DNIT (Detail Notice Inviting Tender)

For “Construction of 0.75 MLD Sewage Treatment plant based on MBBR Technology at existing disposal site including operation and maintenance for period of 6 (six month)

AT

Shaheed Bhagat Singh State Technical Campus, SBSSTC , Moga Road , (NH-95), FEROZPUR, PIN - 152004

SBSSTC ,FERZOPUR - Pb.

Feb - March - 2015

NATIONAL COMPETITIVE BID

(LUMP SUM TURN KEY RATE TENDER)

Name of work :- " Design, Supply, construction, Installation,

and Commissioning of Sewage treatment plant based on moving bed biological reactor technology (Attached growth Process) of 0.75 MLD capacity complete in all respects with MCC panel room & all contingent Electrical , Mechanical , piping and instrumentation works including operation & maintenance for 6(six) months there-after at SBSSTC ,FEROZPUR,PUNJAB,INDIA

App. Cost	:	To be quoted by the bidder.
Time limit	:	One Year
Earnest Money	:	Rs. 1.25 Lac. (L.S)(Rs:One lac Twenty Five Thousand only).
Tender	:	

Name & address of the bidder to whom issued.

……...

……...

……...

Contact no. of Bidder …….....

Signature of the Supdt. / Issuing clerk.

Contractor Witness S.D.O

Shaheed Bhagat Singh state technical campus, FEROZPUR - Pb.,
NATIONAL COMPETITIVE BID

(LUMP SUM TURN KEY RATE TENDER)

BID DOCUMENT

OFFICE OF THE , The DIRECTOR ,
Shaheed Bhagat Singh state technical campus,
FEROZPUR(PB)

NAME OF WORK : " Design, Supply, construction, Installation, and Commissioning of Sewage treatment plant based on moving bed biological reactor technology (Attached growth Process) of 0.75 MLD capacity complete in all respects with MCC panel room & all contingent Electrical , Mechanical , piping and instrumentation works including operation & maintenance for 6(six) months thereafter at SBSSTC, FEROZPUR.

ESTIMATED COST	:	To be quoted by bidder.
EARNEST MONEY	:	Rs. 1.25 lac.
TIME LIMIT	:	One Year.

1. Name of Contractor:
2. Address :
3. Mobile :
4. Tender document cost receipt no.....Dated.....
Amt.....

Contractor Witness S.D.O

Shaheed Bhagat Singh State Technical Campus,
(Established BY Punjab Govt: in 1995)

TENDER NOTICE

Shaheed Bhagat Singh State Technical Campus, Invites Tenders on Lump Sum turn key for the below mentioned work from the eligible Contractors registered with Central/ State Government Departments / PSUs or Sales Tax Department .

Tenders complete in all respects should reach in the Office of The Director up to 11.00 A.M. on the date of opening as per schedule given below. The tender shall be opened in the office of The Director in the presence of contractors or their authorized representatives who may wishes to be present at that time.

District	Name of Work	Estimated Cost (Amt. in Rs.)	Earnest Money	document fee	Tender Time Allowed completion
FEROZPUR	" Design, Supply, construction, Installation and commissioning of sewage treatment plant based on moving bed biological reactor technology (Attached growth Process) of 0.75 MLD capacity complete in all respects . (ii)MCC panel room & all contingent Electrical , Mechanical , piping and instrumentation works with operation & maintenance for 6 (six) months thereafter at SBSSTC , FEROZPUR	To be quoted by the bidder.	Rs.1.25 Lac.(LS)	Rs. 500.00	12 months

SCHEDULE OF SHORT TIME TENDER

a) Date and Time of Submission of request for issue of tender document — from 16-02-2015 onwards
b) Date and Time of Issue of tender document — from 16-02-2015 onwards
c) Date and Time of Receipt of tender — up to 16-03-2015 .upto11.00 AM
d) Date and Time of Opening of the tender — 16-03-2015 at 12.30P.M
e) Date and Time of Submission of any Clarification in writing only. — Up to 25-02-2015

Contractor Witness S.D.O

1. The tender shall only be quoted on prescribed form obtainable from the office of the The Director office on cash payment of Rs 500/- (Non Refundable) or can be down loaded from the WEB web site www.sbsstc.ac.in after 13-02-2015.
2. Tenders can be purchased from the office of the undersigned or downloaded from college web site and shall be submitted in three envelopes clearly marked as ' PREQUALIFICATIONS'[Envelope'A'], 'EARNEST MONEY'[Envelope'B'], AND 'COMMERCIAL/PRICE BID'[Envelope'C'] respectively.

