the duties of the Engineer.
- 1.10** "Contractor's Equipment" shall mean all equipment, instruments, tools, machinery and other appliances and things of whatsoever nature required for the fulfillment by the Contractor of the Contractor's Obligations' of the contract.
- 1.11** "Contractors Obligations" shall mean the obligation to perform in its entirety and shall, without limitation, include the Operation and Maintenance of 45 MLD STP.
- 1.12** "Facility" shall mean the entire plant including the buildings, structures, ramps, pits, pipes, instrumentation, fencing, lighting, testing and analysis equipment, tools, computers, software programs, safety equipment, machinery, supplies and inventory incorporated therein, as well as all open areas within the site, and including any additions, modifications, alterations, replacement and repairs as may be made thereto from time to time.
- 1.13** "Government Authority" shall mean any Indian entity, authority or body exercising executive, legislative, judicial, regulatory or administrative functions, including, without limitation any government authority, agency, department board, commission of Indian or any political subdivision thereof, court, tribunal, arbitrator or self-regulatory organization.
- 1.14** "Law" shall mean and include all the provisions of all Indian statues, regulations, ordinances, codes, official or other standards, administrative or other rules, judgments awards and decrees of, or agreements with, any Government, semi- Governmental or quasi-Governmental Authority as currently in effect or as may be in effect from time to time and/or as may be amended or supplemented from time to time.
- 1.15** 'Operation & Maintenance' shall mean that plant is maintained and operated as per Specification and good engineering practices and the Plant are functional to give the required output at any given point of time.
- 1.16** "O&M Manual" shall mean the final Manual for the Operation and Maintenance of the Facility as approved by the Employer.

- 1.17** "Operation and Maintenance Obligations" shall mean the obligation of the Contractor pursuant to the Agreement to operate and maintain the Facility from the Date of Taking Over until the date of completion of this Agreement.
- 1.18** "Operation and Maintenance Period" shall mean the period starting on the Date of Taking Over and continuing for the term of the Agreement.
- 1.19** "Operation and Maintenance Price" shall mean the amount payable by the Employer to the Contractor, for the satisfactory fulfillment of the Contractor's Operation and Maintenance Obligations.
- 1.20** "Routine Maintenance" shall mean the obligation of the Contractor pursuant to the Agreement to operate and maintain the Facility on daily basis to ensure efficiency of the system and trouble free services from the Date of Taking Over until the date of completion of this Agreement.
- 1.21** "Preventive Maintenance" shall mean the obligation of the Contractor pursuant to the Agreement to operate and maintain the Facility at regular interval to ensure and minimize major breakdown and maintain efficiently of the system from the Date of Taking Over until the date of completion of this Agreement.
- 1.22** "Site" shall mean the 45 MLD SBR type STP at Nr. Excel Industries, Behind Ruvapari Mata Temple and shall include any other places as may be specifically desired by the Employer from time to time as forming part of the Site.
- 1.23** "Work" shall mean the work of various item/s mentioned in accordance with the contract or part thereof as the case may be and shall include all extra additional, altered substituted works as required for purpose of the contract.
- 1.24** "Contract Documents" means collectively the Tender documents, Design, Drawings, Specifications agreed variation subsequent correspondence done, such other documents constituting the Tender and acceptance thereof.
- 1.25** "The Specification" shall means the various technical specifications attached and referred to in the Tender documents. It shall also include the latest edition of relevant Indian Standard Specification published before entering into contract. Further in absence of any specific reference in IS the Standards and specifications of any other country may be followed.
- 1.26** "Applicable Law" means all national (or State) legislation, statutes, ordinances and other Laws and regulations and by laws of any legally constituted public authority.
- 1.27** "Contractor's Personnel" means the contractor's representative and all personal whom the contractor utilizes on site, who may include the staff, labour, & other employees of the contractor and of each sub contractor & any other personal assisting the contractor in the execution of the work.
- 1.28** "Employer's Risk" shall include the risks mentioned as employers risks in the General Conditions and shall include any negligence or willful misconduct on the part of the Employer and also any event of Force Majeure as provided in Clause 8 of these Conditions.
- 1.29** "Employer's Personnel" means the Employer's Representative, the assistants and all other staff, labor and other employees of the employer and of the Employer's representative, and any other personnel notified to the contractor, by the employer or the employer's representative, as employer's personnel.
- 1.30** "Employer's Requirements" means the document entitled employer's requirements, as included in the contract, and any additions and modifications to such document in accordance with the contract. Such document specifies the purpose, scope, and / or design and / or other technical criteria, for the works.
- 1.31** "General Conditions" shall mean the conditions of tender issued by BMC for O&M works of projects.
- 1.32** "Good Operating Practices" means the standards, practices, methods and procedures as practiced internationally and in India conforming to all Applicable Law and that degree of skill, diligence, prudence and foresight which would reasonably be expected from a skilled and experienced contractor engaged in India in the same type of undertaking under the same or similar circumstances as the Contractor pursuant to these Conditions.
- 1.33** "O & M Contract" shall mean the contract entered in between the Employer and the Contractor

pursuant to these Conditions.

1.34 "O & M Standard" shall mean the standards:

- a) As set forth in the O & M Manual as accepted by the Employer;
- b) As required pursuant to Applicable Law;
- c) Set out in the Performance Guarantee; and
- d) For the functioning of the Facility as required in accordance with the Contract including such requirements as may be mentioned in the Employer's Requirements.
- e) For the functioning of the Facilities set forth in these Conditions.

2. INTERPRETATION

In these Conditions, except where the context requires otherwise:

- 2.1** words indicating one gender include all genders;
- 2.2** words indicating the singular also include the plural and words indicating the plural also include the singular;
- 2.3** Provisions including the word "agree", "agreed" or "agreement" require the agreement to be recorded in writing;
- 2.4** "written" or "in writing" means hand-written, type-written, printed or electronically made, and resulting in a permanent record;
- 2.5** The marginal words and other headings shall not be taken into consideration in the interpretation of these Conditions;
- 2.6** The words "include," "includes" and "including" are not limiting;
- 2.7** As used in these Conditions, all defined terms include the plural as well as the singular;
- 2.8** Any agreement, document or drawing defined or referred to in these Conditions shall include each amendment, modification and supplement thereto and waiver thereof as may become effective from time to time, except where otherwise indicated;
- 2.9** Any reference to any Clause or Sub – Clause shall unless specified otherwise mean a Clause or Sub-Clause of these Conditions; and
- 2.10** Any rights of the Employer to make any inspections or to review any document shall not create any obligation on the Employer to conduct such inspections or reviews to detect any errors, inaccuracies, ambiguities or other potential problems. No inspection or approval by or on behalf of the Employer shall operate as a waiver of any provision of these Conditions, any obligation of Contractor under these Conditions, or any of the rights of the Employer hereunder, except as expressly agreed in writing by the Employer.

3. PAYMENT

- 3.1** The Contractor's request(s) for payment shall be made to the Employer in writing, accompanied by an invoice describing, as appropriate, the Services performed, and upon fulfillment of other obligations stipulated in the contract.
- 3.2** Payment shall be made by the Corporation generally within 45 days / as per availability of funds, subsequent to the submission of such invoice(s)/claim(s) by the Contractor and approval of the monthly O & M report, if possible.
- 3.3** The currency in which payment is made to the Contractor under this Contract shall be Indian Rupees.

- 3.4 The Contractor shall have to submit the following documents along with the bills:-
- a. Plant input total MLD flow/day.
 - b. Attendance registers.
 - c. Analysis report of inlet and Outlet sample of Sewage from GPCB approved accredited laboratory for following parameters pH, TSS, TDS, BOD, and COD. For any one day in every month.
 - d. Daily parameter sheet report as per format of B.M.C.
- 3.5 The Corporation will deduct from the amount payable to the Contractor, any amount paid by Corporation on behalf of the Contractor and any penalties levied as terms & condition of contract.
- 3.6 The Contractor should have to follow Minimum Wages Payment Act - 1936, Bonus Act - 1965, Employees Provident Fund & Miscellaneous Provisions Act - 1952 & other industrial and Labour Laws with latest amendments, state and central laws, Indian Penal Code related to this O & M work.
- 3.7 The Contractor should have to open the Bank accounts of all the manpower engage during the O & M period. The accounts should be in any Nationalized Bank in Bhavnagar & should give details of the same to the BMC, when demanded.
- 3.8 There are no liabilities or facilities as the permanents employees of the manpower which are engage during the O & M period at any time. All the responsibilities are of contractor for the manpower which is engage during the O & M period. All the manpower engages during the O & M period are called contractor's persons. Any persons have no any direct relations with the BMC.

4. **PRICES**

Prices charged by the Contractor for Services performed under the Contract are fixed and not subjected to any additional price adjustment. Prices quoted in the tender shall remain firm and unchanged throughout the contract period as per rate approved by B.M.C. Request for the change in the prices quoted shall not be considered under any circumstances.

5. **TERMINATION FOR DEFAULT**

- 5.1 The Employer may, without prejudice to any other remedy for breach of contract, by written notice of default sent the Contractor, terminate the Contract in whole or in part:
- a) If the Contractor fails to perform any or all of the services within the time period(s) specified in the Contract, or any extension thereof granted by the Employer or
 - b) If the Contractor fails to perform any other obligation(s) under the Contract; or
 - c) In the event the Employer terminates the Contract in whole or in part, the Employer may procure, upon such terms and in such manner, as it deems appropriate, services similar to those unperformed, and the Contractor shall be liable to the Employer for any excess costs for such similar services. However, the Contractor shall continue performance of the Contract to the extent not terminated; or
 - d) the dissolution or insolvency of the Contractor, pursuant to an order of a court or the bankruptcy of the Contractor; or
 - e) if 45 days having passed since the Contractor is in material breach of his obligations under these Conditions; or
 - f) if the Contractor ceases to carry on its business; or
 - g) abandonment; or
 - h) If penalty amount exceeds to 10% of one year tender amount.

5.2 **Payments upon Termination**

- a) Upon termination or as soon as practicable thereafter an account shall be taken of the net amount owing from the Employer to the Contractor or from the Contractor to the Employer (as the case may be). The Employer shall forthwith pay to the Contractor (if the balance is due to the Contractor) all moneys due to the Contractor. If the account shows a balance due to the Employer from the Contractor, the Contractor shall forthwith pay any such balance to the Employer;
- b) As part of the calculation made pursuant to clause 5.1 of the amounts due to the Contractor on Termination, the following amount shall be taken into account:
- c) the portion of the O & M Price outstanding and payable by the Employer for the period prior to the Termination;
- d) any Delay Damages or indemnities for which the Contractor would be liable under these Conditions upto the date of Termination;
- e) Any other amounts due to the Employer under these Conditions by the Employer including return of any amount of the O & M Price paid in advance by the Employer to the Contractor under Clause 4 of section III.
- f) In case of a Termination by the Employer in accordance with Clause 5.1 the Employer may recover other than the amounts due to him, any costs incurred by him in finding any replacement contractor.

5.3 Successor to the Contractor Upon Termination: -

- a) The Contractor shall use all endeavors to facilitate the appointment and commencement of duties of any person to be appointed by the Employer to operate and maintain the facilities (the "Successor Contractor") so as not to disrupt the normal Operation & Maintenance of the Facilities and shall provided full access to the Facilities and to all relevant information, data and records relating thereto by the Successor Contractor and its representatives and accede to all reasonable requests made by such persons in connection with preparing for taking over the Operation & Maintenance of the Facilities,
- b) Promptly after Termination, the Contractor, shall deliver to (and shall, with effect from Termination, hold on trust for and to the order of) the Employer or (if so required by the Employer by written notice) to the Successor Contractor all property in its possession or under its control owned by the Employer or leased or licensed to the Employer;
- c) The Contractor shall transfer to the Successor Contractor, as from the date of Termination, its rights as the Contractor under all contracts entered into by it in the performance of its obligations under these Conditions or relating to the Operation & Maintenance of its obligations under these Conditions or relating to the Operation & Maintenance of the Facilities. Pending such transfer, the Contractor shall hold its rights and interests thereunder for the account and to the order of the Successor Contractor.
- d) The Employer shall be reimbursed any cost and expenses incurred by the Employer due to default of the Contractor in discharging its obligations under this Clause 5.1.
- e) The Contractor shall, upon Termination of the O & M Contract, co- operate with the Employer and the Successor Contractor and comply with all reasonable requests thereof, including the execution of documents etc.

- f) Upon Termination of the O & M Contract on expiry of the terms of the O & M Contract, the Parties agree that:-
- g) The Contractor will use reasonable efforts to ensure a transition to the next Contractor that will avoid operating difficulties for the Facilities.
- h) For a six (6) month period after Termination or six (6) months prior to the expiration of the O & M Contract, the Contractor shall, at his expense, provide sufficient assistance to the Employer in the hiring and training of replacement personnel for those Facilities.
- i) Notwithstanding anything else herein contained the Employer shall be entitled to terminate the O & M Contract, at any time at the Employer's convenience, by giving notice of such termination to the Contractor. The termination shall take effect 28 days after issuance of the notice of termination.
- j) On the expiry of the O & M Contract or Termination of the O & M Contract, all the installations, works and equipment placed under the Contractor's responsibility shall be handed over to the Employer, at no cost, in good working order, except for normal wear and tear. The Employer may perform any inspections, tests or expert appraisals he shall consider necessary with a view to checking that the property is in good working order. The Contractor shall also hand over any unutilized spares, consumables etc. purchased for the Facilities.
- k) At the end of successful O & M Period, the Contractor shall be entitled to receive an O & M Completion Certificate.
- l) The delivery of such O & M Completion Certificate will relieve the Contractor from his responsibility as regard to the operation & maintenance of the Facilities and confirm that the Contractor has fulfilled all of his obligations under these Conditions.

6. FORCE MAJEURE

- 6.1** The Contractor shall not be liable for forfeiture of its performance security, liquidated damages or termination for default, if and to the extent that, its delay in performance or other failure to perform its obligations under the Contract is the result of an event of Force Majeure.
- 6.2** For purposes of this clause, "Force Majeure" means an event beyond the control of the Contractor not involving the Contractor's fault or negligence and not foreseeable. Such events may include, but are not restricted to, acts of the Employer either in its sovereign or contractual capacity, earthquakes, wars or revolutions, riots, storm, fires, floods, epidemics, quarantine restrictions and freight embargoes.
- 6.3** If a Force Majeure situation arises, the Contractor shall and promptly notify the Employer in writing of such condition and the cause thereof. Unless otherwise directed by the Contract as far as reasonably practical, and shall seek all reasonable alternative means for performance not prevented by Force Majeure event.
- 6.4** Any delays in or failure of the performance of either part hereto shall not constitute default hereunder or give rise to any claims for damages, if any to the extent such delays or failure of performance is caused by occurrences such as acts of God or the public enemy appropriation or of facilities by Government authorities act of war, rebellion or subterfuge or fire, flood, explosion, epidemics, quarantine restrictions, riots or illegal strikers. The contractor shall keep records of the circumstances referred to

above and bring these to the notice of Purchaser/Client in writing immediately on such Occurrences.

7. RESOLUTION OF DISPUTES

- 7.1** The Employer and the Contractor shall make every effort to resolve amicably by direct informal negotiation and disagreement or dispute arising between them under or in connection with the Contract.
- 7.2** If, after thirty (30) days from the commencement of such informal negotiations, the Employer and the Contractor have been unable to resolve amicably a Contract dispute, either party may require that the dispute be referred for resolution to the formal mechanisms specified in the Special Conditions of Contract.
- 7.3** Except as otherwise specifically provided in the contract, all disputes concerning questions of fact arising under the contract shall be decided by the Municipal Commissioner subject to a written appeal by the Contractor to the Municipal Commissioner and those decisions shall be final and binding on the parties hereto. Any disputes or differences including those considered as such by only one of the parties arising out of or in connection with this contract shall be to the extent possible settled amicably between the parties. If amicable settlement cannot be reached then all disputed issues shall be settled as provided in Article GC-48 (Disputes or differences to be referred to) and Article No.GC-49 (Interpretation Related to Tender Conditions or Contract Agreement).

Disputes of Differences to Be Referred To:

If at any time, any question, disputes or differences of any kind whatsoever shall arise between the Engineer-In-Charge and the contractor upon or in relation to or in connection with this contract either party may forthwith give to the other, notice in writing of the existence of such question, dispute or difference as to any decision, opinion, instruction, direction, certificate or evaluation of the Engineer-In-Charge. The question, dispute or differences shall be settled by the Municipal Commissioner, Bhavnagar Municipal Corporation, who shall state his decision in writing and give notice of same to the Engineer-In-Charge and to the Contractor. Such decision shall be final and binding upon both parties.

Interpretation Related To Tender Conditions Or Contract Agreement:

For any interpretation related to tender conditions or contract agreement conditions, the decision of Municipal Commissioner, Bhavnagar Municipal Corporation shall be considered as final and binding and in the event of any dispute arising pertaining to tender conditions or contract agreement conditions the jurisdiction shall be Bhavnagar Civil Court /Commercial Court of Bhavnagar City.

8. GOVERNING LAW AND JURISDICTION

These Conditions and the O & M Contract shall be governed in accordance with Indian Law. The Contractor agrees that any legal action or proceedings arising out of these Conditions may be brought in the courts or tribunals at Bhavnagar in India and irrevocably submits themselves to the jurisdiction of such courts or tribunals. The Employer may, however, in its absolute discretion commence any legal action or proceedings arising out of these Conditions in any other court, tribunal or other appropriate forum, and the Contractor hereby consents to such jurisdiction.

9. GOVERNING LANGUAGE

The Contract agreement shall be written in English or Gujarati.

10. LABOUR LAW AND OTHER APPLICABLE LAWS

The Contract shall be interpreted in accordance with the Indian laws. All the prevailing laws of minimum wages, E.P.F, ESI, Factory Act, and Labor Laws etc. shall be applied to this contract.

11. TAXES AND DUTIES

The tender is inclusive of all applicable taxes and duties such as Service tax, customs/import duty, excise duty and any other taxes on finished products/services, service tax on works contract and turnover taxes, if any, paid by the Contractor under any central, state or local government rules and regulations will not be reimbursed to the Contractor. However any change in Govt. Taxes and duties-New taxes will be reimbursed / deducted against production of voucher. GST will be paid by BMC as per actuals. The bidders have to quote their O&M rates in price schedule excluding applicable GST if any.

12. CHILD LABOUR ACT

1. No contractor shall employ any child having age below 14 years, as it is prohibited by the Child Labour Prohibition and Regulation Act, 1986. The Hon. Supreme Court has given certain guidelines and as per the guidelines, if employment of child labour is detected on the site work, the Contractor shall have to deposit Rs. 20,000/- (Rupees Twenty Thousand Only) in the Child Labour Welfare Fund. If the contractor refuses to deposit, then action will be taken for contempt of Court of the Supreme Court Judgment and also will be prosecuted by the concerned authority.
2. Because of the breach of any provision of the Child Labour prohibition and Regulation Act, 1986, by the Contractor and for that Municipal Corporation has to pay any amount, and then the Municipal Corporation shall recover the said amount from the Contractor.

13. IN CASE OF ANY DISPUTES

Except where otherwise specified in the contract and subject to the powers delegated to him by Corporation under the Bombay provincial Municipal corporation Act, 1949 rules then in force, the decision of the Municipal Commissioner of the Corporation for the time being shall be final, conclusive and binding on all parties to the contract upon all questions relating to the meaning of the specifications, designs, drawings and instructions herein before mentioned and as to the quality of workmanship, or materials on the work, or as to many other questions, claim, right, matter or thing whatsoever. If any way arising out of, or relating to the contract, designs, drawings, specifications estimates, Instructions order, or these conditions, or otherwise concerning the works, of the execution or failure to execute the same, whether arising during the progress of the work, or after completion or abandonment thereof.

14. TIME SCHEDULE OF WORK

2 Years for comprehensive O&M from the date of work order.

15. RIGHT OF THE OWNER TO FORFEIT SECURITY DEPOSIT.

In any case in which under any clause of this contract, the contractor shall have rendered himself liable to pay compensation amounting to the whole of his Security Deposit (Whether paid in one sum or deducted by installment) or in the case of abandonment of the work owing to serious illness or death of the contractor or any other cause, the municipal commissioner, on behalf of BMC shall have power to adopt

any of the following courses as man, deemed best suited to the interest of BMC.