3. For any clarification / difficulty regarding tendering process bidders can contact

The Director , at SBSSTC , FEROZPUR.

4. The tender shall be submitted in person at the office of the Director . Tender submitted in any other form or to any other person in the college shall not be opened. The contractual agencies will have to submit the necessary documents along with tender as per tender document. If the date of opening of tenders is declared a holiday, tenders shall be opened on the next working day.

5. Only bidders having laid qualifying criteria need to bid ,otherwise the tender shall be rejected.

6. Tender document fee (if not purchased direct) must be paid through bank draft in The Director , SBSSTC , FEROZPUR Payable at FEROZPUR.

7. Joint Venture is also permitted.

THE DIRECTOR,
SBSSTC , FEROZPUR

Contractor Witness S.D.O

DETAILED NOTICE INVITING TENDERS

1. THE DIRECTOR , SBSSTC , FEROZPUR invites Tenders on Lump sum & item rate basis for the below mentioned work from the eligible contractors registered with Central / State Government departments or sales tax department .

Sr. No.	Name of the Work	Estimated Cost	Earnest Money	Tender Document Fee	Period of completion
1	2	3	4	5	6
1	"Design, Construction, erection, testing & Commissioning of Sewage treatment plant based on moving bed biological reactor technology (Attached growth Process) of 0.75 MLD capacity complete in all respects. MCC panel room & all contingent Electrical, Mechanical, piping and instrumentation works and operation & maintenance for 6(six) months thereafter at SBSSTC , FEROZPUR	To be quoted by bidder	Rs.1.25 Lac.(LS)	Rs.500/-	ONE YEAR

2. SCHEDULE OF SHORT TIME TENDER

a)	Date and Time of Submission of request for issue of tender document	from 13-02-2015 onwards
b)	Date and Time of Issue of tender document	from 13-02-2015 onwards
c)	Date and Time of Receipt of tender	up to 11-03-2015 .upto11.00 AM
d)	Date and Time of Opening of the tender	11-03-2015 at 12.30P.M
e)	Date and Time of Submission of any Clarification in writing only.	Up to 25-02-2015 .

3. The tender documents can be down loaded from our website www..sbsstc.ac.in
The down loaded documents from the website should not be tempered, and if any such tempering is detected before or after the opening of bids, the bidder shall be penalized and de-bared from tendering .In case tender documents are downloaded from our web site , the bidder shall enclose another bank draft for Rs.500.00 in favour of THE DIRECTOR ,SBSSTC payable at Ferozpur.

Contractor Witness S.D.O

4. Any corrigendum / addendum / corrections, if any shall be published on the website only. The bidders should keep checking the website.

5. Payment of Earnest Money Deposit has to be deposited through Bank FDR Pledge in the name of The Director ,SBSSTC, Ferozpur.

6. The tender shall be submitted by the bidder in the following three separate envelops :

Pre qualification documents[eligibility criteria] as per tender requirements and Receipt of cost of bid documents / DD for Rs. 500.00.	Envelope 'A'
Earnest Money.	Envelope 'B'
Commercial/Price Bid.	Envelope 'C'

7. On the date of receipt of bids Prequalification bid & earnest money envelopes [Envelope'A' & envelope 'B'] shall be opened and checked and evaluated. After the opening of the Prequalification bid and earnest money envelopes and after satisfaction of the eligibility of the bidder as per laid conditions and terms, the eligible bidders will be intimated the date and time of opening of commercial bid or can be opened on same day.

8. Bidders shall submit:
(i) either the receipt issued by the O/O the SBSSTC, FEROZPUR. proof of purchase of bid documents OR bank draft for Rs. 500.00(in case of downloaded documents.)
(ii) Earnest money in Form of FDR in favour of The director SBSSTC, FEROZPUR..
(iii) Self attested photo copy of all the papers of envelope 'A' i.e. Registration Certificate; PAN Card; VAT Number and all other documents /certificates as required in the eligibility criteria, without which the tenders shall not be considered and rejected.

10. Bids must be delivered to The Director , SBSSTC , FEROZPUR in his office before the time specified in the above table (as per server clock). In case bids are submitted through post does not take any responsibility for the delay caused and the bids received late shall not be entertained.

Contractor Witness S.D.O

11. Bid documents consisting of qualification information and eligibility criterion of bidders, plans, specifications, drawings, the schedule of quantities of the various classes of work to be done and the set of terms & conditions of contract to be complied with by the Contractor can be seen on website www. sbsstc .in and required documents for Pre qualification bid as prescribed in the bid documents. Conditional bids and the bids not meeting the qualifying criteria on the date of receipt of the bids shall be summarily rejected.

12. If the date of opening of tenders happens to be a public holiday, then the tenders will be opened on next working day at the same time and place.

13. The Director , SBSSTC , FEROZPUR reserves the right to reject any or all tenders without assigning any reason.

14. Eligibility Criteria:

15 : Technical eligibility Criteria. The bidder registered with any state /central Govt. Department / PSU or at least with sales tax department .
And must have successfully completed & commissioned at least:
One STP or ETP only of minimum 2.00 MLD or more capacity in any Government /Semi Government Department /Refinery/Thermal Power Plants ; based on any biological technology except waste stabilization/oxidation pond during the last 10 (TEN) years counted from the date of commission of the work.(No private work done accepted)

- **In case of joint venture(J.V)** :
- Only two Parties can participate in joint venture (M.O.U. to be Submitted)
- At least one party must have successfully competed 2.0MLD , STP as per above paragraph. (Certificate From Executive Engineer must be submitted)

16 : Financial eligibility criteria:
The bidder or one of the bidder in case of joint Venture
Must have 20 Lacs FDR with BANK to meet the Financial requirement of the project.
Certificate from bank must be submitted .
In case of JV one partner must full fill above eligibility.

Contractor Witness S.D.O

17 : The proof of PAN issued by Income Tax Department;

18: Undertaking that information being submitted is correct and true, and that any false information shall lead to disqualification at any stage.

19: The proof of his valid VAT Registration Number (TIN) issued by concerned Department;

20. The earnest money will be returned to un successful bidder within One month.

The Director , SBSSTC , FEROZPUR.

Contractor Witness S.D.O

SBSSTC , FEROZPUR

AGREEMENT

LUMP SUM TURN KEY RATE TENDER AND CONTRACT FOR WORKS.

-0-

Name of Contractor:

…….....

Name of work : " Design, Supply, construction, Installation, and

Commissioning of (i) Main pumping station (ii) sewage treatment plant based on moving bed biological reactor technology (Attached growth Process) of 0.75 MLD capacity complete in all respects with MCC panel room & all contingent Electrical , Mechanical , piping and instrumentation works including operation & maintenance for 6(six) months thereafter at SBSSTC , FEROZPUR,PB

This agreement made this day of ……..… between……...……. (herein after called the "Contractor") of the one part, and SBSSTC, Ferozpur through the The Director SBSSTC , FEROZPUR of the other part.

Whereas the contractor has offered to execute the above said work (mentioned against name of work) and accepted his tendered offer for the execution of afore mentioned works.

NOW THIS AGREEMENT WITNESSETH AS FOLLOWS

1. In this agreement, words and expressions shall have the same meanings as are respectively assigned to them. as per the general conditions of contract hereinafter referred to.
2. The following documents shall be deemed to form and be construed as part of this Agreement:
   (i) The "Notice Inviting Tender" & "Instructions to Tenders" as at Annexure 'A' to this agreement.
   (ii) " Memorandum" at Annexure 'B' to this agreement.
   (iii) " Definition and Conditions of contract" as at Annexure 'C' to this agreement.
   (iv) " Additional conditions" as at Annexure 'D' to this agreement.
   (iv) Scope of work as per vol. II of tender document.
   (v) Technical specifications as per Vol. II of tender document.
   (vii) Price bid as per vol. III of the tender document and submitted by the bidder.
3. The work will be executed strictly according to specifications and drawings relating to the work as indicated in the "Notice Inviting Tender". The schedule of items of work to be carried out will be as per approved "Notice Inviting Tender".
4. All correspondence and modifications of tendered offer and acceptance letter will form part of this Agreement.

Contractor Witness S.D.O

5. In considerations of the payments to be made by the The Director , SBSSTC , FEROZPUR to the contractor in respect of completed work the contractor hereby covenants with the SBSSTC , FEROZPUR to execute the work in conformity in all respects with the provisions of this Agreement.

6. The Director SBSSTC , FEROZPUR hereby covenants to pay the contractor, in consideration of execution of works, the price in the manner as specified in this tender as per the schedule of payments in timely manner. In witness thereof, the parties hereto set their respective hands and seals on the day and year first above written.