- (1) To rescinded the contract (of which recession notice in writing to the contractor under the hand of the executive shall be conclusive evidence) and in that case, the Security deposit of the contractor shall stand forfeited and be absolutely at the disposal of the BMC.
- (2) To employ labour, paid by the BMC and to supply materials to carry out the work, or any part of the works, debiting the contractor with the cost of the labour and price of materials as to the correctness of which cost and price the certificate of the Municipal Commissioner shall be final and conclusive against Contractor and crediting him with the value of the work done, in all respect in the manner and at the same rate as if it had been carried out by the contractor under the terms of this contract and in that case the certificates of the Executive Engineer as to the value of the work done shall be final and conclusive against the contractor.
- (3) To order that the work of the contractor be measured up and to take such part thereof as shall be unexecuted out of his hands, and to give it to another contractor to complete, in which case, any expenses which may be incurred in excess of the sum which would have been executed by him (as to the amount of which expenses the certificate in writing of the Municipal Commissioner be final and conclusive) shall be borne and paid by the original contractor and shall be deducted from any money due to him by the BMC under the contractor or otherwise or from his security deposit or the proceeds of sale thereof, of a sufficient part thereof. In the event of any of the above courses being adopted by the Municipal Commissioner the contractor shall have no claim to compensation for any loss sustained by him by reason of his having purchased, or prepared any materials, or entered into any engagements, or made any advances on account of or with a view to execution of the work or the performance of the contract.
- (4) And in case of the contract shall be rescinded under the provision aforesaid, the contractor shall not be entitled to recover or be paid any sum, for any work therefore actually performed by him under this contract unless and until the Executive Engineer shall have certified in writing the performance of such work and the amount payable to him in respect thereof and he shall only be entitled to be paid the amount so certified.
- (5) Whenever any claim against the contractor for the payment of a sum of money arises out of/ under the contract, the owner shall be entitled to recover such sum by appropriating in part or whole the security deposit of the contractor. In the event of the security being insufficient or if security has been taken from the contractor than the balance or the total sum recoverable, as the case may be shall be deducted from any sum then due to which at any time thereafter may become due to the contractor under this or any other contract with the owner and should this sum be not sufficient to cover the recoverable amount the contractor shall pay to the Owner on demand the balance remaining due.

16. ACTION WHEN THE PROGRESS OF ANY PARTICULAR PORTION OF THE WORK IS UNSATISFACTORY

If the progress of any particular portion of the work is unsatisfactory the Municipal Commissioner/Executive Engineer shall, notwithstanding that the general progress of the work is satisfactory in accordance with specified in tender elsewhere, be entitled to take action under specified in tender elsewhere after giving the contractor 10 days notice in writing and the contractor shall have no claim for compensation for any loss sustained by him owing to such action.

17. ACTION WHERE NO SPECIFICATION ISSUED

In case of any class of work for which there is no such specification supplied by the owner as mentioned in Tender document such work shall be carried out in accordance with Indian Standard Specifications and if the Indian Standard Specification do not cover the same the work should be carried as per standard Engineering practice subject to the approval of the Engineer-in- charge.

18. ABNORMAL RATES

The contractor is expected to quote for each item after careful analysis of cost involved from the performance of complete item considering all specifications and conditions of contract. This will avoid loss or profit or gain in case of curtailment or change of specification for any item owner reserve the right to reject tender if abnormality in quoted rates will be found, analysis for such rate to be furnished the Tenderer on demand.

19. SOLE ARBITRATION

Municipal commissioner, BMC shall be the sole arbitration. For any disputes & differences of any kind arising out of or in connection with the contractor or the carrying out of the work during the progress of the work or after their completion shall be referred to settle by Municipal commissioner, BMC. The decision of the Municipal commissioner shall be final & binding to both parties.

20. INSURANCE IN RESPECT OF DAMAGE TO PERSONS AND PROPERTY

The Contractor shall be responsible for all injury to persons, animals or things and for all structural and decorative damage to the property, which may arise, from the operation or negligence of contractor or of any nominated Sub-contractor's employees whether such injury or damage arise from carelessness. Accident or any other cause whatever in any way connected with the carrying out of this contract. This clause shall be held to include, INTER ALIA, any damage to building whether immediately adjacent or otherwise, and any damage to roads, streets, foot-paths, bridges or ways as well as damage caused to the buildings and works forming the subject of this contract by frost or other inclemency of weather. The contractor shall indemnify the Owner and hold him harmless in respect of all and expenses arising from any such injury or damage to person or property aforesaid and also in respect of any claim made in respect of injury or damage under any Acts of Government or otherwise and also in respect of any Award of compensation or damages consequent upon such claim.

The Contractor shall reinstate all damage of every sort mentioned in this clause so as to deliver up the whole of the contract works completed. And perfect in every respect and so as to make good or otherwise satisfy all claims for damage to the property of third parties.

The Contractor shall indemnify the Owner against all claims which may made against the Owner by any member of the public or other third party in respect of anything which may arise in respect of the works or in consequence thereof and shall at his own expenses arrange to effect and maintain, until actual handing, over works to the Corporation with an approved office a Policy of insurance in the Joint names of the Owner and the Contractor against such risks from time to time during the currency of this Contract. The contractor shall similarly indemnify the owner against all claims which may be upon the owner whether under the Workmen's Compensation Act or any other Stature in force during the currency of this contract or at common law in respect of any employee effect & maintain until the actual handling over of the central lighting work with an approved office of policy of Insurance in the joint names of the Owner & the contractor against such risks from time to time during the currency of the contract.

The contractor shall be responsible for anything which may be excluded from the insurance Policies above referred to & also for all the other damages to any property arising out & incidental of the negligence or defective carrying out of this contract. He shall also indemnify the Owner in respect of any costs charges or expenses arising out of any claim or proceedings & also in respect of any Award of compensation of damage arising there from.

The Owner shall be at liberty & is hereby empowered to deduct the amount of any damage, compensation, costs charges & expenses arising or occurring from or in respect of any such claim or damage from any sum due or to become due to the contractor.

21. FINAL COMPLETION CERTIFICATE

On completion of the work the contractor shall be furnished with a certificate by the Municipal Commissioner of such completion but no such certificate shall be given or considered to be complete until the contractor shall have removed from the premises on which the work shall have been executed all scaffolding, surplus materials and rubbish and shall have cleaned off the dirt from site or any rubies or such other parts, etc.

22. BILLS TO BE ON PRESCRIBED FORM

The contractor shall submit all bills in typed duplicate on the prescribed forms. The charges to be made in the bills shall always be entered at the rates specified in the tender or in the case of any extra work ordered in pursuance of these conditions, and not mentioned or provided for in the tender, at the rates herein after proved for such work.

23. WORKS TO BE EXECUTED IN ACCORDANCE WITH SPECIFICATIONS. DRAWINGS, ORDERS, ETC.

The contract shall execute the whole and every part of the work in the most substantial and workman like manner, and both as regards materials and in every other respect in strict accordance with the specifications. This shall also confirm exactly full and faithfully to the designs, and instructions in writing relating to work signed by the Executive Engineer. And lodge at site office and to which the contractor shall be entitled to have access for the purpose of inspection of such office on the site of the work during the office hours and the contractors shall if he so requires, be entitled at his own expenses to make or cause to be made copies of the specifications and of all such designs, drawings or instruction aforesaid.

24. EXECUTION OF WORKS

All works to be executed under the direction and subject to the approval in all respect of Executive Engineer for the time being, who shall be entitled to direct at what point or points and in what manner they are to be commenced and from time to time carried on.

25. DECISION OF THE BMC TO BE FINAL

Except where otherwise specified in the contract and subject to the powers delegated to the Executive Engineer/Consultant, the decision of the Municipal Commissioner for the time being shall be final conclusive and binding on all parties to the contract upon all question relating to the meaning of the specifications, designs, drawings and Instruction herein before mentioned and as to the quality of workmanship or material used on the work or as to any other question, claim, right, matter or thing

whatsoever, in anyway arising out of or relating to the contract designs, drawings, specifications estimates, instructions, orders or these conditions or otherwise concerning the works or the execution of failure to execute the same, whether arising during the progress of the work or after completion of abandonment thereof.

26. ACTION WHERE NO SPECIFICATIONS ARE AVAILABLE

In the case of work for which there is no such specification, work shall be carried out in accordance with the P.W.D., WATER SUPPLY BOARD or I.S.I. /LS. specifications and in the event of there being no P.W.D., WATER SUPPLY BOARD or I.S.I. specifications the work shall be carried out in all respects in accordance with the instructions and requirements of Executive Engineer/the Consultant.

27. IMPLEMENTATION OF PROVIDENT FUND ACT& LABOUR ACT:

It is to be noted that the subject contract would be awarded only to those contractor that have fulfilled having P.F. Registration Number allotted to them RPFCL, The agency to submit Certificate, Possessing License under Contract labour Act 1970 and to Submit.

28. JURISDICTION

The Contract shall be governed and be constituted according to laws in India. The Contractor will submit to the jurisdiction of the courts situated at Bhavnagar for the purpose of disputes, actions, and proceedings arising out the contract and the courts at Site location only will have the jurisdiction to hear and decide such disputes, actions, and proceedings,

29. CONTRACTOR REMAINS LIABLE TO PAY COMPENSATION, IF ACTION NOT TAKEN UNDER 19 POWER TO TAKE POSSESSION OF OR REQUIRE OF OR SELL CONTRACTOR PLANT AND MATERIAL

In any case in which any of powers conferred upon the Municipal Commissioner by 7.9 and 7.10 hereof shall have become exercisable and the same not have been exercised, the no exercise thereof and such powers shall not constitute a waiver of any of the conditions thereof and such powers shall not withstanding be exercisable in any future case of default by the contractor for which by any clause or clauses thereof he is declared liable to pay compensation amounting to the whole of his security deposit and the liability of the contractor for past and future compensation shall remain unaffected.

In the event of the Municipal Commissioner taking action under sub clause (a) or (c) of Clause 3, he may, if he so desires, take possessions of all or any tools, plant, materials and stores in upon the works or the site thereof of belonging to the contractor or procured by him and intended to be used for the execution of the work or any part thereof paying or allowing for the same in the account of the contract rates or in the case of contract rates not beings applicable at current market rates, to be certified by the Executive Engineer whose certificates thereof shall be final. In the alternative the Municipal Commissioner may be notice in writing to the contractor of his works foreman or other authorized agent require him to remove such tools plants, materials or stores from his premises within a time to be specified in such notice and in the event of the contractor failing to comply with any such requisition, the Municipal Commissioner may remove them at the contractor's expense or sell them by auction or private sale at the risk and cost of the contractor in all respect, and the certificate of the Executive Engineer as to the expense of any such removal, and the amount of the proceeds and expenses of any such sale shall be final and conclusive against the contractor.

30. NO COMPENSATION FOR ALTERATION OR RESTRICTION OF WORK

If at any time after execution of the contract documents, the Municipal Commissioner/ Executive Engineer shall, for any reason what so ever, require the whole or any part of the work, as specified in the tender, to be stopped for any period or shall not require the whole or part of the work to be carried out at all or to be carried out by the contractor, he shall give notice in writing of the fact to the contractor, who shall there upon suspend or stop the work totally or partially, as the case may be. In any such case, except as provided here under, the contractor shall have no claim to any payment or compensation what so ever on account of any profit or advantage which he might have derived from the execution of the work in full but which he did not so derive in consequence of the full amount of the work not having been carried out, or on account of any loss that he may be put on account of materials purchased or agreed to be purchased, or for unemployment of labour recruited by him. He shall not have also any claim for compensation by reason of any alteration having been made in the original specifications, drawings, designs and instructions which may involve any curtailment of the work as originally contemplated. Where however, materials have already been purchased or agreed to be purchased by the contractor before receipt by him of the said notice, the contractor shall be paid for such materials at the rates determined by the Executive Engineer they are not in excess of requirements and are of approved quality and / or shall be compensated for the loss if any, that he may be put to, in respect of materials agreed to be purchased by him, the amount of such compensation to be determined by the Executive Engineer whose decision shall be final. If the contractor suffers any loss on account of his having to pay labour charges during the period during which the stoppage of work has been ordered under this clause, the contractor shall, on application be entitled to any compensation on account of labour charge as the Executive Engineer whose decision shall be final may consider reasonable. Provided that the contractor shall not be entitled to any compensation on account of labour charges if, in the opinion Executive Engineer, the labour could have been employed by the contractor elsewhere for the whole or part of the period during which the stoppage of the work has been ordered as aforesaid.

31. NO CLAIM TO COMPENSATION ON ACCOUNT OF LOSS DUE TO DELAY IN PROCUREMENT OF MATERIAL FROM MARKET.

The contractor shall not be entitled to claim any compensation from the BMC for the loss suffered by him on account of delay in the procurement of material from market by contractor where such delay is caused by

1. Force Majeure
2. Act of God
3. Act of enemies of the State or any other reasonable cause beyond the control of BMC.

32. ACTION AND COMPENSATION PAYABLE IN CASE OF BAD WORK

If at any time before the security deposit is refunded to the contractor, it shall appear to the Municipal Commissioner/Executive Engineer/Consultant his subordinate in charge of the work that any work has been executed with unsound, imperfect or unskilled workmanship or with materials of inferior quality, or that any materials or articles provided by him for the execution of the work are unsound or of a quality inferior to that contracted for, or are otherwise not in accordance with the contract, it shall be lawful for the Municipal Commissioner/Executive Engineer to intimate this fact in writing to the contractor and then notwithstanding the fact that the work materials or articles complained of may have been inadvertently passed, certified and paid for the contractor shall be bound forthwith to rectify or remove and reconstruct the work so specified in whole of or in part as the case may require, or if he is required, shall remove the material or articles so specified and provided other proper and suitable materials or

articles at his own charge and cost; and in the event of his failing to do so within a period to be specified by

The Municipal Commissioner/ Executive Engineer in the written intimation aforesaid the contractor shall be liable to pay compensation at the rate of one per cent on the amount of the contract sum for every day not exceeding ten days, during which the failure so continues, and in the event of any such failure as aforesaid the Municipal Commissioner/Executive Engineer/ Consultant may rectify or remove and re-execute the work or remove and replace the materials or articles as complained of as the case may be at the risk and expense in all respect of the contractor. If the Municipal Commissioner considers that any such inferior work or materials as described above may be accepted or made use of, it shall be within his discretion to accept the same.

33. WORKS TO BE OPEN FOR INSPECTION, CONTRACTOR REASONABLE REPRESENTATIVE TO BE REMAIN PRESENT

All works under or in course of execution in pursuance of the contract shall at all times be open to the inspection and supervision of the Municipal Commissioner/ Executive Engineer and his subordinates or agents appointed by BMC and the contractor shall at all times during the usual working hours and at all other times at which reasonable notice of the intention of the Municipal Commissioner/ Executive Engineer or his subordinate or representative appointed by BMC to visit the works shall have been given to included. In the specification or other documents forming part of the contract referred to in these conditions or not and which may be necessary for the purpose of satisfying or complying with the requirements of the Municipal Commissioner/ Executive Engineer as to any matter on which under these conditions he is entitled to be satisfied or which he is entitles require together with carriage, therefore, to and for the work.

34. HOISTING APPLIANCES ETC.

The contractor shall comply with the following regulations as regards the Hoisting Appliances to be used by him:

- a. Hoisting machines and tackle: including their attachments, anchorages, supports, chains, shall
 - (I) be of good mechanical construction, sound material and adequate strength and free patent defect; and
 - (II) Be kept in good repair and in good working order.
- b. Every rope used in hoisting or lowering materials or as a means or suspension shall be of suitable quality and adequate strength and free from patent defect.
- c. Hoisting machines and tackle shall be examined and adequately tested after erection on the site and be re-examined in position at intervals to be prescribed by BMC.
- d. Every chain, ring, hook, shackle, swing and pulley block used in hoisting or lowering materials or as means of suspension shall be periodically examined.
- e. Every crane driver or hoisting appliance operator shall be properly qualified.
- f. No person who is below the age of 20 years shall be in control of any hoisting machine including any winch or give signals to the operator.

- g. In the case of every hoisting machine and of every chain, ring, hook shackle, swivel and pulley used in hoisting or lowering or as a means of suspension the safe working load shall be ascertained by adequate means.
- h. Every hoisting machine and all gear referred to in the preceding regulation be plainly marked with the safe working load. In the case of hoisting machine having a variable safe working load each safe working load and the conditions under which it is applicable shall be clearly indicated.
- i. No part of any hoisting machine or any gear referred to in regulation above shall be loaded beyond the safe working load except of the purpose of testing.
- j. Motors, gearings, transmissions, electric wiring and other dangerous parts of hoisting appliances shall be provided with efficient safeguards.
- k. Hoisting appliances shall be provided with such means as will reduce to a minimum the risk of the accident descent of the load.
- l. Adequate precautions shall be taken to reduce to a minimum risk of any part of a suspended load becoming accidentally displaced.

35. MEASURES FOR PREVENTION OF FIRE

The Contractors shall not set fire to any standing jungle, trees brushwood or grass without a written permit from the Municipal Commissioner. When such permit is given and also in all cases when destroying out of a dug up trees, brushwood, grass etc. by fire, the contractor shall take necessary measures to prevent such fire spreading to or otherwise damaging surrounding property. All measures to Prevent Fire should be as per the Fire Act by Govt. /BMC.

36. LIABILITY OF CONTRACTOR FOR ANY DAMAGE DONE IN OR OUTSIDE WORK AREA

Compensation for all damage done intentionally or unintentionally by contractor's labour whether in or beyond the limits of the work site including any damages caused by the spreading of Fire mentioned in clause 35 shall be estimated by the Executive Engineer or such other officer as the BMC may appoint and the estimates of the BMC shall be final and the contractor shall have to pay the amount of the assessed compensation on demand failing which the same will be recovered from the contractor as damages in the manner prescribed in clause 1 or deducted by the Municipal Commissioner from any sums that may be due to or become due from the BMC to the contractor under this contract or otherwise.

The contractor shall bear the expenses of defending any action or other legal proceedings that may be brought by any person for injury sustained by him owing to neglect of precautions to prevent the spread of Fire and shall be also pay any damage and cost that may be the court in consequence. However in any case BMC cannot be suit under any circumstances.

37. SAFETY CODE

Contractor shall adhere to safe practice and guard against hazardous unsafe working condition and shall comply with central/State Government safety Rules. Safety Regulations in respect of all labour, directly or indirectly employed in the work for the performance of Contractors part of this agreement, Contractor shall at his own expense arrange to all safety provision as per safety code of Bureau of Indian Standard,

The Electricity Act, and such other acts as applicable. Suitable scaffolding will be provided for workmen for all works that cannot be safely done from the ground up to any height as required for working Scaffolding should be strong enough to prevent any collapse/Accident .The contractor is responsible for the stability of scaffolding. As per the Safety clause mentioned in preventive maintenance checks above.

38. QUANTUM OF WORK

A bill of approximate quantities for various items accompanies this Tender. It shall be definitely understood by the contractor, BMC/Consultant do not accept any responsibility for the correctness or completeness of this Bill in respect of Items & quantities & this schedule is liable to alteration by deletions, deductions, or addition to any extent at discretion of the BMC without affecting the terms of contract. The BMC reserves the right to increase or decrease the quantum of work to any extent at site without assigning any reason/compensation.

39. REMOVAL OF WORKMEN

The BMC shall be at liberty to object & require the Contractor to remove forth with from the works any person employed by the contractor in or about the execution or maintenance of the works who in the opinion of the BMC miss-conducts himself or is incompetent or negligent in the proper performance of his duties or whose employment is otherwise considered by the Executive Engineer to be undesirable & such person shall be replaced by the contractor without delay by competent substitute approved by BMC.

40. STANDARDS

The Goods supplied under this Contract shall conform to the standards mentioned in the Technical Specifications and when no applicable standard is mentioned to the authoritative standard appropriate to the Good's country of origin and such standards shall be the latest issued by the concerned institution.

41. APPLICABLE LAW

The Contractor shall comply with all Applicable Law relevant to the Contractor's Personnel, including Applicable Law relating to their employment, health, safety, welfare, immigration and emigration, and shall allow them all their legal rights.

The Contractor shall require his employees to obey all Applicable Laws, including those concerning safety at work.

In the event Employer becomes liable to any Employers Personnel, any governmental authority (including but not limited to any fines or penalties levied by or payable to such authority) or any other third party under the provisions of any Applicable Law resulting from Contractor's failure to comply with such Applicable Law, Contractor shall reimburse Employer for all payments required to be made by Employer to such Employers Personnel, governmental authority or any other third party, plus the actual expenses that Employer may incur in investigating, settling or defending any litigation or threatened litigation.

42. ASSIGNMENT

The Contractor will not be entitled to sub-contract any part of his obligation under these Conditions to any third party without prior approval of the Employer. Neither party may assign their rights and obligations under these Conditions without the consent of the other Party. However the Employer may

assign any rights under these Conditions to any financial institution from whom any financial assistance/credit facilities have been availed by the Employer.

Safety Emergencies

In the event of an emergency endangering life or property, the Contractor shall take such action as may be necessary to prevent, avoid or mitigate injury, damage or loss and shall, as soon as possible, report any such incidents, including his response thereto to the Employer.

Contractor Action

The Contractor shall utilize his personnel to take such action as may be necessary in accordance with Good Operating Practices in the event of an emergency. Notwithstanding anything to the contrary herein, the Contractor may incur any expenditure or take any other operating actions as the Contractor deems to be necessary (in accordance with Good Operating Practices) in the case of emergencies affecting the Facilities or the operation of the Facilities to counteract the effects where the Contractor considers immediate action is required to safeguard lives or property. In case such emergency was caused due to an Employer's Risk then the Employer shall reimburse such reasonable expenses that might have been incurred by the Contractor in relation thereto acting in accordance with Good Industry Practices.

43. NOTIFICATION

In the event of an emergency the Contractor shall forthwith notify the Employer of the emergency, the expenditures made and the operating actions taken.