Signature of Contractor
Dated the……. Day of …….,. 2015
Signature of witness of Contractor's Signature

Name :……
Address:…….

Signed, sealed & delivered by …….. in the capacity of The Director SBSSTC , FEROZPUR, in …… presence of ……

Name & Address
,

1……..

2……

THE DIRECTOR

SBSSTC , FEROZPUR.,
[for & on behalf of

SBSSTC , FEROZPUR

Contractor Witness S.D.O

Annexure 'A'

SBSSTC , FEROZPUR PB.

'Notice Inviting Tender and Instructions to Bidder '

1. Tenders in the prescribed form are hereby invited on behalf of the SBSSTC , FEROZPUR for the Work :-

" Design, Supply, construction, Installation, and Commissioning of (i) Main pumping station (ii) sewage treatment plant based on moving bed biological reactor technology (Attached growth Process) of 0.75 MLD capacity complete in all respects with MCC panel room & all contingent Electrical , Mechanical , piping and instrumentation works including operation & maintenance for 6(six) months thereafter at SBSSTC , FEROZPUR

2. Envelope 'A' (qualification bid) & Envelope 'B' (Earnest money) will be opened by the Tender Committee , SBSSTC , FEROZPUR .In the O/O the Director on the very date of receipt of bids at 12.30 PM in the presence of any tenderer or their agents who may like to be present. The time allowed for completion of the work will commence from the date of issue of allotment letter to the contractor.

6. The tender should be based on Lump sum turnkey rate basis covering complete scope of work, all taxes and levies and all other contingent expenditures. For items not included in the said Schedule, but which may have to be executed to ensure completion as per drawings and specifications, the rates if contained in Pb. Common schedule of rates shall be paid OR the rates approved by the competent authority of the SBSSTC,FEROZPUR shall be paid.

7. Earnest money amounting to Rs. 1.25 Lac. must be furnished in the form of FDR in the name of the undersigned (by designation) and submitted with the tender in envelope 'B'. Any bid not accompanied with requisite earnest money in acceptable form shall be rejected.

8. The Contractor, whose tender is accepted shall be required to furnish security at the rate of 5% percent of the cost of the work by deduction from the running bills. The earnest money deposited with the bid will be treated as part of the security deposit.

9. The offer shall remain open for acceptance for a period of 60 days from the date of opening of the Tender. The earnest money shall be forfeited if the tenderer withdraws or modifies his offer within the validity period .

10. On acceptance of the tender, the contractor shall either himself remain available at site of work or arrange the availability of an accredited representative, fully authorized in writing, at the site of work to receive instructions of the Engineer-In-Charge or his representative and to ensure prompt compliance thereof.

11. Sales tax or any other tax (prevailing on the date of tendering or levied during the currency of the work)on the material shall be payable by the contractor at its level and the SBSSTC , FEROZPUR will neither entertain any claim or deduct such amount in this respect.

Contractor Witness S.D.O

12. Before filling this tender, the contractor shall visit the site and satisfy himself as to the conditions prevalent there , especially regarding repairs to the existing structures to be used in this work ,accessibility to the site, nature and extent of the ground, working conditions, stacking of materials, installations of Tools and Plants etc;. accommodation and movement of labour, supply of water and power for satisfactory completion of the works contract. No claim, whatsoever, on such accounts shall be entertained by the college in any circumstances.

13. All the taxes will be paid by the contractor .

14. The tenderer shall bear all costs associated with the preparation and submission of his tender and the college shall in no case be liable for these costs.

15. Each tenderer shall submit only one tender, either by himself or as joint partner in a f i r m / c o n c e r n . A tenderer who submits or participates in more than one tender, will be disqualified.

16. The contractor shall be bound to complete the whole work as described in the schedule of items of works" and the drawings, if any as per drawings and instructions submitted .
The certificate of completion as issued by the Engineer-in-charge shall be the conclusive proof of completion of work.

17. 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 sign on behalf of the tenderer. All pages of the tender documents containing the entries and all corrections or amendments made therein shall be initial by the person or persons signing the tender.

18. The following documents shall accompany the tender:

Pre qualification documents (eligibility criteria) as per tender requirements and Receipt of cost of bid documents / DD for Rs. 500.00.	Envelope 'A'
Earnest Money.	Envelope 'B'
Commercial / Price Bid	Envelope 'C'

19. Contractor/Bidders shall carefully examine the Tender Documents and fully converse themselves about all the conditions and matters, which may in any way, affect the work or the cost thereof. If the Contractor/Bidder finds discrepancies or omission in the specifications or other documents or should he be in doubt as to their meaning, he may discuss with The Director , SBSSTC , FEROZPUR during office hours on any working day before submitting his bid.