If the Employer considers that an emergency has arisen in relation to the Facilities, the Employer may give written notice to the Contractor specifying the nature of the emergency which it has identified and the manner in which it requests such emergency to be rectified. The Contractor shall rectify such defect with all due diligence. If such emergency is on account of an Employer's Risk then the Contractor shall be reimbursed all costs and expenses reasonably incurred by the Contractor for any actions taken by it pursuant to such direction or notice. If the Contractor fails to comply with such direction or notice promptly, the Employer shall be entitled to procure that it or any third party takes such actions as may be necessary to remedy such breach by the Contractor. Any costs that may be incurred by the Employer in this regard shall be reimbursed to him in full by the Contractor and shall be a debt due to him from the Contractor.

44. INSPECTIONS

Notwithstanding any provisions of these Conditions and without prejudice to any of the other rights vested by the Contractor under these Conditions, the Employer shall have the right at all times to inspect the Facilities and the Contractor shall co-operate in every manner with the representatives of the Employer inspecting the Facilities and allow them access to every part of the Facilities and produce any records requested.

Signature of Tenderer
Name
Company Seal
Date:

Executive Engineer
Drainage Department
Municipal Corporation, Bhavnagar

SECTION IV

SPECIAL CONDITIONS OF CONTRACT

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1. GENERAL

- a. The following Special Conditions of Contract shall supplement the General Condition of Contract. Whenever there is a conflict, the provisions herein shall prevail those in the General Conditions of Contract. The corresponding clause number of the General Conditions of Contracts is indicated in bracket.
- b. The Tenderer shall make necessary storage arrangement with security.
- c. Erection of all materials, sundries will be carried out as per technical specification. In absence of specification, work shall be carried out as per instruction of Engineer-in-charges.
- d. If safety measures will not be observed by the contractors then he will be responsible for any accident occur due to his negligence during the work.
- e. In case of site clearance is not available due to any reason; suitable extension shall be given to the contractor to carry out the work.
- f. Deviations in technical specifications and commercial terms shall not be allowed.
- g. The rates shall remain firm for the entire contract period.
- h. If rates quoted by the bidder found to be unworkable than the corporation reserves the right to reject the tender.
- i. The Contractor shall have to engage only licensed holder electricians and wireman for electrical related work and skilled persons for mechanical or any work under this maintenance work and necessary safety Equipment should be given to his employee / staff for maintenance works.
- j. The Contractor shall be fully responsible for any damage and or for loss of Life, accident, fire, hazards occurred during the work or after completion of work.

2. DEFINITIONS

The Employer is Municipal Commissioner, Bhavnagar Municipal Corporation

3. PERFORMANCE SECURITY (Clause 14, Section II)

The Performance Security shall be in form of Bank guarantee/D.D/F.D.R for the amount equals to 5% of the Contract price.

4. SPARE PARTS

Contractor shall carry sufficient inventories to assure ex-stock supply of consumable spares such as Bearing, gaskets, plugs, washers, bolts, etc. Other spare parts and components shall be provided by contractor as promptly as possible but in no case later than one week. The contractor has to provide

the material of standard make.

5. PAYMENT

- 5.1 Payment shall be made by the Corporation generally within 45 days / as per availability of funds, subsequent to the submission of such invoice(s)/claim(s) by the Contractor and approval of the monthly O & M report, if possible.
- 5.2 The Contractor shall have to submit the following documents along with the bills:-
- a) Plant input total MLD flow/day.
 - b) Attendance registers.
 - c) Analysis report of inlet and Outlet sample of Sewage from GPCB approved accredited laboratory for following parameters pH, TSS, TDS, BOD, and COD. For any one day in every month.
 - d) Daily parameter sheet report as per format of B.M.C.
- 5.3 The Corporation will deduct from the amount payable to the Contractor, any amount paid by Corporation on behalf of the Contractor. Also any penalties deductible as per terms & conditions of the contract.

6. PRICES (Clause 4 Section III)

- 6.1 Prices/charges by the Contractor for the performance of the obligations and services under the Contract shall be firm and shall not be paid any escalation whatsoever for the entire period of the Contract.
- 6.2 The price escalation or variation clause will not be accepted.

7. LIQUIDATED DAMAGES

if the contractor fails to perform any services within the time period or nonperformance to meet output as per G.P.C.B. standards then the employer shall, without prejudice to its other remedies under the contract, deduct from the contract price, as liquidated damages as shown below:

- 7.1 If the Contractor does not recruit/deploy the 'Key Personnel' identified as per the schedule, penalty will be as per clause no. 3.25 of Operation and Maintenance Specification (Part B)
- 7.2 The plant or any unit should not be shut down condition for more than 4 hours for any reason or any technical fault. If the fault is not rectified for more than 4 hours then penalty at the following rates will be charged.
- a) For total shut down (excluding PGVCL power failure) of plant- Rs 2500/- per hour after as per above mentioned period
 - b) Average power factor in PGVCL bill must be greater than 0.95 and if any penalty/charge levied due to low power factor, then it will be recovered from the contractor without any reasons.
 - c) In case or any reason the staff of contractor refuses to work or goes on strike, Penalty of Rs. 20,000/- per incidence will be charged & during contract period 3 (three) no. of cases of strike shall be sufficient cause to terminate the contract and to proceed for the blacklist of the contractor in BMC for any work
- 7.3 If outlet standards are not achieved as per norms, the liquidated damages will be charged as per following.: (For nonperformance in meeting the Output Standards for Treated Sewage set as per GPCB Norms)

7.4 Total Liquidated damages will be considered not more than 10% of approved contract value. Once the maximum deduction is reached, the employer may consider termination of the contract for default.

Event triggering the recovery of Liquidated Damages	During the O & M Period		Liquidated Damages recoverable on Termination as a percentage of the immediately preceding year's Fixed Payments
	Liquidated Damages	Frequency	
Nonconformance with BOD standards as per GPCB Norms	Rs. 2.00	For every 10000 liters for every day of non-conformance	5 %
Nonconformance with COD standards as per GPCB Norms	Rs. 2.00	For every 10000 liters for everyday of nonconformance	5%
Nonconformance with TSS standards as per GPCB Norms	Rs. 2.00	for every 10000 liters for everyday of nonconformance	5%

- 7.5 If housekeeping and lighting is not maintained as per standard level, penalty of Rs. 500 per day will be charged.
- 7.6 If the penalty occurs frequently, which is spoiling smooth running of STP, then the contract shall be liable to scrutiny for termination and security deposit shall be forfeited. The decision of the Municipal Commissioner in this regard will be final and binding to the Bidder.

8. RESOLUTION OF DISPUTE (Clause 8 Section III)

- 8.1 In case of any dispute in the specification, term and conditions, the decision of the municipal commissioner shall be final and binding to the contractors.
- 8.2 In the case of a dispute between the Employer and Contractor, the dispute shall be referred to adjudication / arbitration in accordance with the Indian laws. The area of jurisdiction shall be Bhavnagar.

9. EXTENSION OF CONTRACT PERIOD

- 9.1 The successful tenderer on award of contract shall have to commence the O. & M. work within 7 days from the receipt of work order. The Contract will be for a period of 2 years as per tender specification and conditions, from the date of commencement of O. & M. work. The same can be extended for a further period of 1 (one) year if employer finds work of O&M of 45 MLD STP satisfactory as per tender specification and conditions or till

the charge of STP handover to new contractor as per work order to be issued by the BMC. The contractor has to continue the contract (if required by BMC) after completion of contract period till the charge of STP handover to new contractor. In this excess period BMC will pay as per the last months rate of this contract and all the terms and conditions and specifications will be remain same.

10. **HANDING OVER TAKING OVER**

- 10.1 On completion of contract period, contractor shall have to give all the machineries, equipments and their concern parts in fully working condition.
- 10.2 Last one month's O & M bill of contract period, will not be released unless and until re-take over/handing over all the equipments and machineries of the plant in working condition to the satisfaction limit, to the Engineer in charge (BMC) / other agency.

11 **COMPLIANCE OF LEGAL REQUIREMENTS**

- a) Contractor is required to strictly follow the provisions of wages payment act 1936, bonus act 1965, Employees Provident Fund & Miscellaneous Provisions Act 1952 & Labour laws with latest amendments, state and central laws, Indian Pinal Code related to this Operation & Maintenance work.
- b) As and when required contractor is bound to furnish required Information to the Executive Engineer, Drainage Department, BMC Contractor will not be given any relaxation regarding these provisions.
- c) Attention of Contractor is invited to the child labour (Prohibition and Regulations) Act 1986, which prohibits employment of children below 18 years of age in certain occupation and process and provides for regulation of employment of children in all other occupation and progress. Hence Contractor are requested to adhere to the provisions of the BMC are completely eliminated. Any violation of the provisions will lead to penal action. Apart from strict actions as per BMC rules which may include black listing/removing the name of the Contractor from the list of registered Contractors.
- d) Any legal action required under nay law specifically under IPC shall be initiated by Contractor. It is duty of the Contractor to adhere to and follow the provisions under various laws of stated and central government of republic of India.
- e) FIR to police department, if required shall lodged by Contractor (for example, in case of theft of some material) and legal actions shall be initiated in relevant cases by Contractor. It shall also be informed in detail about incidence to the employer Le BMC parallel
- f) The Contractor shall have to observe all provision under various acts like labour contract act, minimum wages act, and workman compensation act- 1923. R.P.F.C. act, Indian electricity act etc. and the financial implication arising due to breach of any act shall be fully borne by contractor. The Contractor shall be responsible/Liable to pay the insurance charges, Income tax, sales tax, Service tax, or any other taxes payable to Government for carrying out the work
- g) The rates to be quoted by agency shall include all other taxes, C.S.T./VAT. Service tax, ESI registration no but excluding G.S.T. applicable any extra payment shall be made by BMC on account of any tax variation. Necessary Income tax, R.P.F.C., etc. shall be deducted from the bills as per rules of BMC.
- h) If it is required to operate any item that is not covered under this tender, the contractor shall carry out the same at the rate of prevailing SOR or approved rate by BMC or market rate whichever is less.

- i) Successful bidder shall have to accept additional terms & conditions required to be included in this contract for smooth operation of this contract.
- j) In case of Wrong/ Misleading/Misappropriate information / Certificate and references submitted by the Tenderer, then his tender is liable to be rejected, EMD shall be forfeited and he will not be allowed to participate in future tenders.
- k) Person below 18 yrs. of age shall not be employed for the work during O&M period.

We hereby accept all the above Special Conditions and the same will be binding to us / successors.

Signature of Tenderer
Name
Company Seal
Date:

Executive Engineer
Drainage Department
Bhavnagar Municipal Corporation

SECTION-V

OPERATION & MAINTENANCE ASPECT

1. GENERAL

Operation and maintenance of the treatment plant is very much essential for sustainability of the treatment plant and to achieve discharge standards. The operational aspects include regular checking of the performance of the units including the electrical and mechanical equipments, to identify any non-functionality of the units to evolve the strategic measures to be taken to make the plant fully functional to meet the stipulated standards. Plant shall be operated as per design criteria. Variance in input value of design criteria should record.

All the activities of the treatment plant are to be scheduled and coordinated by the Plant Manager. The Plant Manager will also be responsible and capable for taking decisions like shutting down the treatment plant or to by-pass the wastewater etc. in case of emergencies, after having proper deliberations with the BMC and the operational staff. The Contractor should take every necessary step to carry out the Operation & Maintenance of the Plant, so as to achieve the desired results as per G.P.C.B. norms & as per tender.

1.1 SEWAGE QUALITY CONTROL

The contractor will maintain sufficient operating staff as mentioned in this document at any given point of time. The discharge the treated daily effluent should be as per the stipulated discharge standards. In order to ensure this, regular sampling and analysis will be done by the S.T.P. laboratory and Daily report of the same shall be submitted in the department regularly. Besides it will be the responsibility of the contractor that, only any one day in every month he will have to get the samples of the influent and effluent get analyzed by the third party laboratory approved by the GPCB at his own costs and submit the same to the Executive Engineer.

2. PLANT DETAILS

SEWAGE PUMPING STATION

2.1 RECEIVING CHAMBER (SPS)

The deep gravity outfall sewers will discharge the raw sewage into a Receiving Chamber. The function of the Receiving chamber is to distribute the flow for process units.

2.2 COARSE SCREEN CHANNEL (SPS)

Two mechanical screens working and one manual screen.

2.3 RAW SEWAGE PUMPING STATION

2.3.1 Sump and Pumps

Sewage enters into wet well of the pumping station after screening.

Note: There is a common inlet sewage sump of around 95 MLD Capacity of both the 45 MLD STP & 50 MLD STP. The operation & maintenance of this Main Pumping Station (MPS), except the 6 nos of pumps & its control panel of 50 MLD STP, are in the scope of 45 MLD STP's O.&M.

2.4 INLET CHAMBER

The inlet chamber is designed to take peak flow + other flows of sewage.

2.5 SCREEN CHANNEL – FINE BAR SCREEN

There shall be 3 nos. (2W mech. + 1S manual) fine bar screen channel located

2.6 GRIT CHAMBER

The flow from the screen channel is allowed into the Grit Chamber for the removal of grit/inorganic matter. There shall be 1 no. Mechanical Grit Chamber operating and one standby mechanical grit Chamber.

2.7 FLOW MEASURING CHANNEL (optional)

The outlet channels emerging from the Grit Chamber have necessary arrangement for measurement of the raw sewage flow with help of parshall flume.

2.8 SEQUENTIAL BATCH REACTOR UNITS

2.8.1 Process Design

- Sequential Batch Reactor (SBR) Units are installed and equipped for average flow of 45 MLD
- The SBR Process generally have following independent steps without overlapping each other:
1. Fill & Aeration 2. Settling (Sedimentation/Clarification) 3. Decanting (Draw) • since it is Batch Process, Filling during Settling or Decanting will not be acceptable.
- The complete biological system designed for handling peak flow.
- Suitable Nos. of SBR Basins with adequate volume provided. In addition 0.50 m Free Board is provided to each Basin. Maximum Liquid Depth of each Basin shall be restricted up to 6.0 m.
- The system works on a gravity influent condition. No influent / effluent Equalization Tanks or flash filling is accepted.
- The system is designed for maximum F/M ratio between 0.1 - 0.25 Kg BOD/Kg MLSS day.
- MLSS maintained in the Basin should range from 3000 to 5000 mg/l.
- Cycle times shall be selected adequately by the Bidder considering min. 12 hrs/day Basin of aeration and not exceeding decanting of 2.40 m liquid depth at any time with preferred cycle times containing max. 50% not aerated portion.
- The excess sludge produced shall be fully digested. Sludge production (including percipients) rate shall be about 0.75 – 1.20 Kg / Kg of BOD removed. A minimum aerated SRT of 10 days shall be maintained to ensure digested sludge.

2.8.2 Decanting Device

Moving Weir type Decanter:

- One or more electrically actuated variable speed moving weir decanters are provided in each basin which function under a controlled (but variable) constant lowering rate. Fixed subsurface devices shall not be permitted.
- During aeration and settlement, the decanter collection weir shall be situated (parked) above the top water level of the reactor. The decanter shall automatically operate as a high level overflow in the event of an emergency.
- The initial rate of travel of the decanter shall be adjustable and shall have an initial high rate of travel until entry into the liquid surface, at which point the rate of travel of the decanter shall be automatically reduced to a calculated rate of operation. The drive mechanism or actuator will be designed for a continuous duty, variable speed mode of operation thereby producing a uniform effluent flow rate throughout the decanter weir reaches bottom water level at the end of the decanter phase thereby maximizing settling time.
- The maximum design travel rate shall be 60 mm/min. with proven hydraulic discharge capacity of the decanter proportional to the selected basin area. Bidders to provide sample graphs of executed projects with such decanting speeds with decanters of min. same size (length).

- The rate of operation shall be calculated for each cycle and shall be determined by the volume of treated effluent to be discharged per cycle. The calculation of decanter travel shall ensure that the volume of treated effluent shall be discharged throughout the designated decant phase of the process cycle.
- Decanter assemblies such as Rope driven decanter, GRP products, valve arrangement as well as flexible rubber hose kind of decanter sealing will not be acceptable
- Upon reaching the designated BWL, the decanter shall be returned to its parked position travelling at the same rate of travel as the initial high downward rate. The decanters will be parked above the design top water level during aeration and settling phases, thereby eliminating any possibility of solids carryover during these phases. Decanters floating on the liquid surface during aeration and settling, with their weirs or entry ports submerged below the surface are not acceptable.
- At top park position, the decanter will provide fail safe overflow protection in the event of a power failure. Settled supernatant will flow via gravity, under the scum guard, over the weir, and into the decanters.
- If more than one decanter is provided per basin, the Contractor shall describe the method of decanter control by which an even distribution of flow is provided between the decanters during operation.
- The decanters are designed to prevent solids entering the decanting device during the aeration phase. Each decanter fitted with a scum retention mechanism to prevent surface scums and floatables from exiting with the treated effluent.
- Each decanter drive mechanism consist of an electric power unit, main drive and associated position limit switches. Four limit switches are provided for each decanter to ensure reliable operation at HI level (parked position), LO (design bottom water level) and HI-HI and LO-LO level to detect abnormal operation.
- Each Decanter mechanism is inclusive of push button station with manual operation selection and function buttons.
- All critical decanter components that may require routine inspection or maintenance are easily accessible from an access platform at basin coping level without taking a basin out of service or draining or partially draining the basin. It is possible to carry out decanter maintenance activities without interrupting normal operation of the basin while the decanter is at its parked position during non-decant phases of the process cycle.
- All the down comers in each decanter are of same size
- The actuator motors are accessible from the walkway for maintenance.
- The drive mechanism or actuator is mounted on the walkway to provide easy access for maintenance and service purposes.
- Actuator limit switches and motor are integrated with process control system to prevent blower operation during the decant phase of the cycle.
- The decanter weir shall always be visible from the basin walkway to provide the operator with a visual check of the effluent quality. The travel of the decanter shall be limited and controlled by limit switches which shall be fully integrated with the process control centre. The SBR blowers, automatic valves and switching mechanism shall be interlocked with the decanter controls so that aeration is prevented in a reactor vessel which is settling or decanting.

2.8.3 Aeration System

- The aeration facility is installed for 45 MLD average flows plus other flow.

- **Type of diffuser system**

A fine bubble diffused aeration system applied to aeration tank for oxygenation.

- **Diffuser Elements**

The diffuser elements are membrane type and resistant to such ingredients as hydrocarbons, oil and grease. This shall afford a high oxygen transfer rate coupled with a minimal pressure drop besides permitting simple erection onto the horizontal air manifold. They have minimal coupling / attachments to the air manifold and shall have self-cleaning properties while in action. Flat surfaces facing upwards as membrane surfaces shall not be accepted. The membrane diffusers shall permit connection to the air manifolds of circular or square cross section and the entire lot of diffusers shall be capable of discharging designed flow of air at an average flow (maximum of summer and winter requirement) with the nominal

air flow per diffuser per element shall not exceed 60 Nm³/h/m² of diffuser surface area when installed in the said aeration tanks. The diffuser grid is fixed type. The headers onto which the diffusers are fixed is of standard Imported PVC/UPVC pipe sections of suitable inner bore and shape with custom fixtures of the diffuser elements as directed by the membrane manufacturers. Alternative pipe materials are acceptable provided the same are a mandatory part of the diffuser supplier and have been in the supplier's line of supply as original equipment. These headers have enough counterweight or alternative arrangement to surmount any buoyancy lift from the floor during air charging. The diffusers are fixed to bioreactor floor, Fine Bubble Diffused Aeration membrane diffusers with a maximum flux through the diffusers not exceeding 60m³/m² membrane area. The air from the blowers which shall have high temperature and should be cooled suitably to avoid damaging the diffuser membranes The material of diffuser and associated fixtures are Diffusers Membranes EPDM / PU / Silicon Membrane with laser drilled holes Diffusers Membranes Support Engineering plastics Non Corrosive material uPVC or equivalent or PP Under water Air Piping to diffusers uPVC or equi. Air downers to underwater pipe SS304 Class 10 The in tank diffuser piping are sized for a velocity less than 20 m/sec

Special Note on Diffusers

The diffusers are so engineered so that they are firmly anchored to the floor and do not move during aeration the number of diffusers per downer are so sized so that the in tank pipe is sized to use the same diameter and similar supports and fixtures with interchangeability.

- The Air Blower Arrangement is capable of handling Total Water Level and Bottom Water Level operation conditions controlled by process sensors such as DO, Temperature and Level.
- Each set of Air Blowers have dedicated standby. Minimum one working Air Blower in each set shall operate via VFD while others may be operating at a fixed constant speed on soft starter configuration.
- The Air Blowers are positive displacement (Roots) type and head for Air Blowers is decided on the basis of S.O.R. of Diffusers and maximum Liquid Depth in Basin duly considering the losses governing point of delivery (Diffusers) and the Air Blowers. Air Blowers are complete with Motor and accessories like Base Frame, Anti Vibratory Pad, Reactive Silencer, Non Return Valve, Air Filter etc. as per requirements. Further, Air Blowers have acoustic enclosure to ensure that the noise level at 1.86 m from Air Blowers is below 85 db. It is equipped with sufficient capacity Electrical Hoist with Travelling Trolley (Min. 3 Ton or 1.5 times the weight of Air Blower whichever is more) to facilitate removal of Air Blower / other Accessory for repairs. The blowers shall be provided for providing adequate oxygen into the reactor tank for aeration. The air requirements shall be calculated for summer and winter as well as for mixing power the higher duty shall be installed. The summer sewage temperature shall be taken as 38 degrees C and that in winter at 10 degrees C. The blowers shall be capable of developing the required total pressure at the rated capacity for continuous operation. The blowers shall be mounted at a level necessary to avoid back flow or siphoning of water / sewage into the blower.
- The operation of Aeration System include PLC based control. The operation and speed of Air Blowers are automatically adjusted using parameters like Oxygen Uptake Rate, Dissolved Oxygen and Temperature and Liquid Level in the Basin such that the DO is supplied as per demand and power utilisation for operation of Air Blowers is optimised.

2.8.4 Return Sludge and Excess Sludge Pumps

Dedicated Return Sludge and Excess Sludge Pumps are provided in each SBR Basin.

2.8.5 Automation and Control

- PLC based Automation System with application software to control SBR System including all Gates, Air Blowers, Pumps, Valves and Decanters.
- SCADA based Automation System to monitor complete plant and include monitoring of the following parameters continuously in each SBR Basins:
 - Fill Volume
 - Discharge Volume
 - Temperature
 - DO Level

- Oxygen Uptake Rate
- Air Blower Speed
- Decanter Speed

2.9 CHLORINE CONTACT TANK (DISINFECTION UNITS)

Treated sewage of SBR basin is taken to the Chlorine Contact Tank. Dosage of chlorine shall be adjusted such that 0.5 PPM FRC shall be maintained at the outlet of Chlorine Contact Tank. One no. of Neutralization tank must be provided adjacent to chlorinator room for treatment of leaked chlorine tonner. Suitable safety equipment shall be installed in the chlorinator room as per mechanical specifications. Tonners on line, tonners on standby and full and empty tonners shall be stored separately in the tonner room. Tonner rollers shall be provided for online and stand by tonners. Tonners not in use shall be stored on concrete cradles. It is also in the scope of contractor to provide required chlorine tonners without extra cost and will hand over the same to client after O&M. The pit shall be kept full with a neutralizing solution of lime.

2.10 SLUDGE DEWATERING UNITS

Sludge Dewatering Units comprising Sludge Sump and Pump House, Centrifuge House and Dewatering Polymer Dosing System.

2.10.1 Sludge Sump & Pump House

A Sludge Sump is provided to hold excess sludge from SBR Basins. It is equipped with Coarse Bubble Air Grid made from HDPE / UPVC Pipes and Air Blower Assembly to facilitate mixing of its contents on continuous basis.

2.10.2 Sludge Sump Air Blowers & Sludge Transfer (Centrifuge Feed) Pumps

Sludge Sump Air Blowers are positive displacement (Roots) type and Head for Air Blowers are decided on the basis of maximum Liquid Depth in Sump duly considering the losses governing point of delivery and the Air Blowers.

2.10.3 Mechanical Sludge Dewatering Device (Centrifuges) and Centrifuge Building

The Mechanical Sludge Dewatering Device is solid bowl type Centrifuges designed for 100% trouble free operation at all times.

2.10.4 Polyelectrolyte Dosing System

Polyelectrolyte is dosed online at the inlet of Centrifuges. Minimum dosage of polyelectrolyte shall be 1.20 – 2.50 Kg/Ton of dry solids in sludge at 0.1% solution strength.

2.11 SBR Air Blower

The SBR Air Blower room consists 6 no. of Blower.

2.12 HT SUBSTATION

The Electrical HT Substation is provided to house HT Components comprising HT Switchyard, Breaker cum Metering Room (if required by power Supply Company and shall meet their requirements), HT Panel, Transformer yard, etc.

2.15 TREATED SEWAGE DISPOSAL

The treated sewage overflowing into the outlet chamber of chlorine contact tank (CCT) shall be disposed to nearby creek.

2.16 LANDSCAPING

Landscaping involves beautification of Sewage Treatment Plant site by cultivating lands, plants and trees of environmental value and suitably modifying the appearance of STP site. It shall add scenic value to the STP site to obtain maximum visual impact. Contractor has to develop proper landscaping in the STP site from professional landscaper approved by OWNER. Area for future expansion shall also be considered for landscaping.

Lawns

Lawns should be drained with great care in order to keep it lush with green. The soil should be drained effectively and water should not be allowed to be collected in pools. The ground must be dug up to a depth of 30 - 45 cm to remove stones with weeds and the soil should be exposed to sunlight for proper sterilization. The grass for the lawn should be preferably *Cynodon dactylon* or *Berunda* grass. The lawn must be prepared by one of the approved methods seeds, by turfing, by turf - plastering or by dibbling roots. Lawns once should be subjected to regular rolling, moving, watering, and restoration of patches. In the absence of rain the lawn must be provided with every 5j heavily soaking the soil to a depth of at least 15 cm. To keep the lawn in condition it should be seeded once a month with liquid manure by dissolving 45 gm of Ammonium sulphate or 20 gm of Urea in 5 litres of water. Bone meal at the rate of 100 kg per 1000 sq.m is recommended in one year. Neem cake should also be applied once or twice a year at the rate of 200 kg per 10C Raking and scraping for thatch control must be carried out. Weed measures should also be undertaken during the entire O&M period.

Flower beds

Flowerbeds add a special charm to any place. They should be simple in either square, rectangular, circular or oval. The number and size flowerbeds are determined by its extent with type. The tallest growing should be planted at the back of borders or imbeds on lawns far away from structures. The medium sized plants should be planted in the central area of the garden and the dwarfish ones should be planted in front. There should be a harmonious blending of colours to create a pleasing appearance. Flowerbeds should be dug up to at least 15-20 days before sowing or bedding out small plants. For most annuals it would be enough as the soil is worked to a 45 cm but for deep rooting plants such as Sweet Peas, Cannas, etc. should be dug up to 60 cm. A basket of 10 kg of manure should be app about 2 sq. metres of flowerbed area. The bed should be levelled in such a way, that it slopes slightly with uniformly from the centre to the edge. A clear 7 to 15 cm should be left unfilled by plants by the edge of the bed.

Shrubs

Shrubs are plants, generally with woody stems, rather smaller than tree bigger than most herbaceous plants. In a typical shrub, there are several stems arising from the same root. Shrubs are either deciduous or evergreen. A well-designed shrub border should consist of a suitable admixture of deciduous with evergreen shrubs. The preferred shrubs are *Ixora*, *Bougainvillae*, and *Euphorbia leucocephala*, *Poinsettia*, *Mussaenda*, etc. should be planted by preparing cubic pits of 60 cm, pits about a metre away should be fitter with good soil mixed with 2 to 4 baskets each decomposed manure. The ground should be well prepared in bet digging it about half metre deep with removing all weeds. They should be at suitable distances so that when they mature and reach their maximum growth. They should not be allowed to grow straggly or form clumps by throwing from the base. Manure should be applied to the shrubs at least once a providing plenty of compost materials.

Plantation

Plantations are to be done all along the boundary wall just to provide a barrier. Big trees should be planted 3m apart from each other within a 5m wide. Space adjustment should be done taking the site condition into consideration. Cubical pit of 60cm should be proposed and should be filled with good soil mixed with 2 go 4 baskets of 5kg each of well decomposed manure. The ground should be well prepared in between by

digging it about half metre deep with removing all stones and weeds. The trees should be planted at suitable distances so that when they mature and reach their maximum growth.

2.17 ELECTRICAL & INSTRUMENTATION WORKS

Two nos. of Transformers (1W + 1S), each to cater to entire plant load with min. 10% overload is provided. Suitable cable boxes for H.T. and cable boxes / bus ducting for L.T. side are provided.

The entire Plant is operated on 415 V, 3-Phase, 50 Hz, 4-Wire system.

The Contractor shall execute the System as per standard specifications, I.E. Rules and Regulations, requirements of State Electricity Board and other local Authorities and actual site conditions.

2.18 PLC/PC/SCADA BASED AUTOMATION SYSTEM FOR PLANT

The entire Sewage Treatment Plant including Primary Treatment Units, Biological Treatment Units based on SBR technology, Disinfection (Chlorination) Units and Sludge Dewatering Units are designed for monitoring and automatic operation as specified through a Programmable Logic Centre (PLC) and Supervisory Control and Data Acquisition (SCADA) with Man-Machine Interface (MMI). Provision shall also be made to operate each Unit of the Plant manually, if required. Salient features of the proposed System are as follows:

- Dynamic display of all Units, Equipments and Drives is available on SCADA Screen.
- Auto/Manual operation of each Drive made/sensed through selector switch provided at associated starter and further the full auto or semi-auto operation through operator selection at HMI made by selecting a Soft Switch on SCADA Screen. For auto/semi-auto mode of operation, the Working/Standby selection of Drives shall be by selecting a Soft Switch on SCADA screen.
- In Auto mode, each Drive shall operate based on pre-set sequence and interlock.
- In Manual mode, each drive operates in Local/Remote mode through selector switch at associated starter. In Local mode, each Drive operated from the Local Push Button Station (LPBS) located nearby. In Remote mode, operation from LPBS shall be disabled and each Drive shall be operated manually through start/stop push buttons from associated starter.
- Run/Trip/Fault indication of all Drives displayed on SCADA screen.
- Open/Close/Fault indication of all Auto Gates and Auto Valves will be displayed on SCADA Screen.
- Annunciation & Alarm facility will be available in PLC/SCADA. In the event of a Fault, the symbol representing the Equipment/Drive will continue flashing on SCADA Screen with Equipment/Drive description appearing at bottom of the SCADA Screen and electric Hooter will continue blowing until the Fault Alarm is acknowledged.
- Data logging of Running Hours of each Drive, Alarm and Historical Trends of monitored Parameters etc will be envisaged in SCADA.

3 Operation of the Facilities

The Employer appoints the Contractor to perform and undertake the O & M Services and all other obligations set out and in accordance with these Conditions during the O&M Period. The Contractor accepts the appointment and acknowledges a duty to perform such obligations.

The Contractor shall be in complete charge of and have custody and control over and responsibility for the Facilities, and the Contractor shall perform or cause to be performed on behalf of the Employer all O & M Services for the Facilities and shall supply or cause to be supplied all materials required therefore in accordance with the O & M Standard.

The Contractor shall also acknowledge that the Employer and the Employer's Personnel and other contractors may be carrying out work at the Facilities and shall endeavor to fully co-operate and work in a manner so as not to cause any obstruction or hindrance to them.

The Contractor is an independent Contractor and not an agent, employee and nothing in these Conditions or the O & M Contract shall be deemed to create a joint venture between the Employer and the Contractor.

4 **DUTY OF CARE BY THE OPERATOR AND PERFORMANCE STANDARDS**

The Contractor shall manage, operate and maintain the Facilities in accordance with Good Operating Practices and in accordance with the O & M Standard so that the Facilities are capable of meeting the outputs and specifications set out in the Contract.

The Contractor shall take full responsibility for the care of the Facility from the date of issue of the Taking-Over Certificate, till the end of the O & M Period.

If any loss or damage happens to the Facility, during the O & M Period due to any breach by the Contractor of any of his obligations under these Conditions including any willful misconduct, negligence and non conformity with Good Operating Practices than the Contractor shall, at his own cost, rectify such loss or damage so that the Facility conforms in every respect with the provisions of these Conditions.

The Employer shall be liable only in case of any damage caused due to any Employer's Risk.

5 **REPRESENTATIONS AND WARRANTIES OF THE CONTRACTOR**

The Contractor hereby represents for the benefit of the Employer as follows:

Performance of O & M Services that the Contractor has the required skills and capability to perform, and shall diligently perform, the O & M Services in a high-quality, timely and professional manner utilizing sound engineering principles and project management procedures in accordance with Good Industry Practices;

that the Contractor shall perform its obligations hereunder in accordance with the requirements of these Conditions and shall meet the Performance Guarantee; and

that it shall not use any spare parts or material that are not new and which shall be of a quality that is in accordance with Good Industry Practices.

Knowledge of Adverse Information

As of the Commencement Date, Contractor is not aware of any facts, conditions or events which would affect the ability of Contractor to provide the O & M Services in accordance with these Conditions.

Contractor has familiarized itself with the nature and extent of the O & M Services required to be provided under these Conditions and with all other requirements under Applicable Law.

Organization, Standing and Qualification

Contractor is validly existing and in good standing under Applicable Law and has all necessary power and authority to carry on its business as presently conducted and to perform its obligations under these

Conditions. Contractor is, or will be prior to the date on which the O & M Services are to be commenced duly qualified or licensed to provide these services.

Due Authorization

Each of the execution, delivery and performance by the Contractor of all contracts entered into pursuant to these Conditions shall be duly authorized by all necessary action on the part of Contractor.

Neither the execution and delivery by Contractor of the O&M Contract, nor the consummation by Contractor of any of the transactions contemplated hereby, requires the consent or approval of, the giving of notice to, the registration with, the recording or filing of any document with, or the taking of any other action in respect of, any governmental authority or agency, except:

- (a) Such as have been duly obtained, given, registered, recorded, filed or taken and are in full force and effect or are not yet required; and
- (b) Filings and recordings expressly required pursuant to the O & M Contract. Contractor holds, or will obtain,

any and all licenses, permits and approvals on a timely basis. Contractor has no reason to believe that any of those not yet required will not be readily obtainable or done in the ordinary course of business upon due application there for.

Litigation

In the aggregate, there are no pending or, to the knowledge of Contractor, threatened actions, investigations or proceedings before any court, governmental authority or arbitrator, which would have material adverse effect on the ability of Contractor to perform its obligations under these Conditions.

6 INDEMNIFICATION

Loss or Damage to Facilities

The Contractor shall at its own expense make good any physical loss or damage to the Facilities occasioned by it in the course of the performance of its obligations under these Conditions if and to the extent such loss or damage is caused by the negligence, wilful default or breach of statutory duty or failure to follow Good Industry Practices by the Contractor.

Other Loss or Damage

Except as otherwise stated in Clause 7.2 or covered by Clause 7.3 in Section IV, the Contractor shall indemnify, defend and hold harmless the Employer against any and all liabilities, losses, damages and claims of whatever kind and nature, including all related costs and expenses incurred in connection therewith, in respect of personal injury to or death of third parties or any employee of the Employer or the in respect of loss of or damage to any third party property or property belonging to employee of the Employer by:

- (i) any breach by the Contractor of its obligations hereunder; and

(ii) any negligence, wilful default or breach of statutory duty on the part of Contractor.

Except as otherwise stated in Clause 7.2 or covered by Clause 7.3 in Section IV, the Employer shall indemnify, defend and hold harmless the Contractor for all claims and losses of whatever kind and nature, including all related costs and expenses incurred in connection therewith, in respect of personal injury to or death of third parties or of any person employed by the Contractor in respect of loss of or

damage to any third party property or property belonging to any person employed by the Contractor to the extent that the same arises out of any Employer's Risk.

Accidents or Injury to Workmen

The Contractor shall indemnify, defend and hold harmless the Employer or any Employer's Personnel against any and all claims for loss, damage and expense of whatever kind and nature (including all related costs and expenses) in respect of the death of or injury to any person employed by the Contractor in connection with the performance of the O&M Services and obligations hereunder except to the extent that such death or injury is caused by an Employer's Risk.

Neither Party shall be liable to the other Party for loss of use of the Facilities, loss of profit, loss of any contract or for any indirect or consequential loss or damage which may be suffered by the other Party in connection with the Contract.

The total liability of the Contractor to the Employer, under or in connection with these Conditions other than as provided shall not exceed the sum of the O & M Price and the Delay Damages payable under the these Conditions.

This Sub-Clause shall not limit liability of the Contractor in case of fraud, willful default, gross negligence and liabilities arising due to breach of Applicable Law and the liability under any other Clause of these Conditions that might impose a greater liability on the Contractor.

List of Machineries -Annexure -1

SL. NO.	INSTRUMENT	QUANTITY	LOCATION	MAKE	MOY
	LEVEL SENSOR				
1	LIT - 01	1	RAW SEWAGE PUMP HOUSE	E + H	2016
2	LIT - 02	1	SBR BASIN 1	E + H	2016
3	LIT - 03	1	SBR BASIN 2	E + H	2016
4	LIT - 04	1	SBR BASIN 3	E + H	2016
5	LIT - 05	1	SBR BASIN 4	E + H	2016
6	LIT - 06	1	SLUDGE SUMP TANK	E + H	2016
7	LIT - 07	1	THICKENER SLUDGE SUMP	E + H	2016
	DIFF. LEVEL SENSOR				
1	DLIT - 01	1	COARSE SCREEN CHANNEL A	E + H	2016
2	DLIT - 02	1	COARSE SCREEN CHANNEL B	E + H	2016
3	DLIT - 03	1	FINE SCREEN CHANNEL A	E + H	2016
4	DLIT - 04	1	FINE SCREEN CHANNEL B	E + H	2016
	FLOW TRANSMITTER				
1	FIT - 01	1	RAW SEWAGE MAIN HEADER LINE	E + H	2016
	DO SENSOR				
1	DOT - 01	1	SBR BASIN 1	E + H	2016
2	DOT - 02	1	SBR BASIN 2	E + H	2016
3	DOT - 03	1	SBR BASIN 3	E + H	2016
4	DOT - 04	1	SBR BASIN 4	E + H	2016
	BOD / COD SENSOR				
1	AIT - 01	1	INLET CHAMBER	E + H	2016
2	AIT - 02	1	CCT OUTLET	E + H	2016
3	AIT - 03	1	CCT OUTLET	E + H	2016

List of Machineries -Annexure -2

Sl. No.	Item	Serial Number	Make	MFG. YEAR
1	STP TRANSFORMER 1	XND500/02	KIRLOSKAR	2017
2	STP TRANSFORMER 2	XND500/03	KIRLOSKAR	2017
3	11KV HT Panel with breakers for STP	MYP3160	L & T	2017
4	DG SET - 1	17103/2868	KIRLOSKAR	2017
5	DG SET - 2	17103/2943	KIRLOSKAR	2017

List of Machineries -Annexure -3

Sl. No.	Item	Serial Number	Make	MFG. YEAR
1	PCC 1	GAC904/0203/01	2016	SWATI SWITCHGEAR
2	PCC 2	GAC905/0203/01	2016	SWATI SWITCHGEAR
3	430 KVAR APFC PANEL FOR PCC 1	GAC906/0203/01	2016	SWATI SWITCHGEAR
4	MCC 1	GAC901/0203/01	2016	SWATI SWITCHGEAR
5	MCC 2	GAC902/0203/01	2016	SWATI SWITCHGEAR
6	MCC 3	GAC903/0203/01	2016	SWATI SWITCHGEAR
7	MAIN LIGHTING PANEL	HE 801/0506/01	2016	SWATI SWITCHGEAR
8	PDB PANEL	HE 802/0506/01	2016	SWATI SWITCHGEAR

List of Machinerries -Annexure -4

SR.NO.	ITEM	QTY	CAPACITY/DESCRIPTION	RATING	MAKE	Company	MFG. YEAR
A	RAW SEWAGE SUMP HOUSE						
1	COARSE SCREEN - A	1	20MM Multirake Type Screen	2.20 kW	JASH	JV	2017
2	COARSE SCREEN - B	1	20MM Multirake Type Screen	2.20 kW	JASH	JV	2017
3	COARSE SCREEN CONVEYOR BELT	1	1000 Width x 3000 mm Length	1.5 kW	JASH		2017
4	RAW SEWAGE PUMP - A	1	Non Clog Submersible Type/Capacity: 1094 m3/h	82 kW	AQUA		2016
5	RAW SEWAGE PUMP - B	1	Non Clog Submersible Type/Capacity: 1094 m3/h	82 kW	AQUA	JV	2016
6	RAW SEWAGE PUMP - C	1	Non Clog Submersible Type/Capacity: 1094 m3/h	82 kW	AQUA	JV	2016
7	RAW SEWAGE PUMP - D	1	Non Clog Submersible Type/Capacity: 1094 m3/h	82 kW	AQUA	JV	2016
8	RAW SEWAGE PUMP - E	1	Non Clog Submersible Type/Capacity: 1094 m3/h	82 kW	AQUA	JV	2016
9	RAW SEWAGE PUMP - F	1	Non Clog Submersible Type/Capacity: 1094 m3/h	82 kW	AQUA	JV	2016
B	PRIMARY UNIT						
1	FINE SCREEN - A	1	6 MM Hydraulic Type Screen	2.20 kW	JASH	JV	2017
2	FINE SCREEN - B	1	6 MM Hydraulic Type Screen	2.20 kW	JASH	JV	2017
3	FINE SCREEN CONVEYOR BELT	1	900 Width x 4800 mm Length	1.5 kW	JASH	JV	2017
4	GRIT MECHANISM SCRAPPER - A	1	Central Driven Type	2.20 kW	JASH	ECAIPL	2017
5	GRIT MECHANISM CLASSIFIER - A	1	-	1.50 kW	JASH		2017
6	ORGANIC PUMP - A	1	-	0.75 kW	JASH		2017
7	GRIT MECHANISM SCRAPPER - B	1	Central Driven Type	2.20 kW	JASH	ECAIPL	2017
8	GRIT MECHANISM CLASSIFIER - B	1	-	1.50 kW	JASH		2017
9	ORGANIC PUMP - B	1	-	0.75 kW	JASH		2017