20. At any time prior to the deadline for submission of Bids, the Executive Engineer, may, for any reason, whether at his own initiative or in response to clarification requested by prospective Contractor/Bidders modify the Tender Documents by issuing Addenda.

21. Such Addenda will be sent to all prospective Contractor/Bidders who have received the Tender documents and will be binding upon them .The Contractor/Bidders shall duly sign and return the

Contractor Witness S.D.O

Addenda along with their Bids, which shall form a part of their Bids. Non-receipt of addenda by the Contractor/Bidders will not form basis for any claim whatsoever.

22. In order to afford prospective Contractor/Bidder's reasonable time in which to take such Addenda into account in preparing their Bids, The Director , may at his discretion extend the deadline for the submission of Bids.

23. No alteration what so ever be made in the text of the Bid form by the Contractor/Bidder. Any remark/deviation or explanation should be sent in a covering letter. The contract form of agreement is bound up with other documents so that the Contractor/Bidder may know what their liability and duties are and the entire Bid form should be submitted to the Engineer in charge, while submitting the Bid.

24. The Bid prepared by the Contractor/Bidder and all correspondence and Documents relating to the Bid exchanged by the Contractor/Bidder and the SDO / Engineer, shall be written in English Language. Supporting Documents and printed literature furnished by the Contractor/Bidder with his Bid may be in another language provided they are accompanied by an appropriate translation of the same into English language. The failure to comply with this condition may cause rejection of the bid. For the purpose of interpretation of the Bid, the text in the English language shall prevail.

25. The price bid should be submitted as per the Price Schedule and should conform to the scope of work, specifications, make and conditions given in Volume-II. The Price Bid will contain only Price and break-up for schedule of payment. Conditional Price bid shall be rejected and Contractor/Bidder will be disqualified.

26. Unless stated otherwise in the Tender Documents, the Contract shall be for the whole work as described in Vol.-II. (Scope of Work, Technical Specifications including Preliminary Drawings).

27. The Contractor/Bidder shall quote for the entire works on a "single responsibility" basis such that the total price covers all the Contractor's obligation mentioned in or to be reasonably inferred from the tender documents in respect of the design, drawings including procurement, delivery, construction, erection and completion of works. This includes all requirements under the Contractor's responsibilities for testing and commissioning of the works.

28. The unit rates and prices shall be quoted by the Contractor/Bidder entirely in Indian Rupees. All payments to the successful Contractor/Bidder under the proposed contract shall be made entirely in Indian Rupees (Rs.).

29. No extra interest except FDR own interest shall be reimbursed on Earnest Money as per FDR only .

30. If the Bid is made by a joint venture , it shall be signed by a duly authorized person holding power of Attorney for signing the Bid in which case a certified copy of the Power of Attorney shall accompany the Bid. All payments and income tax deduction will be done for main partner only .

Contractor Witness S.D.O

31. Bids determined to be substantially responsive will be checked by the office, for any arithmetical errors in computation and summation. Error will be corrected by the SDO/ Engineer, as follows:
Where there is a discrepancy between amount in figures and in words, lower amount will govern.

32. On completion of the works before issuing of the completion certificate by the Engineer-in-Charge the Contractor/ Bidder shall submit 3 (three) sets of as built drawings.

33. One set of drawings and all other documents relating to the works under contract shall be kept in the site office and made readily available for discussions, examinations of the Engineer or his representatives along with the testing equipment and machinery.

34. As soon as the allotment letter is issued to the Contractor/ Bidder, he will submit to the Engineer-in-Charge his program to complete the works by the time indicated in the contract, in the form of a Bar Chart for review of the Engineer-in-Charge and make suggested modifications before his approval of the same.

35. Contractor/ bidder is advised to read carefully all chapters and give complete information regarding his proposals, substantiating the same with calculations, drawings literature, with clear reference to any standards adopted (which are not mentioned in the tender), in such manner that there is no ambiguity or nothing is left to chance. All relevant information, so as to make the proposal understandable shall be given. Vague remarks and remarks like "will be given later" or " as per DNIT" are not acceptable. If in the opinion of the Engineer-in-charge, the proposal is grossly incomplete, this will form sufficient reason for complete rejection of the tender on technical grounds.