C	C TECH SBR BASIN						
1	MAIN INLET GATE - A	1	SA 25 A 45	1.10 kW	AUMA	ECAIPL	2016
2	MAIN INLET GATE - B	1	SA 25 A 45	1.10 kW	AUMA	ECAIPL	2016
3	MAIN INLET GATE - C	1	SA 25 A 45	1.10 kW	AUMA	ECAIPL	2016
4	MAIN INLET GATE - D	1	SA 25 A 45	1.10 kW	AUMA	ECAIPL	2016
5	PROCESS AIR VALVE - A	1	SA 12 E 22	0.25 kW	AUMA	ECAIPL	2016
6	PROCESS AIR VALVE - B	1	SA 12 E 22	0.25 kW	AUMA	ECAIPL	2016
7	PROCESS AIR VALVE - C	1	SA 12 E 22	0.25 kW	AUMA	ECAIPL	2016
8	PROCESS AIR VALVE - D	1	SA 12 E 22	0.25 kW	AUMA	ECAIPL	2016
9	SELECTOR AIR VALVE - A	1	SA 3 E 16	0.06 kW	AUMA	ECAIPL	2016
10	SELECTOR AIR VALVE - B	1	SA 3 E 16	0.06 kW	AUMA	ECAIPL	2016
11	SELECTOR AIR VALVE - C	1	SA 3 E 16	0.06 kW	AUMA	ECAIPL	2016
12	SELECTOR AIR VALVE - D	1	SA 3 E 16	0.06 kW	AUMA	ECAIPL	2016
13	SAS DISCHARGE VALVE - A	1	SA 6 B 22	0.12 kW	AUMA		2016
14	SAS DISCHARGE VALVE - B	1	SA 6 B 22	0.12 kW	AUMA	ECAIPL	2016
15	SAS DISCHARGE VALVE - C	1	SA 6 B 22	0.12 kW	AUMA	JV	2016
16	SAS DISCHARGE VALVE - D	1	SA 6 B 22	0.12 kW	AUMA	JV	2016
17	RETURN ACTIVATED SLUDGE PUMP - A	1	Non Clog Submersible Type/Capacity: 165 m3/h	4.84 kW	AQUA	JV	2016
18	RETURN ACTIVATED SLUDGE PUMP - B	1	Non Clog Submersible Type/Capacity: 165 m3/h	4.84 kW	AQUA	JV	2016
19	RETURN ACTIVATED SLUDGE PUMP - C	1	Non Clog Submersible Type/Capacity: 165 m3/h	4.84 kW	AQUA	JV	2016
20	RETURN ACTIVATED SLUDGE PUMP - D	1	Non Clog Submersible Type/Capacity: 165 m3/h	4.84 kW	AQUA	JV	2016
21	SURPLUS ACTIVATED SLUDGE PUMP - A	1	Non Clog Submersible Type/Capacity: 145 m3/h	7.50 kW	AQUA	JV	2016
22	SURPLUS ACTIVATED SLUDGE PUMP - B	1	Non Clog Submersible Type/Capacity: 145 m3/h	7.50 kW	AQUA	JV	2016
23	SURPLUS ACTIVATED SLUDGE PUMP - C	1	Non Clog Submersible Type/Capacity: 145 m3/h	7.50 kW	AQUA	ECAIPL	2016

24	SURPLUS ACTIVATED SLUDGE PUMP - D	1	Non Clog Submersible Type/Capacity: 145 m3/h	7.50 kW	AQUA	ECAIPL	2016
25	DECANTER - A	1	MOVING WEIR TYPE	0.55 kW	SFC	ECAIPL	2016
26	DECANTER - B	1	MOVING WEIR TYPE	0.55 kW	SFC	ECAIPL	2016
27	DECANTER - C	1	MOVING WEIR TYPE	0.55 kW	SFC	JV	2016
28	DECANTER - D	1	MOVING WEIR TYPE	0.55 kW	SFC	JV	2016
29	AIR BLOWER - A	1	Tri Lobe/Capacity: 5100 m3/hr		SWAM		2016
	MOTOR FOR AIR BLOWER	1	-	180 kw	CGL	ECAIPL	2016
30	AIR BLOWER - B	1	Tri Lobe/Capacity: 5100 m3/hr		SWAM	ECAIPL	2016
	MOTOR FOR AIR BLOWER	1		180 kw	CGL	JV	2016
31	AIR BLOWER - C	1	Tri Lobe/Capacity: 5100 m3/hr		SWAM	JV	2016
	MOTOR FOR AIR BLOWER	1		180 kw	CGL	JV	2016
32	AIR BLOWER - D	1	Tri Lobe/Capacity: 5100 m3/hr		SWAM	JV	2016
	MOTOR FOR AIR BLOWER	1		180 kw	CGL	JV	2016
33	AIR BLOWER - E	1	Tri Lobe/Capacity: 5100 m3/hr		SWAM	JV	2016
	MOTOR FOR AIR BLOWER	1		180 kw	CGL	JV	2016
34	AIR BLOWER - F	1	Tri Lobe/Capacity: 5100 m3/hr		SWAM	JV	2016
	MOTOR FOR AIR BLOWER	1		180 kw	CGL	JV	2016
D	CHLORINATION SYSTEM						
	CHLORINATORS	1	Capacity: 10 Kg/ hr		SUPREME		2016
	CHLORINE BOOSTER PUMP - A	1	Centrifugal Type/ Capacity: 7.2 m3/hr	3.7 Kw	KIRLOSKAR		2016
	CHLORINE BOOSTER PUMP - B	1	Centrifugal Type/ Capacity: 7.2 m3/hr	3.7 Kw	KIRLOSKAR		2016
E	SLUDGE HANDLING SYSTEM						
	Sludge Sump Air Blower - 1	1	Twin Lobe/Capacity: 310 m3/hr	7.50 kW	SWAM		2016
	Sludge Sump Air Blower - 2	1	Twin Lobe/Capacity: 310 m3/hr	7.50 kW	SWAM		2016
	Thichner Feed Pump - 1	1	Capacity : 48 M3/ hr	3.70 kW	WILO		2016

	Thichner Feed Pump - 2	1	Capacity : 48 M3/ hr	3.70 kW	WILO		2016
	Thickner	1	-	1.10 kW	THICKNER		2016
	Dilution Pump - 1	1	Non Clog Submersible Type/Capacity: 145 m3/h	7.50 kW	AQUA		2016
	Dilution Pump - 2	1	Non Clog Submersible Type/Capacity: 145 m3/h	7.50 kW	AQUA		2016
	Dewatering Pump	1	Capacity: 4 M3/hr	1.50 kW	AQUA		2016
	Centrifuge Feed Pump - 1	1	Capacity : 23 M3/hr	5.50 kW	ROTO		2016
	Centrifuge Feed Pump - 2	1	Capacity : 23 M3/hr	5.50 kW	ROTO		2016
	Centrifuge - 1	1	Capacity : 23 M3/hr	22 kW	HILLER		2017
	Centrifuge - 2	1	Capacity : 23 M3/hr	22 kW	HILLER		2017
F	CHEMICAL DOSING SYSTEM						
1	Poly Dosing Pump - 1	1	SANDWICH DIAPHRAGM TYPE; CAP: 965 LPH	1.10 kW	SHAPOTOOLS	JV	2016
2	Poly Dosing Pump - 2	1	SANDWICH DIAPHRAGM TYPE; CAP: 965 LPH	1.10 kW	SHAPOTOOLS	JV	2016
3	Agitator for Poly Dosing - 1	1	-	1.50 kW	FIBRE & FIBRE PRODUCTS	JV	2016
4	Agitator for Poly Dosing - 2	1	-	1.50 kW	FIBRE & FIBRE PRODUCTS	JV	2016
	FECL3 Dosing Pump - 1	1	SANDWICH DIAPHRAGM TYPE; CAP: 200 LPH	0.37 kW	SHAPOTOOLS		2016
	FECL3 Dosing Pump - 2	1	SANDWICH DIAPHRAGM TYPE; CAP: 200 LPH	0.37 kW	SHAPOTOOLS		2016
5	Agitator for FECL3 Dosing - 1	1	-	0.75 kW	FIBRE & FIBRE PRODUCTS	JV	2016
6	Agitator for FECL3 Dosing - 2	1	-	0.75 kW	FIBRE &FIBRE	JV	2016

					PRODUCTS		
G	PLANT DRAIN AND PLANT WATER SYSTEM						
1	Service Water pump - 1	1	Submersible Type/Capacity: 000 m3/h	5.22 kW	KISHOR	JV	2017
2	Service Water pump - 2	1	Submersible Type/Capacity: 000 m3/h	5.22 kW	KISHOR	JV	2017
3	Storm Water pump - 1	1	Submersible Type/Capacity: 000 m3/h	18 kW	KISHOR	JV	2017
4	Storm Water pump - 2	1	Submersible Type/Capacity: 000 m3/h	18 kW	KISHOR	JV	2017
5	Water pump - 1	1	Submersible Type/Capacity: 177 m3/h	4.50 kW	AQUA	ECAIPL	2016
6	Water pump - 2	1	Submersible Type/Capacity: 177 m3/h	4.50 kW	AQUA	ECAIPL	2016

PART A: SCOPE OF WORKS

- 1.0 The contract includes operation and maintenance of entire Sewage Treatment Plant **on round the clock basis for a period of 24 Calendar Months (Two years)**. Guidelines stipulated in Manual on Sewerage and Sewage Treatment, Second Edition, published by Central Public Health and Environmental Engineering Organization (CPHEEO), Ministry of Urban Development, New Delhi, December 1993 shall be followed
- 2.0 The Sewage Treatment Plant set up on turnkey basis shall be operated and maintained by the contractor including all works. Contractor has to incur all the costs, taxes, vat, duties, transportation, labour, machining, welding, repairing, replacing and making good any and all parts / plant equipment, consumables, motors, pumps, aerators, gear unit, capacitor, HT/LT switchgear, PLC panel, lighting system, cables, battery charger, battery, instruments, meters, chemicals for laboratory etc.

Cost of diesel for operating DG set during power failure shall be reimbursed at actual by client after necessary verification by client based operating hours logged in hour meter & actual power generation in power meter of DG set. Contractor shall submit required supporting documents to client for verifications and to satisfaction of client.

Only raw sewage & electricity (grid power) shall be supplied free by client during O&M period.

- 2.1 Average Power Factor for the supply company Power Bill must be greater than 0.95 and if any Penalty/Charge levied due to low Power Factor, then the same shall be recovered from the contractor without any reasons in addition to the penalty for each instance of non-maintenance of desired power factor of 0.95 or better as per specifications at HT side/ Supply Company Meter (or Bill) each month as mentioned separately below. All capacitor panels must be kept in working condition to maintain power factor generally of 0.98 lag or better by the contractor. Any spares required to keep capacitor panel in working condition is in the scope of the contractor. The spares required for LT capacitor panel must be procured and replaced immediately, if required. No spares for capacitor panel & LT capacitor panel in any circumstances will be provided by Client. Penalty on account of poor power factor (i.e. less than 0.95) as explained elsewhere will be recovered from the contractor from his monthly O&M bill.
- 3.0 The Contractor will be held responsible for O & M and satisfactory performance of the STP. Major components and works shall include the following but not limited to:
 - a) Operate the plant efficiently for two years (24 hours/day & 365 days/year) including all consumables, parts or components, labor transportation and other charges, except for cost of power and supply of raw sewage. Power cost shall be borne by employer. Raw sewage shall be supplied by employer.
 - b) Operate and maintain all units and equipments of the Sewage Treatment Plant as per the requirement of the process to meet continuously and consistently desired treated sewage characteristics in conformity with specifications and local PCB guidelines; maintain all equipment in good working condition as per the O & M manual as prepared by the contractor and duly approved by the Employer.
 - c) Attend breakdown of civil, mechanical, electrical, piping and instrumentation works and maintain the plant and equipment throughout the Contract Period.
 - d) The operation and maintenance service provided by the Contractor for the period specified in the Contract shall ensure the continuous operation of the Plant and that the breakdown or deterioration in

performance, under normal operating conditions, of any items of Plant and equipment and component parts thereof is kept to a minimum.

The contractor shall determine operating parameters, select settings (chemical dosages, etc.) and generally optimize the process, and working of the treatment plant. Excessive chemical dosing i.e. doze more than / less than normal should be avoided; otherwise penalty shall be levied and recovered from the contractor.

- e) The Contractor shall adhere to the manufacturers' recommendations with respect to equipment maintenance, consumables, the types and grades of lubricants to be used, frequency of lubrication, adjustments to be made regularly and recommended spares to be held in store.

The spares, tools and tackles supplied by contractor as specified herein as a part of this tender obligation are property of employer / client and employer has no obligation to supply the same to contractor for carrying out any rectification work. Contractor for the purpose of O&M shall have required spares in stock at site and maintain a record of the same. In case if employer hands over any spare for carrying out rectification in emergency situation, the same shall be handed over back by contractor to client within reasonable period of time and not exceeding a maximum of 4 weeks duration in any case. Failing to do so, client reserves the right to deduct the price of same from O&M bill/Security Deposit of contractor. Arranging necessary tools and tackles for effective and efficient O&M of the plant is responsibility of contractor.

The contractor shall provide **timely planning** and **regular procurement of all required spares and consumable including chemicals, chlorine tonners, grease, lubricating oil, cleaning agents, laboratory reagents etc.** Contractor shall arrange for the requirement well in advance.

- f) Maintaining Logbooks / Records of the work carried out to keep them in good working condition. He shall obtain approval of the format of logbooks and records from Employer.
- g) The Contractor shall prepare and implement an effective plant maintenance program in consultation with the Employer. It is absolutely the Contractor's responsibilities to look after all sorts of maintenance whether routine, preventive or break down or any other type of maintenance. The Contractor will be responsible to carry out day to day as well as periodic maintenance necessary to ensure smooth and efficient performance/running of all equipment.
- h) Submission of daily and monthly O & M report.
- i) Carry out regular and frequent sampling, analysis and result recording of raw and treated sewage as per the procedures laid out by the Owner and in conformity with standard methods; and complying with the GPCB norms and attend GPCB during the monitoring/sampling and obtaining approval.
- j) Employ appropriate and skilled manpower; provide all tools, tackles, equipment, laboratory instruments, glassware and chemicals, reagents etc. required for effective implementation of the Services detailed above.
- k) Area lighting – The premises of various works are provided with metal halide / sodium vapor lamps, fluorescent tubes and also ceiling fans/exhaust fans inside the various structures. Daily on/off operation and routine cleaning of all type of electric fixtures. Replacement of lamps / Tubes / Fans in case of failure at contractor's cost.

- l) Maintenance of garden – Normally watering the trees once a day or more if required. Grass cutting, removal of shrubs, weeds, around tree to be done as directed. Remarking the ponds around the tree after loosening with soil with supply of additional earth, if required Cutting of branches, if required for straight growth of tree/plant and development of garden.
- m) All buildings, bathroom, toilet to be kept swept, cleaned and washed daily. Consumable requirement for cleaning such as acid, harpic, phenyl, air freshener, washing powder, brooms, wire brushes, duster, bamboos, toilet shop, lotion waste, kharata (broom) shall be provided and used as required. All ventilators, windows/doors to be cleaned and to kept in good aesthetic condition.
- n) To keep watch on overflowing of sump. If such overflow takes place the agency shall have to bear the damages caused to surrounding properties.
- o) Maintaining laboratory and its all equipments. All materials, equipment and labour shall have to be employed by the agency to maintain the same.
- p) Contractor shall ensure that the sewage entering the plant is not bypassed for more than half an hour, which is again subject to obtaining prior permission / approval of the employer. In adverse circumstances of heavy rainfall, contractor may use the plant bypass for the purpose of attending detritor for a period of maximum one hour. Generally major repair encountered in any unit of the plant shall be attended as quickly as possible. In case it is not possible, the reason for the same shall be informed to the employer within 2 hours.
- q) Contractor shall submit six copies of the O & M Manual for approval of Employer, which may be modified, if required by Employer, and two copies would be returned by Employer duly approved and signed.
- r) The contractor shall monitor the performance of the Sewage Treatment Plant; conduct the analysis of the influent as well as effluent quality after treatment as per table given below. Contractor shall initiate and take adequate actions to ensure smooth and satisfactory performance/ running of the plants on a 24 hours/ round the clock basis.

No	Sampling point	Type of sampling	Freq. of sampling	Parameters to be tested at CLIENT lab in STP
1a.	Raw sewage at inlet chamber	Grab	Three times in a day (Grab Samples)	pH, SS, COD
1b.	Raw sewage at inlet chamber	Grab	Once a day (Grab Samples)	VSS, Alkalinity, Chloride, Sulphate, Phosphate, Ammonical Nitrogen, TKN
1c.	Raw sewage at inlet chamber	Grab	Once a Week	All other parameter
2a.	Treated sewage	Grab	Three times in a day (Grab Samples)	pH, SS, COD
2b.	Treated sewage	Grab	Once a day (Grab Samples)	BOD, O&G

3.	Aeration Basin	Grab	Daily	DO, MLSS/ MLVSS, SVI
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- s) For the smooth running of the plant all the required equipment, machineries, accessories, major and minor spares, consumables including chemicals, greases, lubricants, all cleaning agents, packing, rubber sheet, laboratory reagents, all hardware, required quantity of white wash, oil paint color, all types of epoxy paint, material required for house- keeping and cleaning etc. are to be brought by the contractor. The quality of all consumable and spare etc. i.e. technical requirements as per manufacture recommendation shall remain unchanged.
- t) To remove/suitably collect dewatered sludge from mechanized dewatering system (belt filter press), screenings and grit from grit detritor etc. and loading the same into vehicle and conveying and unloading the same at Low lying area as suggested by Client.

The grit and sludge from the plant is to be transported away from the plant and disposed as instructed by CLIENT / engineer-in-charge.

The disposal shall be done at a site as indicated by CLIENT and contractor to consider disposal within 10 km radius from the treatment plant.

If the contractor fails to remove silt / sludge in the treatment plant for any reason and beyond the notice period issued by the employer, the same shall be removed by employer by engaging other agencies and the cost shall be recovered from the contractor.

- u) The contractor shall carry out cement paint/ enamel paint/ white wash for exterior finish of civil units once before the end of third year of O & M of the plant and before the end of fifth year of O&M and similarly shall also carry out painting on mechanical equipments/ above ground pipe lines/ hand railing before the end of first year, third year and fifth year of O & M of the plant as per the instructions of BMC engineer in charge.

Note: If any Equipment / Structure / Instrument found to have some defected in paint work at any time the contractor has to repaint the same under the instructions of Engineer in charge.

- v) The contractor shall hand over the plant back to CLIENT on expiry of his contract in fully working condition satisfying the requirement of treated sewage. All the electrical, mechanical and instrumentation including standby shall be in perfect working condition.

4.0 The Contractor shall procure, keep at site and use necessary tools, tackles and safety equipments for day to day routine maintenance, preventive maintenance and break down maintenance. Also minor and major repairs to the equipment involved in the plant have to be carried out by the contractor during the O&M period. Contractor shall submit report, discuss and finalize with the Employer on the major repairs required to be carried out and how these repairs will be undertaken, to the satisfaction of the Employer and obtain written approval from the Employer before carrying out any major repairs.

4.1 The scope also includes cleaning of units, sludge drying beds, clarifier, removing of foreign materials like debris, sand, fish, frogs or any other dead or lives animals and also cleaning of strainers of each pump quarterly so that required quantity of sewage is treated properly.

4.2 The disposal of the foreign particles like sand, dead or alive animals etc. from all the units of the plant to suitable place as shown by CLIENT is in the scope of contractor.

The scope of works also includes the calibration of all meters e.g. pressure gauge, Ammeter, voltmeter, relay, trivector / multifunction meter, Energy meters, temp scanners, flow meters etc. for measurement of accurate readings.

The scope of work of contractor includes operation & maintenance of 11 KV incoming power line, Lighting Arrestors, D.O. fuse, earthing works, or any other maintenance required on two/four pole D P structure.

- 5.0 Contractor to ensure that the sewage entering the plant is not bypassed for more than half an hour. In case, if it is not possible, the reason for the same to be informed to the employer within 2 hours.
- 5.1 Scope of CLIENT will be only to the extent of supplying raw sewage (at Plant Inlet Chamber) and bear the energy charges to be paid to power Supply Company. In case of non-availability of sewage due to break-down in sewage pumping station or sewage network or any other reasons, stipulations in other parts of the tender shall be referred to.
- 5.2 Operate and Maintain all units and equipments of the STP as per the requirements of the process to meet continuously and consistently desired treated sewage characteristics in conformity with GPCB guidelines.
- 5.3 The contractor should calibrate all the Instruments/Meters/Indicators/Analyzers frequently/yearly and periodically and give valid certificate to the BMC.
- 5.4 For the smooth running of the segmented plant all the required equipments, machineries, units, accessories, major and minor spares consumables including chemicals, greases, lubricating, all cleaning agents, packing, rubber sheet, laboratory reagents, all hardware, required quantity of white wash, oil paint color, all types of epoxy paint, material required for houses keeping and cleaning etc. are to be brought by the contractor. The quality of all consumable and spare etc. i.e. technical requirement as per manufacture as per manufacture recommendation shall remain unchanged.
- 5.5 The contractor shall provide necessary tools and tackles for day to day routine maintenance, preventive maintenance and break down maintenance. Also minor and major repairs to the equipment involved in the plant have to be carried out by the contractor during the O&M period. Contractor to submit report, on the major repairs required to be carried out and how these repairs will be undertaken, to the Engineer and obtain written approval from the Engineer before carrying out any major repairs.

PART B: OPERATION AND MAINTENANCE SPECIFICATION

1.0 SUFFICIENCY OF TENDER

- 1.1 The prices entered in the Price Schedule shall, except in so far as it is otherwise provided, be deemed to cover all the Contractor's obligations under the Contract and all matters and things necessary for the operation and maintenance of the Plant. Particular requirements set forth in the Specification are given without prejudice to the aforementioned general obligations of the Contractor.

2.0 DOCUMENTS / INSTRUCTION FURNISHED BY THE EMPLOYER

- 2.1 The Employer may issue at such times as he may think proper during the contract period instructions as may appear to him to be necessary for the guidance of the Contractor in the operation and maintenance of the Plant. The Contractor shall be bound by the same, obey and execute.
- 2.2 The Contractor shall acknowledge the receipt of such instructions in writing or by fax. The Contractor shall carefully check all such instructions before commencing any Works. The Contractor shall inform the Employer in writing, within 3 (three) days from the receipt of the same, of any errors or omissions discovered, or of the difficulty to execute any Works or part thereof in compliance with the written instructions received from the Employer. Failing to do so, contractor shall be liable to execute at their own cost the necessary alterations to any Works resulting from these errors or omissions.
- 2.3 The Contractor will also be furnished with two copies of all instructions as may be issued by the Employer. One copy of all such O & M manuals and instructions issued to the Contractor shall be kept in his office at the site. The O & M manuals or instruction shall be considered valid only if the Employer has signed it.

3.0 CONTRACTOR'S ORGANISATION & ADMINISTRATION OF THE CONTRACT

- 3.1 The Contractor shall provide experienced administrative, managerial, technical, supervisory, non-technical personnel and labour necessary to operate and maintain the plant properly, safely and efficiently on a continuous 24 hours basis for the full term of the O & M Contract Period. During O & M period if any expert / technically knowledgeable / special persons or manpower needed, he shall have to arrange & bear /pay any and all cost, charges, fare, and allowances etc. for the same. The employer will not pay any cost / charges for the same.
- 3.2 The qualifications and capability of the Contractor's personnel shall be appropriate for the task they are assigned to perform. The staff provided shall be fully trained in the operation of the various units of the Treatment Plant before being given responsibility for operating any part of the Plant. If in the opinion of the Employer, any member of the Contractors staff is considered to be insufficiently skilled or otherwise inappropriate or not doing the work properly he is required to perform, he shall be replaced by the Contractor with a person with the appropriate skills and experience for the task, to the satisfaction of the Employer. The Contractor will be required to submit to the Employer the Schedule of 'Manpower' and 'Organization Chart' .The contractor shall keep all the details, bio-data, photograph, references, application, and all such records with him even after he is removed or resigned from work of this site. Guilty person or undisciplined person shall not be employed by the Contractor.
- 3.3 The CV/Resumes of the Contractors personnel shall be submitted to the Employer for acceptance at least 7 days before the anticipated commencement of the O & M period. Any change of personnel shall be promptly informed to the Employer within a day's time. Normal time duty hours for the contractors'

operation & maintenance personnel may be modified as necessary and agreed by the Employer. A rotating shift schedule shall be established by the Contractor and agreed by the Employer which will ensure that an adequate number of the Contractor's staff, fluent in Hindi as well as Gujarati is on duty at Plants 24 hours per day, 7 days per Week, including all holidays. The contractor shall have to issue **identify cards** with photographs to all the state employed for O & M. All the employees of contractor should be in specified **uniform indicating contractor logo**.

- 3.4 The Contractor shall submit with his tender a diagram showing the structure of the organization for his administration of the Contract. The structure shall include a Plant Team consisting of Plant Manager. The Plant Manager and his site team shall be stationed in Bhavnagar. The Plant Manager shall have authority and powers to take decisions on the spot and/or incur expenditure(s) in the interest of the work whenever required by the Employer.
- 3.5 All correspondence and communication between the Employer and the Contractor shall be directed through the Plant Manager.
- 3.6 The sub-contractors proposed by the Contractor shall be subject to the approval of the Employer.
- 3.7 Contractor shall provide minimum manpower as per qualification and experience mentioned below:

Sr. No.	Designation	Qualification	Experience	No. of personnel
1	Plant Manager	B.E. (Env.) or B.E. (Che.)	3 years' experience. 1 year experience in the field of O&M of STP or ETP	01
2	Laboratory Technician	M.Sc. (Micro) or M.Sc. (Chem.)	3 years' experience and knowledge in identifying micro-organism and testing procedures	01
3	Electrical Engineer	D. E.E. (Elect.) or higher	3 years' experience in maint. of LT/HT Panel, motors, Lighting System, DG Set & other elect & instrumentation works	01
4	Instrument Engineer	D. I.E. (Inst.) or higher	3 years' experience in maint. of Instrumentation & Automation Eqpt. works for STP / WTP plant	01
5	Electrician	ITI (Elect. trade) or PWD super- visory Cert.	3 years' experience of relevant electrical equipments for O&M.	03
6	Plant Operator	ITI fitter	3 years' experience of operating pumping machinery	06
7	Helper Cum Sweeper Cum Mali	8th Standard Pass (only Male)	Knowledge of Gujarati, Expert Swimmer / Experience of gardening and house keeping	12
8	Security Guard	8th Standard Pass (only Male)	Knowledge of Gujarati, Expert Swimmer / Experience of gardening and house keeping	06
TOTAL PERSONNEL				31

- 3.8 Minimum manpower required in various shifts is as follows:

Personnel per Shift							
	Designation	Duty	Nos.	Gen Shift	Ist Shift	IInd Shift	IIIrd Shift
a)	Plant Manager	General	1	1			
b)	Lab. Technician	General	1	1			
c)	Electrical Engineer	General	1	1			

d)	Instrument Engineer	General	1	1			
e)	Electrician	Shift	3		1	1	1
f)	Plant Operator	Shift	6		2	2	2
g)	Helpers cum Sweeper cum Mali	Shift	12		4	4	4
h)	Security Guard	Shift	6		2	2	2
	Total		31	4	9	9	9

Note: The staff as per above qualification and in specified numbers shall be deployed by contractor at the time of commencement of O&M. However, as the plant is provided with various instrumentation and suggested for automated operation as far as possible as per scope of work / specifications of tender, it is envisaged that the number of personnel under various categories may be optimized in order to optimize the O&M cost of client. For this purpose, client shall observe the performance of plant and assess the requirement of manpower during the initial months of operation and after that shall carry out meeting with contractor for mutual agreement on optimization of staff. Based on this understanding and with a clear intent that any such action shall not lead to unsatisfactory operation of the plant and that contractor shall not be absolved of any penalty or from providing satisfactory operation, maintenance and performance guarantee of the plant, client shall provide one month advance notice in writing to contractor regarding the staff to be retained / deployed in the month coming in effect after one month from the date of notice. Contractor shall deploy the staff accordingly and shall be paid for the actual staff deployed during a month as mutually agreed between client and contractor. For this purpose contractor shall quote the rate for person to be deployed under each category tenable the payment to be made as per actual deployment.

The payment to be made to all persons should not be less than the minimum wages finalized time to time under Labor Law.

Contractor will have to strictly follow the provisions of Factory Act - 1947

3.9 Relaxation in qualification and number of staff shall not be allowed. The above staff shall be distributed in three shifts. General shift shall be considered as 09:00 Hrs to 18:00 Hrs. various personnel shall attend the plant during general shift as tabulated above. Preferable timing of shift shall be 06:00 Hrs to 14:30 Hrs, 14:00 Hrs to 22:30 Hrs and 22:00 Hrs to 06:30 Hrs (with half an hour of overlap). **The arrangement of reliever for weekly off / all holidays etc. shall be made by the Contractor over and above the required persons mentioned in 3.8 above.**

As per agreement, the No. of staff in each shift should always remain present; otherwise penalty towards absence of any staff shall be levied and recovered from the contractor. The penalty shall be decided by the Engineer-in-Charge / CLIENT. The arrangement of reliever for weekly off/holiday/leave etc. shall be made by the contractor. Absence on any ground like weekly off or holiday shall not be considered. The presence of staff in each shift should be marked in register to be maintained at office of Engineer of the Client at Sewage Treatment Plant; which shall be considered as final. The contractor's staff must mark their presence in this register. The contractor may maintain a separate register for his own purpose.

3.10 The staff of Contractor will always remain in contact with Employer and follow his instructions. The Contractor shall have to issue identity cards with photograph to all the staff employed for operation and maintenance; otherwise they will not be allowed to enter the plant premises.

- 3.11 The Contractor shall employ all the required staff (and in no case less than the number specified in the tender which is mandatory) within 7 days of award of the Contract, otherwise full payment will not be made. In such case, the commencement of the Contract Period and payment thereof shall be reckoned only from the date of employment of full numbers of staff. If at any stage it is felt necessary that additional manpower over and above the specified minimum manpower is required for the proper operation of the treatment plant, contractor shall employ necessary additional manpower at no extra cost within 7 days from the date of issue of notice by engineer-in-charge.
- 3.12 The Contractor will comply with all safety rules and regulations and all inter-disciplinary measures as followed by the Employer. The Employer will not be responsible for any accident / injury to the staff or any person of the Contractor or loss or damage to any property. Further, the Employer will not provide any insurance or free medical facility to the staff of Contractor. Providing necessary security arrangement for safety of the plant and contractor's personnel will be the responsibility of contractor.
- 3.13 All Central / State Government / Semi-Government / Local Body's rules and regulation pertaining to this contract, all legal formalities pertaining to provident fund, factory act, all legal formalities shall be followed and observed by the Contractor without any extra cost to the Employer. Please note that failure in complying so, all liabilities arising as per laws will be to the Contractor's account.
- 3.14 No accommodation / guesthouse / transportation facility will be provided by the Employer/ Employer to the Contractor.
- 3.15 Due to strike by the Contractor's employees, the operation and maintenance of plant must not be affected and the property of CLIENT should not be damaged. In such case any dispute / discrepancy occurs, the decision of Engineer-in-charge will be final and will be binding to the contractor. Also if any expense will be made by CLIENT, it will be deducted from Contractor's bill/ SD.
- 3.16 The duration of contract shall be two years from the date of issue of completion certificate / taking over certificate. However the client reserves the right to terminate the contract at any time by giving 3 months' notice to the contractor.
- 3.17 The contractor shall provide necessary chemicals for polyelectrolyte tank mixture, lubricating oil, grease in their store room. Stacking and day to day preparation of solution shall be arranged by the contractor. Similarly, chlorine tonner / cylinder shall also be provided by the contractor at the door – step of the chlorination plant. Disconnecting and removal of empty tonners and reconnection of filled tonners shall be carried-out by the contractor. The minor spares shall be required for disconnection/reconnection i.e. Clamp/'O' rings/washers shall also be arranged by the contractor.
- 3.18 Plant shall be handed over on “**as is where is basis**” and all equipments are in satisfactory working condition to contractor on the award of contract. Thus, the contractor has to take over the plants for said contract without any insistence for any change in the plants.
- 3.19 The scope of work also includes **regular cleaning of complete plant area including floor, railing, door, windows, light fixtures and ceiling etc.** similarly, minimum 5mts. from the construction boundary on the outside of the plant area shall also be cleaned and maintained by the contractor.
- 3.20 This work is inclusive of but not limited to **operation, maintenance, housekeeping, cleaning, removing sludge by its own carrier arrangement, painting, white colour washing, preparing data, recording, correspondence work to the client and Government Departments, etc.** All this work should be done as per standard practices and by following labour, factory, electrical, GPCB, and

all other old and new law and order, Indian standards etc. as applied of Local, State and Central Govt. of India.

- 3.21 Nothing is to be provided by the client excluding electricity and sewage flow. All the formalities to all government authorities for factory, electrical, GPCB, etc. for having NOC, water consent, Hazard waste concern, approval etc. shall be done by the contractor. However, necessary legal fees to all government authorities shall be borne by the client.
- 3.22 Monitoring shall be done as per guidelines given by Engineer-in-charge. Contractor has to maintain all the parameters of treated sewage within the stipulated limits or he will be penalized for not maintaining the parameters given by GPCB and client. All expenditure incurred for the same like, suite, fee, court fee, case fee, or the penalty as decided by Municipal Commissioner and penalty charged by GPCB shall be deducted from his pending bills or Security Deposit.
- 3.23 The Contractor shall have to test the sewage samples of the influent and effluent from each of the treatment units as per frequency as specified in table above at 3.0 (r) through the laboratory provided at the plant; as per the schedule fixed by the Engineer in charge. The same have to be verified and checked by the Client once a week by taking parallel sample from the same point and at the same time and analyzing the same at the clients laboratory/laboratory approved by client. Proper register/record shall have to be maintained by the contractor and any modification /rectification, on the basis of analytical results of samples if required, in performance of each unit shall be carried out immediately. The daily analysis report along with steps for the rectification /modification taken, if any, shall also be reported to the client with the daily report. The weekly report shall also be submitted to the Engineer-in-charge of the Client, with remarks and the steps taken for modification, if any, taken during the period of report.
- 3.24 No equipment shall remain idle or unrepaired or damaged or unutilized for the period exceeding 5 days. If any equipment is not repaired, rectified and or replaced within 3 days, the contractor shall be penalized **with no limit at the rate of Rs. 1000/- per day of delay per each individual equipment of the plant.**
- 3.25 If a man on the duty remains absent and there will not be any replacement in his place, the contractor will be penalized at the rate of **Rs. 1000/- per man per day upto no limit.**
- 3.26 The successful bidder shall have to enter into a contract agreement for O&M and deposit an amount equal to 5% of total order value for O&M contract.
- 3.27 The quoted rate shall remain firm and valid for two years of O&M contract.
- 3.28 The payment of O&M charges will be made as per relevant clause of Special Conditions of Contract for O&M.
- 3.29 The other terms and conditions described in this tender document, wherever applicable, shall remain unchanged.
- 3.30 However, **during O&M period, the contractor has to supply all the spares, at his cost during major-minor breakdown and also maintenance works.**
- 3.31 Contractor shall be responsible for health check-up of O&M staff on regular basis as per statutory requirements.

3.32 Contractor should have to maintain lighting facility in STP premises, in case if found no light or left unrepaired for more than two day failing to which penalty of Rs. 500 per light per day will be charge.

4.0 MAINTENANCE

4.1 The maintenance service provided by the Contractor for the period specified in the Contract shall ensure the continuous operation of the Plant and that the breakdown or deterioration in performance, under normal operating conditions, of any items of Plant and equipment and component parts thereof is kept to a minimum.

4.2 The Contractor shall carry out the Maintenance of the plant installations in accordance with the requirements of the O & M Manual and also to the approved Maintenance Plan as mutually agreed.

4.3 The Contractor shall adhere to the manufacturers' recommendations with respect to equipment maintenance, the types and grades of lubricants to be used, frequency of lubrication, adjustments to be made regularly and keep in safe custody recommended spares, which may be required for smooth & trouble-free operation of the plant on day today basis.

4.4 The Contractor to operate and maintain all equipment as recommended in the O & M manual and maintains logs and records of the work carried out to keep them in good working condition. The Employer shall approve the format of logs and records.

4.5 The Contractor shall prepare and implement an effective plant maintenance programme in consultation with the Employer. It is absolutely the Contractor's responsibilities to look after all sorts of maintenance whether routine, preventive or break down or any other type of maintenance. The Contractor will be responsible to carry out day to day as well as periodic maintenance necessary to ensure smooth and efficient performance /running of all equipment.

4.6 The contractor shall along with the O & M Manual submit a write-up covering vision, mission, plan for smooth & trouble-free operation & maintenance of the Plant. It shall include all activities, their duration and planned deployment of manpower and resources.

4.7 Contractor shall set-up and maintain laboratory at plant site complete with all equipment, testing instruments, glassware, weigh scale, chemicals, reagents, consumables and carryout necessary calibration from time to time to conduct tests as stipulated in 5.3 below and any other test required to check some of the basic parameters, not specifically mentioned.

4.8 The Contractor shall be responsible for corrective maintenance of civil, hydraulic, mechanical, electrical and computing equipment as well as miscellaneous equipment.

4.9 The Contractor shall be responsible for carrying out regular servicing and lubrication of rotary machines, complying with maintenance instructions as defined in the Operation and Maintenance Manual, and ensuring that electromechanical equipment and motors operate correctly at all times.

4.10 The Contractor shall ensure that measurement systems operate correctly at all times.

4.11 The Contractor is responsible for the maintenance of the landscaped areas inside the Employer existing plant only.

- 4.12 The Contractor shall be responsible for maintenance of all the components of the plant including laboratory and administrative building, garden, road etc.
- 4.13 The Contractor will operate and maintain in a state of continuous operational readiness all plant and systems to meet the laid down standards. It shall remain the Contractor's responsibility to ensure that plant systems are at all times able to operate to the maximum capacity of the installed duty plant.
- 4.14 The sewage conveyed from main pumping station shall be measured by the meter installed at the inlet of the plant. The meters shall be inspected and calibrated.
- 4.15 For the duration of the O & M period, the Contractor will be responsible for the supply and control of lubricants, spare parts and consumable materials excluding electrical power, necessary for the continuous operation of the works. Provided here are certain standard services that BMC could require. However BMC may wish to review this and make changes depending on the exact nature of services they require from the Contractor.
- 4.16 The Contractor will manage the consumables and utilities services to ensure their most economic consumption and to minimize wastage.
- 4.17 The quantities of all the unutilized spare parts and consumable materials will be fully handed-over to the Employer at the end of the O&M period.
- 4.18 The Contractor will make all necessary arrangements to ensure the continuous supply of spare parts and material for the works, and the rate of supply of these materials shall be in such quantities and amounts as would ensure uninterrupted operation.
- 4.19 All the furniture and administrative office equipment etc. required shall be furnished by the Contractor. Costs of operating administrative office and supplies shall be borne by the Contractor.
- 4.20 Cost of operation and maintenance and house keeping of housing complexes including roads, gardens, electrical installations, etc. will be borne by the contractor.
- 4.21 The replacement of major electrical and mechanical equipment if found replace that will be done by Bhavnagar Municipal Corporation and necessary fitments to be done by agency.

Below mentioned replacements are in scope of BMC.

- Repairing of compound wall and roads shall be attended by BMC
- All types of pumps & Motors above 25 hp
- HT, LT, PMCC, MCC, PLC Panels (Whole)
- Transformers
- DG Set
- All types of valves above 300mm
- Gate Valves

- 4.22 Maintenance / repairing of all electrical / mechanical equipment, rewinding of all type of motors, repairing of all types of pumps, motors, electrical starters, repairing of transformer, cable jointing shall be done by the contractor.
- 4.23 The Contractor shall be required to perform necessary O&M, lubrication and alignment services of HT DP Structure at an regular interval of 6 months with all required consumables.

- 4.24 The contract shall be required to perform Oil BDV Test and Oil Filtration of Transformers once in a year and to make top up of required oil quantity.
- 4.25 The bidder shall be required to perform HT Breaker maintenance and servicing as well as to perform necessary testing and calibration of relay and breaker once in a year.
- 4.26 The contractor shall be required to perform maintenance of LT Panel, APFC Panels, Equipment Panels, Starter Panels, VFD Panels, Electrical Motors etc. once in every 4 months with necessary tightening, blowering, fitment, proper termination and other necessary maintenance activities.
- 4.27 The contractor shall be required to perform Earth Measurement of each earth stations once in every 6 months.
- 4.28 The contractor shall be required to submit necessary data, test reports, drawings etc and get the clearance of Electrical Inspector for Annual Inspection of HT Installations.
- 4.29 The contractor shall be required to perform necessary repairs of all area lighting and internal/external building lighting and should keep all lighting in ON condition during night hours.
- 4.30 The contractor shall be required to display Electrical Shock Treatment Chart (Wooden/Laminated Framing) in Vernacular Language in Elect. Panel Room.
- 4.31 The contractor shall be required to install First Aid Box with necessary medicines in Elect. Panel Room.
- 4.32 The contractor shall be required to keep sufficient quantity of necessary Safety Tools and Tackles like 11KV Rubber Hand Gloves, 11kV FRP DO Fuse Rods, 11KV Earth Rods, Helmets, Aprons, Safety Belts, Safety Shoes etc.
- 4.33 The contractor shall be required to install necessary quantity of Fire Extinguishers in Elect. Panel Room as per instructions of EIC.
- 4.34 The contractor shall be required to provide Sand Buckets with necessary stand/support in HT Switchyard as per instructions of EIC.
- 4.35 The contractor shall be required to replace damaged Insulation Mats in Elect. Panel Room and other electrical installations as per instructions of EIC.
- 4.36 The contractor shall be required to co-ordinate with PGVCL for power failures, interruption and planned shut down.

The above are certain standard services that BMC could require. However BMC may wish to review this and make changes depending on the exact nature of services they require from the Contractor. The contractor has to submit necessary maintenance reports as per EIC instructions.

- 4.37 All the required electrical goods like bulb, tube light, chock, starter, fuse, wire etc. required for operation and maintenance shall be procured by contractor at his own cost and lighting arrangement should be kept in good condition.

- 4.38 At the time of breakage in pipeline or valves for repairing purpose contractor has to make arrangement at his risk and cost for labours, fitter, required all materials like rubber packing, nut bolts, gland, all required parts of valves in Plant & transmission main including pickup van, Jeep, welding machine, welding rods, Tractor etc. should be provided by contractor at his own cost. All consumable material should be of standard quality as approved by Engineer-in-charge of work.
- 4.39 All type of pipeline including chambers, open channels, gates should be maintained and repaired by contractor at his own cost.
- 4.40 At the time of repairing or replacement of any type of Pipes and valves required for repairing or replacement after verification by concerned engineer or his representative, fitting work of pipe or valves shall be carried out by contractor at his own cost including, labour, excavation cutting, fitting, welding, testing, refilling etc. complete. Repairing work shall be started within one hour after breakage or leakage come into notice.
- 4.41 Any type of valve or gate or part of the valve or gate not working properly after repairing and requires replacement, as per opinion of Executive Engineer or his representative, then required valve gate will be supplied to the contractor free of cost from departmental store if available. Replacement shall be done by the contractor and old valve gate should be shifted to department store and entered in concerned register including cost of loading, unloading, carting stacking etc. complete.
- 4.42 During the period of contract a person other than responsible representative of contractor or persons employed by him should not enter into the premises of the plant. Every care should be taken by contractor to prevent such type of unauthorised entry or interruption in the premises or surrounding the property of BMC.
- 4.43 At any time during the visit of Engineer in charge or his representative if it is observed that the operation and maintenance is not carried out properly, that work liable to be terminated or rejected for compliance.

5.0 DOCUMENTATION / REPORTS

- 5.1 The Contractor will be furnished with two copies of O & M manuals (prepared by him) approved by Employer. The Contractor will also be furnished with two copies of all instructions as may be issued by the Employer. One copy of all such O & M manuals and instructions issued to the Contractor shall be kept in his office at the site. The O & M manuals or instruction shall be considered valid only if the Employer has signed it. The Contractor will be responsible for keeping & updating record of documents including History Card for equipment and maintaining every day logbook. The Contractor shall maintain and update logbook and details of operational parameters like pumping hours, aerator operation hours, Amperes, Flow meter reading, H.T. Voltage, Power Factor, energy meter reading, pressure and other reading required are recorded in every shift at regular interval e.g. hourly or as agreed mutually (by CLIENT).
- 5.2 Printing of log sheets, registers and all necessary stationery required for maintaining records of operations and maintenances has to be arranged by the Contractor at his cost, duly approved by Employer. Format of log sheets, registers will be made available to the contractor by the CLIENT.

If required or BMC instructed then, The contractor has to **provide at site one computer of latest technology (HP-Compaq /Acer / Lenovo make) with HP LaserJet Printer as part of this tender requirements** to keep all the records, data maintenance schedules, spare available for the plant.

Monthly statements for electricity consumed, total hours of pump operation, total qty. of pumping in MLD, average power factor, monthly consumable and repair maintenance during the month shall be furnished by the contractor. The computer system shall be property of employer.

- 5.3. The Contractor shall submit to the Employer every week and within first seven days of every month, a copy of the weekly/ monthly O & M report. This report must include the following:
- a) Sampling of raw & treated sewage analysis highlighting all important parameters, grab samples collected three times a day (peak hours, lean hours, average) at every 8 hrs as well as 24 hour composite samples collected through Auto Samplers; DO measurement etc. Major parameters to be covered include BOD, COD, SS, VSS, MLSS, MLVSS, chlorides, Total Nitrogen, pH, O&G, Alkalinity as CaCo₃, sulphates, phosphorous, Grit analysis at every week including % organic content/ size distribution
 - b) Qty. of screen material removed on every day and gross.
 - c) Qty. of grit removed on every day and gross.
 - d) Qty. of sludge cake removed per day and gross.
 - e) Qty. of gas generated per day.
 - f) Details of plant visit made by any govt. authority like CLIENT, WATER SUPPLY BOARD, GPCB, etc.
 - g) The duration of each pump operation per day.
 - h) The nos. of aeration blowers operated per day and the duration in hours a day tank wise.
 - i) Power consumed by each pump and by each unit per day.
 - j) Plant output on each hour and total for the day in MLD and PST wise flow recorded. However the contractor should adjust the equal flow through both the line leading to PST. (in case flows received at STP are less during initial period, single module shall be taken out of line one by one depending on total incoming flow of raw sewage in order to establish power saving and verify performance)
 - k) Preventive maintenance work carried out during the month.
 - l) Preventive maintenance work that will likely to be carried out in the next week.
 - m) Maintenance carried out due to fault / breakdown of equipment.
 - n) The details of each equipment that was not available for operation due to preventive maintenance or breakdown of equipment related to that pump equipment, giving the reason for breakdown. The details shall include number of hours the pump equipment could not be operated and whether standby capacity was available and put into operation.
 - o) Details of parts and consumable replaced.

- p) Number of days & hours per day the plant was run whether fully or partly if the case maybe and specifying the reason why the plant could not be operated fully. Whether all or single unit is operated in cases of where twin/more nos. of a particular unit processes (SCREEN, GRIT, PST, AERATION TANK, SST) are provided.

6.0 TELEPHONE FACILITY

- 6.1 The Contractor shall have to arrange for mobile phones to minimum two personnel of Key Staff for communication pertaining to plant O&M with employer. Any cost to the repair to the telephones and the telephone bills will be borne by the Contractor.

7.0 SAFETY, HEALTH AND ENVIRONMENT

- 7.1 The Contractor shall be responsible for safety on Site during the O & M of the Works by the Contractor. Health of workers shall be protected against infectious and contagious diseases. Medical check-up at every six months shall be done. Environmental protection shall also be given priority so as to conserve the environment.
- 7.2 The Contractor's duties with respect to Safety shall include the following:
- (a) Utilise safety awareness procedures in every element of operation and maintenance.
 - (b) Give emphasis to safety including:
 - i. Safe working and safety procedures as per rules and regulations of Department of Explosives, factory inspector, electrical inspector regarding use of protective clothing, gloves, boots and helmet etc.
 - ii. Cleanliness of the Plant as a whole
 - iii. Awareness of hazardous conditions and accident reporting and necessary compliance
 - iv. Safe practice in Treatment Plant
 - v. Contractor must provide if required self-breathing apparatus, safety belt, helmet & all concern safety equipments to skilled & trained employees who are deployed for the work.
- 7.3 The Contractor shall be responsible for all safety measures and those procedures adopted shall comply with the Indian regulations pertaining to such work and local safety codes currently in force. Where such codes do not adequately cover the Plant then the Contractor shall ensure that proper safety procedures are followed. Those given below are minimum standards and the works shall not be limited to these, if higher standards prevails. The Contractor will comply with all safety rules and regulations and all interdisciplinary measures as followed by the Employer. The Employer will not be responsible for any accident/ injury to the staff of the Contractor. Further, the Employer will not provide any insurance or free medical facility to the staff of Contractor.
- 7.4 If the work in the vicinity of electrical equipment has to be carried out after connection has been made to the electricity supply the Contractor shall comply with any "Permit to Work" system approved by the Employer.
- 7.5 Suitable scaffolds shall be provided for workmen for all work that cannot safely be done from the ground, or from solid construction except such short period work as can be done safely from ladders. When a ladder is used an extra man shall be engaged for holding the ladder and if the ladder is used for carrying materials as well, suitable footholds and handholds shall be provided on the ladder.
- 7.6 All necessary safety equipment as considered adequate by the Employer shall be available for use of persons employed on the Site and maintained in a condition suitable for immediate use. The Contractor

shall take adequate steps to ensure proper use of the equipment by those concerned, in the following manner:

- (a) Those engaged in handling any material which is injurious to eye shall be provided with protective goggles.
 - (b) Those engaged in welding shall be provided with welder's protective eye-shields.
 - (c) Those involved in works in areas where there is a risk of drowning shall be provided with life jackets.
 - (d) Electrician, wiremen and helper shall be provided with shock-proof shoes.
- 7.7 Adequate provision shall be made for prompt first aid treatment of all injuries likely to be sustained during the course of the work. When work is done near any place where there is risk of drowning, all necessary equipment shall be provided and kept ready for use and all necessary steps taken for the prompt rescue of any person in danger. Only after arranging such equipment, tools/ tackles etc. at site work shall be started.
- 7.8 To ensure effective enforcement of the rules and regulations relating to safety precautions, arrangements made by the Contractor shall be open to inspection by the Employer or his Representative and the inspecting officers.
- 7.9 Notwithstanding the provisions made above the Contractor is not exempted from the operation of any Act or rule in force.

The contractor follow supreme court guidelines / drainage manual for working safe measures shall be strictly to avoid any Injury / Death / Accident to the person working inside the premises of plant for hazarded gas.

8.0 TOOLS AND TEST EQUIPMENT

- 8.1 A complete set of necessary tools and test equipment required for operation & maintenance of the plant shall be available with the Contractor. This shall enable erection, dismantling, repairing, replacing or testing to be carried out on any part of the Plant whether of an electrical, mechanical or other nature, during the contract period. All tools and test equipment shall be procured, kept at site in good condition and used properly by the Contractor at his expense. The contractor shall prepare and implement an effective plant maintenance program in consultation with the Employer. It is absolutely the contractor's responsibilities to look after all sorts of maintenance whether routine, preventive or break down or any other type of maintenance. The Contractor will be responsible to carryout day to day as well as periodic maintenance necessary to ensure smooth and efficient performance/ running of all equipment.

9.0 INSURANCE & CERTIFICATES

- 9.1 Within 14 days of the acceptance of this tender the Contractor shall produce to the Employer a certificate or certificates signed by the Contractor's insurers or their duly authorised agents covering all the persons with accidental policy of sufficient amount as per their grade (30 times monthly salary) with disability benefit provision for them stating that insurance's complying with the requirements of the contract have been effected. No such certificate shall relieve the Contractor of his obligations under the Conditions of Contract to produce to the Employer if required by him the insurance policies and the receipts for payment of premiums.

- 9.2 The contractor shall be responsible for all injury to persons animals or things and for all structural and decorative damage to the property which may arise from the operation or negligence of contractor, whether such injury or damage arise from carelessness, accident or any other cause whatever in any way connected with the carrying out of this contract. This clause shall be held to include, INTER ALIA, any damage to buildings, whether immediately adjacent or otherwise, and any damage to roads, streets, foot-paths, bridges or ways as well as damage caused to the buildings and works forming the subject of this contract by frost or other inclemency of whether. The contractor shall indemnify the owner hold him harmless in respect of all and any expenses arising from any such injury or damage to persons or property aforesaid and also in respect of claim made in respect of any award of compensation or damages consequent upon such claim.
- 9.3 The contractor shall reinstate all damage of every sort mentioned in this clause, so as to deliver up the whole of the contract works completed and perfect in every respect and so as to make good or otherwise satisfy all claims for damage to the property of third parties.
- 9.4 The contractor shall indemnify the owner against all claims which may be made against the owner by any member of the public or other third party in respect of anything which may arise in respect of the works or in consequence thereof and shall at his own expenses arrange to effect and maintain, until actual handing over works to the corporation with an approved office a Policy of Insurance in joint names of owner and the contractor against such risks from time to time during the currency all claims which may be made upon the employer whether under the workmen's compensation act or any other stature in force during the currency of this or at common law in respect of any employee of the contractor or any sub-contractor and shall at his own expenses effect and maintain until the actual handing over the pump house to the corporation with an approved office of policy of insurance in the joint names of the employer and the contractor against such risks from time to time during the currency of the contract.
- 9.5 The contractor shall be responsible for anything which may be excluded from the Insurance Policies above referred to and also for all the other damages to any property arising out and incidental of the negligent or defective carrying out of this contract. He shall also indemnify the employer in respect of any costs charges or expenses arising out of any claim or proceedings and also in respect of any award of compensation of damage arising there from.
- 9.6 The owner shall be at liberty and is hereby empowered to deduct the amount of any damage, compensation, costs charges and expenses arising or occurring from or in respect of any such claim or damage from any sum or sums damage from any sum or to become due to the contractor.

10.0 ASSISTANCE FOR THE EMPLOYER'S STAFF

- 10.1 The Contractor shall provide all necessary assistance to the Employer and his staff in carrying out their duties of checking setting out, inspecting and measuring the Works. The Contractor shall provide staff, office attendants, labourers and other help as may be needed from time to time by the Employer.
- 10.2 The Contractor shall provide for the Employer and his staff such protective clothing, safety helmets and rubber boots of suitable sizes, 440 volts series hand lamps and the like as may reasonably be required by them. These articles shall remain the property of the Contractor.

11.0 FIRST AID BOX

11.1 The Contractor shall at his own cost provide and maintain at the Site of Works standard first aid boxes at minimum six locations as directed and approved by the Employer for the use of his own as well as the Employer's staff on Site as stipulated by local regulations. Contractor shall arrange to train all their staff in first aid treatment within 3 months.

12.0 NOTICE BOARDS / DISPLAY BOARDS

12.1 The Contractor shall provide a Notice Boards/Display Boards at appropriate locations detailing precautions to be taken by operation and maintenance personnel in work in conformity with Industries and Labour Regulations and Department of Explosives.

13.0 APPLICATION

13.1 These general conditions of the contract shall apply to the extent that they are not superseded by provision in other parts of the contract.

14.0 GENERAL ROUTINE MAINTENANCE

To operate and maintain the sewage treatment plant and equipment in accordance with the aim and purpose of treatment. The plant and equipment covered under the above contract will be promptly attended by the contractor including any "Trouble shooting" to ensure smooth and trouble free operation. The contractor will be responsible for smooth and satisfactory operation and maintenance of the Sewage Treatment Plant on the round the clock basis for 5 years period from the date of taking over the plant after 3 months trial run period is completed and on acceptance of plant.

A Technical expert of the contractor shall visit the plant on every fortnight and will suggest if required, to improve the efficiency and working of the plant. The visit must be recorded at Employer's document and outcome of the visit/ minutes of meeting should be signed by Employer's authorized representative without which the visit shall not be considered.

The employer shall check the operation of the plant or designate an organization of his choice to carry out inspections. The employer or the organization appointed by him shall check that the Contractor is performing the tasks for which he is responsible with due diligence.

14.1 Below routine maintenance shall be carried out as a minimum and as applicable for the type of plant / process:

- (1) Regular cleaning of screens in all shifts depending upon load
- (2) Cleaning of screens by high pressure water jet (preferably between 1100 hrs to 1200 hrs) on daily basis
- (3) Cleaning of belt conveyor
- (4) Checking Alignment, tightening of fasteners, and lubrication of gear and other moving parts of screens, conveyor belt, detritor, classifier units, PST/SST bridge & scrapper, scum removal system, rail alignment etc.
- (5) Checking and inflating types of all trolleys
- (6) Checking of all aerators for their submergence and making necessary adjustments if found necessary, based on the DO analysis and cleaning/maintenance of diffusers, as applicable.
- (7) Checking of all pumps, motors, gears etc for its proper operation.
- (8) Checking of gas mixing system, gas holder unit for its proper operation.
- (9) Observing/monitoring sludge level in digester unit.
- (10) Setting SV & Telescopic valve on sludge withdrawal line of PST/SST to suit with the sludge consistency by sample analysis.

- (11) Checking all the pipelines for preventing choking, water tightness etc.
- (12) Monitoring parameters in incoming and treated effluent/water.
- (13) Checking development of foam in Aeration tank and diminish it by water spraying.
- (14) Safe disposal of screening, grit and dry sludge cake generated on daily basis at a site indicated by employer within 10 km radius of the treatment plant (STP).
- (15) Avoid strictly the accumulated sludge decomposing in the settling tanks and buoyed to the surface. Septic condition should not arise in the tanks.
- (16) Watering of plants and trees

14.2 General routine maintenance schedule for various plant units shall be adopted from O&M Manual. However, the general routine maintenance to be carried out by the Contractor's personnel will include but not limited to the following:

- a) If it is observed that power consumption per MLD of sewage treated or guaranteed power on daily basis exceeds the quoted or guaranteed value, the contractor has to trace out the fault and rectify the same to bring to the standard Value.
- b) De-weeding and cleaning of the Transformer yard and other places.
- c) Checking and refilling of silica-gel in the breather of the transformer and checking temperature gauge, vent pipe, voltage tap changing switch
- d) Regular watering in the earth-pits.
- e) Check for any oil leak in the transformer and intimating and repairing of the same.
- f) Opening of end cover & cleaning of dust by Air blowing of induction motors, PMCC and other panel &PCC
- g) Checking and replacement of bulbs, tubes, chokes, starters, switches, control etc. Throughout the plant and including outdoor lights and high mast pole installation.
- h) Replacement of LT panel fuse base, links, fuse, relay, contactor kit (main and auxiliary) and timer.
- i) Replacement of HT panel C/T or PT whenever required.
- j) Check for any loose connection in electrical equipment and rectification of the same.
- k) Monitoring power factor, take corrective steps and ensure optimum power consumption.
- l) Replacement of gland packing for the pump, sluice valves etc. whenever required.
- m) Greasing of bearings and lubricating all moving parts as per the schedule
- n) Tightening of all loose nut-bolts and other fasteners
- o) Cleaning of sump tanks
- p) Lubricating and test operation of the valves
- q) General cleaning of all equipment and building
- r) Replacement of pump rubber bush, gland packing, sleeve, bearing, oil seal, shaft, liquid ring and impeller.
- s) Replacement of motor bearings and terminal plate and rewinding of motor when needed.
- t) Replacement of non-return valve T bolt, hinge pin, flap/ gate.

15.0 PREVENTIVE MAINTENANCE CHECKS

15.1 The Contractor shall adopt a preventive maintenance check's schedule as agreed mutually between the Contractor and the Employer.

15.2 The following checks as a minimum to be performed daily by the Contractor's personnel

- a) Whether there is a change in the sound of a running pump, abrupt changes in bearing temperature and seal leakage?

- b) The pump capacity, pressure, power consumption and vibration level to check if outage is required to address deterioration of specified performance values.
- c) Rise in temperature of bearings in motor, in moving parts and other units, etc.
- d) Working of gauges, sensors and other flow measuring devices
- e) Average power factor, kVARH, kWh consumed

15.3 The following checks as a minimum to be performed weekly by the Contractor's personnel

- a) Pipeline and valve leakage
- b) Functioning of non-return valve
- c) Tightness of all electrical connections of PMCC, APFC, PLC panel etc.
- d) Tightness all cable connections
- e) Temperature rise due to loose connections
- f) Operation of valves and sluice gates.
- g) Current and voltages in all electrical equipment
- h) Average power factor, kVARH, kWh consumed

15.4 The following checks as a minimum to be performed monthly by the Contractor's personnel

- a) Battery voltage, battery charger, topping of distilled water, tightness of terminations etc.
- b) Gland packing
- c) Wear and tear of moving parts
- d) Adoption of Electrical energy conservation methods and energy consumption
- e) Electrical contacts
- f) Motors
- g) Meggering of electrical equipment
- i) Watering of earthing pits

15.5 The following checks as a minimum to be performed quarterly by the Contractor's personnel

- a) Relay testing and calibration if possible of meters, gauges, instruments
- b) Speed of motors
- c) Level gauges and flow meters signals
- d) Cleaning, checking/tightening of L.T. Circuit/Panel
- e) Tightening of PMCC components
- f) Auxiliary DB, Capacitor bank
- g) Battery and Battery charger

15.6 The following checks as a minimum to be performed bi-annually by the Contractor's personnel

- a) Free movement of stuffing box glands, gland bolts to be cleaned & lubricated and packing to be inspected to determine whether it requires replacement.
- b) Pump and motor alignment should be checked and corrected if necessary.
- c) Grease lubricated bearings should be checked to see that they contain the correct amount of grease and that it is still of suitable consistency.

15.7 The following checks as a minimum to be performed annually by the Contractor's personnel

- a) Vibration should be reviewed. If the pump is tending towards unacceptable vibration levels:
 - i. The bearing should be removed, cleaned and examined for flaws and wear.
 - ii. The bearing housing should be carefully cleaned.

- iii. Rolling element bearings should be examined for scratches and wear.
- iv. Immediately after cleaning, rolling element bearings that are considered acceptable for reinstallation should be coated with grease. If the bearings are damaged it shall be replaced with new bearing of the correct size and type as per O&M manual.
- b) Shaft sleeve and shaft should be examined for wear.
- c) When coupling halves are disconnected for an alignment check, the vertical shaft movement of a pump with sleeve (journal) bearing should be checked at both ends with packing or seals removed. Any movement exceeding the original design clearance should be investigated to determine the cause. Endplay allowed by bearings should also be checked. If it exceeds that recommended by the manufacturer, the cause should be determined and corrected.
- d) Stuffing boxes should be repacked and the pump & motor should be realigned and reconnected
- e) Overhauling requirement of all equipment
- f) Improvement required if any in operation of plant
- g) Testing and Calibration of all instruments
- h) Transformer cleaning, checking silica gel, oil checking filtering/replacing

15.8 This work is also inclusive of painting of plants as per following schedule and paint shall be of the same specification as described in respective unit/ mechanism as per original specification of the existing units.

Sr. No.	Item	Duration
1	Civil work	At the end of 2nd year of O&M
2	Doors and windows	---do---
3	Shutters, grills, collapsible gate etc	---do---
4	All H.T./ L.T. panels	---do---
5	All process equipment with its accessories and GI railings etc.	---do---
6	Street / flood light pole	---do---
7	Pump sets, valves, C.I. fittings, sluice gate, etc.	---do---

Note: However, if any unit mechanism will found to have some defect in paint work at any time, the Contractor has to repaint the same under the instruction of Employer.

16.0 MINOR REPAIR GENERALLY ENCOUNTERED IN THE PLANT

16.1 The minor repairs which have been most often encountered are as given below:

Electrical works

- a) For H.T. Installations
 - i) Replacement of jumpers
 - ii) Replacement of insulator (Porcelain)
 - iii) Replacement of Air-Break Switch
- b) For Both H.T. & L.T. Installations
 - i) Replacement of no-volt coil for VCB
 - ii) Replacement of Cable lugs including terminations
 - iii) Replacement of burnt out HRC fuses
 - iv) Replacement of moving and fixed contacts or contractors
 - v) Repairs to isolators and switch fuse units and replacement of it and fuse base units.

Pump sets

- a) Replacement of coupling bolt and nuts including rubber bushes
- b) Replacement of worn out impeller nut
- c) Replacement of spindle nut in the sluice valve.
- d) Replacement of terminal plate in the motor
- e) Replacement of faulty/dead spares in the battery charger and battery control panel.
- f) Replacement of gland packing, graphite packing from the pump sets.

17.0 ADDITIONAL SCOPE OF WORK

- 17.1 For other incidental additional work, if any, the Contractor on authorization in writing from the Employer shall execute which is not specifically mentioned in the scope at present.
- 17.2 The rate of such additional work will be worked out by the Contractor based on the cost of materials and labour and shall be furnished to the BMC. The contractor shall be entitled for full cost of materials, direct labour and cost of operation of equipment/machinery etc. required to execute the work.

18.0 ELECTRIC POWER AND WATER

- 18.1 CLIENT shall directly pay all the power bills but the Contractor will be required to furnish Electricity Consumption in the Schedules provided. Contractor shall always maintain electric power factor between 0.95 PF to 1.0 PF. If the average power factor in the electric supply company bill is less than 0.95, the penalty / charge for the same, if levied by power Supply Company, shall be recovered from contractor's O&M Bill /Security Deposit.
- 18.2 The contractor has to co-ordinate with PGVCL staff to follow up interrupted in power supply to maintain to performance of the STP contractor shall initiate and take adequate action to ensure smooth and satisfactory performance/running of the plants on 24 hours / round the clock basis.
- 18.3 Contractor will have to make his own arrangements for supply of clear potable water in the plant. Contractor shall bear cost towards distribution of water within premises.

19.0 PLANT INSPECTION AND VISITS

- 19.1 The Employer shall check the operation of the plant or designate an organisation of his choice to carry out inspections. The Employer or the organisation appointed by him shall check that the Contractor is performing the tasks for which he is responsible with due diligence. The Contractor shall at his cost provide all the assistance required by the Employer to complete these inspections.
- 19.2 Before any inspection, the Employer shall give prior notice of three days to the Contractor, indicating the name(s) of the person(s) empowered to carry out such inspection in the name of the Employer. In case of surprise visit, vigilance or other checks, such notice shall not be given.
- 19.3 At the end of each quarter period, or at the initiative of the Employer, a JOINT VISIT shall be organised so that both parties can check the condition of the installation at the plant.
- 19.4 A report shall be drawn up to record the suggestions and opinions of both parties. The Employer reserves the right to call in equipment manufacturers or specialised technicians for these visits.

- 19.5 These visits shall provide an opportunity for examining maintenance programs and operating procedures and improvements requiring therein.
- 19.6 In addition to the above, the Employer reserves the right to arrange the visits of. VIP's dignitaries and other persons of Social or Political repute, as and when necessary, at the Treatment Plant. The Contractor shall offer full cooperation to the Employer on the occasions of such visits.
- 19.7 A technical expert of the contractor shall visit the plant on every fortnight and will suggest if required, to improve the efficiency and working of the plant. The visit must be recorded at Corporation's document and outcome of the visit/minutes of meeting should be got signed by Corporation's authorized representative without which the visit shall not be considered.
- 19.8 Any test, visit, analysis or inspection and any approval thereof shall not in any way alter/modify or dilute the responsibility of the Contractor to fulfill his obligations under these Conditions.

20.0 MEASUREMENT AND ANALYSIS

- 20.1 The Employer has the right to perform any analysis or inspection he deems necessary.
- 20.2 The Contractor shall be responsible for the security and protection of flow meters at the designed point. If there is any malfunctioning of the meters, action will be initiated by the Contractor to rectify the same and it shall be reported to the Employer immediately.

21.0 RECORDS AND REPORTS

Operating Records and Data

The Contractor shall:

Prepare and maintain, on a current basis and in accordance with generally accepted Indian accounting principles, proper, accurate and complete books and records and accounts of all transactions related to the Facilities including a log book at the site which shall contain inter alia the following details:

- (a) Reading from the different meters, indicators and recorders (including but not limited to consumption of energy, volume of sewage conveyed, operating times of the different items of equipment etc which may be updated on a daily basis); and
- (b) Report of visits by persons other than those of the Employer and the Contractor to the Facility.

Establish and maintain a weekly and monthly reporting system to provide storage and ready retrieval of operating data relating to the Facilities, including such information necessary to verify calculations made pursuant to these Conditions or the O & M Contract and provide the same to the Employer on a monthly basis.

Provide to the Employer or such persons notified by it access to the Facilities and to data in relation to the Facilities, at all times.

At the Employer's request, at the end of every month, make a copy of the system performance data for that month as recorded by the instrument and control system on floppy diskettes and printed document therefrom and deliver the same to the Employer with one week.

Provide support to the Employer to meet the data requirements of all competent authorities and under Applicable Law.

Reports

The Contractor shall provide the Employer with such reports as are required by the Employer and shall comply with all reporting requirements prescribed under these Conditions and the O & M Contract. In addition the Contractor shall submit the following information to the Employer:

Upon obtaining knowledge thereof, shall submit prompt written notice of:

- (i) any litigation or material claims, disputes or actions, threatened or filed, concerning the Facilities or the services to be performed hereunder;
- (ii) any refusal or threatened refusal to grant, renew or extend or any action pending or threatened that might affect the granting, renewal or extension of any clearance, permit or license;
- (iii) Notwithstanding the aforementioned materiality, all penalties or notices of violation issued by any authority under Applicable Law;

The Contractor shall promptly submit to the Employer any material information concerning new or significant aspects of the operations of the Facilities, any material complaint about the Facilities from any person or entity with a bona fide complaint who complains directly to the Contractor and, upon Employer's request, shall promptly submit any other information concerning the Facilities or the services performed by the Contractor.

The Employer may from time to time specify any changes to be made to any of the format of any report or plan required hereunder.

If the Contractor is required by any Applicable Law to produce any projection, report or any other document relating to the provision of the O & M Services of the Facilities or the Employer requests a report regarding other information relating to the Facilities, the Contractor shall prepare a draft of such document at the request of the Employer, as soon as practicable and in any event within any time limit prescribed by Applicable Law.

If the Contractor is required by any Applicable Law to produce any projection, report or any other document, it shall prepare such report diligently and submit the same to the Employer as soon as possible thereafter. Wherever practicable, such reports shall be submitted to the Employer for review [3] days before the same is issued. The Contractor shall take into account any comments or revisions proposed by the Employer thereon.

22.0 Procurement

The Contractor is responsible for the procurement of all goods and services necessary to ensure compliance with its obligations under these Conditions.

The Contractor shall procure spare parts, materials, supplies and other consumable items, and maintains an adequate inventory thereof Facilities.

23.0 DELAY DAMAGES

Performance Guarantees and Delay Damages

The Contractor shall operate and maintain the Facilities in accordance with:
The O & M Standard; and the Good Industry Practices.

In case of the failure of the Contractor to achieve each of the requirements mentioned in Price Schedule, he shall be liable to pay Liquidity Damages for each unit of shortfall.

24.0 Raw Sewage Quality:

An abstract of Raw Sewage Characteristics, the sewage samples were collected from different locations and analysed by BMC and average raw sewage characteristics for design purpose is considered as under:

BOD : 250 mg/L
COD : 500 mg/L
Suspended Solids : 350 mg/L
pH : 6.5 – 7.5
TKN : 30 to 35 mg/L
Phosphorus : 6-to 8 mg/L

The above parameters are for guidance only and BMC assumes no responsibility for the correctness of the same and it is the responsibility of bidder to carry out the sampling tests of raw sewage by themselves to ascertain the raw sewage quality for treatment process at no extra cost. The Employer will not be responsible for the above and no relaxation will be given to the guarantee conditions of desired treated effluent

25.0 Treated Sewage Quality:

The Contractor shall design the process in such a way that the treated sewage quality attains the following limits or even better:

BOD : <10 mg/L
COD : <100 mg/L
Suspended Solids : <10 mg/L
pH : 6.5-8.0
Total Phosphorus : <2 mg/L
Residual Chlorine : 0.5 mg/L
Fecal Coliform : \leq 500 MPN / 100 mL
Total Nitrogen (as N) : \leq 10 mg/l

Since Nutrients (Nitrogen and Phosphorus) if present in the treated sewage discharging into a Water Body encourage an abnormal increase in the growth (blooms) of Algae called Eutrophication which causes foul smells and odors as well as depletion of oxygen in the Water Body. So it is imperative that Nitrogen and Phosphorus also need to be removed before the treated sewage is discharged and Total Nitrogen (as N) \leq 10 mg/l and Total Phosphorus (as P) \leq 1 mg/l shall be ensured at the Outlet of Sequential Batch Reactors.

This Schedule may contain certain minimum performance that the Contractor must guarantee in terms of quality of treated water and maximum permissible parameter as per the standard prescribed by Gujarat Pollution Control Board – Central Pollution Control Board.

SCHEDULE-I

BANK GUARANTEE FOR EARNEST MONEY / SECURITY DEPOSIT

In consideration of the Municipal Corporation of the city of Bhavnagar(hereinafter to as the corporation) having agreed to exempt (hereinafter referred to as “the said Contract”) from the demand of security deposit / earnest money in cash for the due fulfilment of the terms and conditions of the agreement made between the corporation and the said contractor on _____ for _____ (hereinafter referred to us “the said agreement”) on production of Bank Guarantee for ₹ _____ Rupees _____ only.

We _____ Bank (hereinafter referred to as "Bank") do hereby undertake to pay to the Corporation as an amount not exceeding ₹ _____ Rupees _____ only on the demand from Corporation.

Any such demand on the bank shall be conclusive as regards as amount due and payable by the bank under this guarantee. However, liability of the bank under this agreement shall restrict to as amount not exceeding ₹ _____ Rupees _____ only.

We the bank further agree that the guarantee herein contain shall remain in full force and effect during the period that would be taken for the performance of the said agreement and that it shall continue to be enforceable till all the dues of the Corporation under or virtue of the said agreement have been paid and its claim satisfied or discharged and till a certificate to the effect has been received by the bank from the Corporation. However, unless the demand of claim under the guarantee is made to the bank in writing on or before the _____ (specify the date) the bank shall be discharged from all liabilities under this guarantee.

With the bank further with Corporation shall have fullest liberty, without the concert of the bank without effecting in any manner it obligations herein under to vary any of the terms and conditions of the said agreement or extend time for performance by the said contract from time to time or to postpone for any time or from time to time any of the powers exercisable by the Corporation against the said Contractor and to forbear to enforced any of the terms and conditions relating to the said agreement and the bank shall not be relieved from liability by reason of any such variation, or extension granted to the contractor for any forbearance, at all omission on the part of the Corporation or any indulgence by the Corporation to the said Contractor or by any such matter or thing whatsoever which under the law relating to sureties would, but this provision, have the effect of so relieving the Bank.

We _____ the bank undertake not to revoke the Guarantee during currency except with the previous consent of the Corporation in writing. Dated the _____ day of _____ of 20_____ For _____ Bank

SCHEDULE-II

Name of Party: - _____

Detail of the Bank Account:

- (1) Name of the Bank. :
- (2) Branch & Address :
- (3) MICR NO. :
- (4) Type Of Bank Account :
(SB/CURRENT/OD/ETC.)
- (5) Bank Account No. :
- (6) PAN No. :
- (7) IFS (R.T.G.S.) Code :
- (8) Amount Payable :

(ALL THE ABOVE DETAILS SHALL BE FURNISHED IN CAPITAL LETTER)

(ABOVE BANK DETAILS ARE TRUE AND CERTIFIED BY ME)

(SIGNATURE OF PARTY WITH STAMP)

SCHEDULE-III

PROFILE OF THE TENDERER

1. Name of the Company :
2. Type of the tenderer's firm:
3. Date of incorporation of firm:
4. Nature of main business of the firm:
5. Since when dealing the business of Comp. O&M
of water/waste water plant Monthyears.
6. Total No of employees on the (who can act as "key personnel")
7. Name and address and designation of contact person.

At head office/main office :
Telephone No. Fax No.
E-mail

SEAL OF THE COMPANY

SIGNATURE:
DESIGNATION:
DATE :

Note: This form must be submitted duly filled-in by the Tenderer.

SCHEDULE-IV

DATA SHEETS PERFORMA

IT IS MANDATORY TO FILL ALL THE DATA SHEETS BY E-TENDERER

PRE-QUALIFICATION DATA SHEET

Sr. No.	Details	Action	Reply (Yes/No)
1.	Tender fee and EMD	Attached Tender fee & EMD	
2.	Copy of PAN Card	Attached copy	
3.	Copy of Receipt of Current Year Professional Tax	Attached copy	
4.	Last three year IT return copy	Attached copy	
5.	The bidder must have GST registration and its copy to be enclosed with pre- qualification technical bid tender.	Attached certificate	
6.	<p>The bidder should must have work experience of comprehensive operation and maintenance SBR type Sewage Treatment Plant of minimum 22.5 MLD capacity in municipalities, municipal corporations, WATER SUPPLY BOARD, Semi government organization as per details given below:</p> <p>Experience of having successfully executed -</p> <p>a) The bidder should have one successfully completed work (i.e. as per mentioned above) costing not less than the amount equal to 80% (i.e. Rs. 2,24,53,949/-) of the estimated amount put to tender during last seven years.</p> <p style="text-align: center;">or</p> <p>b) The bidder(s) should have two similar completed works (i.e. as per mentioned above) costing each not less than the amount equal to 50% (i.e. Rs. 1,40,33,718/-) of the estimated amount put to tender during last seven years.</p> <p style="text-align: center;">or</p> <p>c) The bidder should have three similar completed works (i.e. as per mentioned above) costing each not less than the amount equal to 40% (i.e. Rs. 1,12,26,975/-) of the estimated amount put to tender during last seven years.</p> <p>Note: Performance Certificate from the Owner not below the level of H.O.D. that the plant has been satisfactorily operated and maintained.</p>	Attached copy of work orders and completion certificate.	
7.	The bidder should have an average turnover of minimum Rs. 1,40,33,718/- during the last 03 financial years (2019-20 to 2021-22). Necessary turnover certificate from C.A. and C.A. Certified balance sheets of last 03 financial	Attached copy of C.A. audited Balance sheet of last three financial years.	

	year, providing above requirement are to be furnished with the per- qualification technical bid.	Attached certificate of C.A. and hard copy submitted.	
8.	The bidder should submit a solvency certificate of Rs. 56,13,487 /- + amounts of works on hand. The solvency certificate issued shall not be more than one year old.	Attached solvency certificate	
9.	Current Financial Net Worth of the Bidder should not be less than Rs. 70,16,859/- (25% of Estimated Cost of the Tender.)	Attached Financial Net Worth Certificate	
10.	Bidder should have not made loss in the last 3 years (i.e. Financial Years - 2019-20 to 2021-22)	Attached required documents	
11.	Bidder should have positive cash flow in the last 3 years (i.e. Financial Years - 2019-20 to 2021-22)	Attached required documents	
12.	The bidder must have PF/EPF registration and labour license. Copies of the same shall be submitted with technical bid tender.	Attached registrations certificate and licence copy	
13.	The bidder should not have been Black Listed / Terminated / Debarred / by Government of India / Government of Gujarat or any State Board / Corporations, since inception of the firm / Company and must be clearly declared on Rs. 300/- notarized stamp paper. However, if in case of wrong declaration the bid shall be rejected at any stage and also resulting the forfeiture of E.M.D.	Attached affidavit	
14.	The bidder must have to submit notarised affidavit over Non judicial stamp paper of Rs.300 for document submitted by him is correct and genuine in every manner.	Attached the affidavit	
15.	Bidder must have minimum one year PLC-SCADA Machinery O&M work experience of WTP/STP of min. 22.5 MLD capacities.	Attached the experience	
16.	The bidder / firm in its own name should have registration in Class "B" with R&B, W.R.D. of Govt. department.	Attached registration	
17.	The bidder / firm in its own name should have Valid Electrical contractor license issued by Govt. department.	Attached license	

VOLUME - II
(Financial Bid)

-:On-line Price-bid Schedule format:-

Name of Work :-Comprehensive operation and maintenance work of 45 MLD SBR (Nr. Excel Industries, Behind Ruvapari Temple, Bhavnagar) including all mechanical, electrical & instrumentation equipments and machineries as per tender terms & conditions for the period of two years.

BREAK UP OF FIXED COST (Entire facility including 45 MLD STP and all proposed work under the scope of this tender)

Sr. No.	O & M Period	Man Power Costing in Rs.	Repairs / Replacement / Maintenance of Electro-mechanical, piping & instrumentation/automation works including Spares / Replacements, Consumables, Lubricants, Lab. Reagents, Glassware, etc. (in Rs.)	Repairs/Maintenance of all the civil units of 45 MLD STP including office building, civil structure / units, including Laboratory etc.,(in Rs.)	Total Fixed Cost In Rs. (A)
(1)	(2)	(3)	(4)	(5)	(6)
1.	1st Year	To be quoted on-line only	To be quoted on-line only	To be quoted on-line only	-
2.	2nd Year	To be quoted on-line only	To be quoted on-line only	To be quoted on-line only	-
SUB-TOTAL FOR 2 YEARS OF O&M		-	-	-	-

BREAK UP OF VARIABLE COSTS (SPS & STP site only, To be quoted for design flow and to be paid on actual flow on per MLD basis during O&M period)

Operation & Maintenance Period	Chlorine dosage Cost		Dewatering Poly-electrolyte Dosage Cost and Cost of the Other Chemicals including alum/Fecl3, etc.		Safe disposal of sludge, grit, screenings, etc. including transportation		Total Variable Cost In Rs. (B)
	Cost/MLD	Total Cost	Cost/MLD	Total Cost	Cost/MLD	Total Cost	
1st Year	To be quoted on-line only	-	To be quoted on-line only	-	To be quoted on-line only	-	-
2nd Year	To be quoted on-line only	-	To be quoted on-line only	-	To be quoted on-line only	-	-
Total Variable Cost in Rs. (B)	-	-	-	-	-	-	-

ABSTRACT OF O&M COST

Sr. No.	O & M Cost				
	O & M Period	Total Fixed Cost In Rs. (A)	Total Variable Cost In Rs. (B)	Total O & M Cost (A+B) (In Figures)	Total O & M Cost (A+B) (In Words)
1.	1st Year	-	-	-	-
2.	2nd Year	-	-	-	-
	TOTAL FOR 2 YEARS OF O&M	-	-	-	-

Note:

1. O&M cost above shall be inclusive cost of Chemicals & Chlorine and shall be also inclusive of cost for supply of manpower, repairs and maintenance of all units, spares, consumables, services of any expert as required, laboratory analysis including laboratory ware and chemicals, Lab Samples Bills of Pollution Control Boards and any other work required for smooth operation and maintenance of entire facility.
2. Sewage & Power shall be supplied by employer.
3. Cost of obtaining approval from statutory body for transportation & storage etc. charges for Chlorine / Chemical is also included in scope of contractor.
4. The rates quoted by the Tenderer shall be excluding applicable GST and including any other taxes/duties and levies etc.

Signature of Contractor:
Name:
Company's Seal:
Date:

Executive Engineer, Drainage Department
Bhavnagar Municipal Corporation
Bhavnagar