36. Contractor/ bidder shall note that this is a Lump sum rate turnkey based tender. The Contractor/Bidder shall give rate as per volume - III for evaluation of tender and to facilitate schedule of payments. He shall therefore take utmost precaution to offer very standard equipment manufactured by only reputed manufacturers (wherever the makes are specified in the DNIT, the same shall be offered).

37. The Contractor/Bidder should note that after the tenders are opened, all modifications, corrections, changes shall be carried out entirely to the satisfaction of the Engineer-in-Charge at no extra cost to The Director SBSSTC , FEROZPUR. The Contractor/ bidder shall not be allowed to change the price quoted on his own.

38. All the equipment/machinery supplied shall be guaranteed for twelve (12) months after the commissioning of work. All defects shall be rectified to the entire satisfaction of the Engineer-in-charge. Damaged or non-working parts shall be replaced at no extra cost to SBSSTC , FEROZPUR Defect liability shall be for a period of minimum 90(Ninety) days after the completion of work i.e. from the date of final checking testing and commissioning of the complete work.

39. Electric Connection or generator set required for the execution of work will be given by the department at his own expenses.

40. The submission of a tender by tendered implies that he has read this notice and the condition of contract and has made himself aware of the scope and specifications of work to be done and local

Contractor Witness S.D.O

41. The Bidder, at the Bidder's own responsibility and risk is encouraged to visit and examine the Site of Works and its surroundings and obtain all information that may be necessary for preparing the Bid and entering into a contract for construction of the Works. The cost of visiting the Site shall be at the Bidder's own expense.

42**.** No other document / drawing or calculation for sizes ; with Technical Bid need to submitted. All such drawing shall be prepared only after award of contract to lowest bidder as per DNIT .

43. BID EVALUATION
AS PER LUMP SUMP RATES ONLY.

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Price quoted by bidder : Capital cost of the STP is amount in Rupees Quoted by the bidder in price schedule.

Contractor Witness S.D.O

Annexure 'B'

SBSSTC , FEROZPUR - PB.

I/We hereby offer to execute for the SBSSTC , FEROZPUR the work, specified in the tender written memorandum within the time specified in such memorandum at. Rs..... i.e. at rates entered in the Schedule Price Bid of "Notice Inviting Tenders" and annexed hereto and in accordance, in all respect, with the specifications, designs, drawings and instructions in writing referred to in of the "Conditions of Contract" and with such materials as are provided for and in all other respects in accordance with such conditions so far as applicable.

MEMORANDUM

a) General description & ITEM: " Design, Supply, construction, Installation, and Commissioning of (i) Main pumping station (ii) sewage treatment plant based on moving bed biological reactor technology (Attached growth Process) of 0.75 MLD capacity complete in all respects with MCC panel room & all contingent Electrical , Mechanical , piping and instrumentation works and operation & maintenance for 6(six) months thereafter at SBSSTC , FEROZPUR

b) Cost of project Rs.....

c) Earnest money Rs. 1.25 lac. (Rs. one Lac twenty five thousand only .).L.S.

d) Security deposit 5% of the amount of the work executed OR

e) Percentage, if any, to be deducted from bills 5% of the amount of the work done.

f) Time allowed for one year from Issue of acceptance Letter, to the Contractor.

Should this offer be accepted in whole or in part, I/we hereby agree to abide by and full fill all the terms and provisions of the said conditions of contract annexed hereto and all the terms and provisions contained in the detailed "Notice Inviting Tender"

A sum of Rs. One Lac Twenty five thousand only is hereby forwarded in the shape of FDR in favour of The Director SBSSTC , FEROZPUR -PB. as Earnest money, I/we agree that the full value of Earnest money.

Dated the day of.....2015 Signature of the contractor.

Witness Address

Address & occupation…… The above offer is hereby accepted by me on behalf of THE DIRECTOR SBSSTC , FEROZPUR.

THE DIRECTOR ,

SBSSTC , FEROZPUR

Dated the---------- day of ----------2012.

Contractor Witness S.D.O

Annexure 'C'

SBSSTC , FEROZPUR - PB.

DEFINITIONS AND CLAUSE OF CONTRACT:

1. The "Contract" means the documents forming the tendered offer and acceptance thereof consisting a binding contract between The Director SBSSTC , FEROZPUR. and the contractor, the tender documents including the conditions, the drawings, design, the specifications supplemented with instructions issued from time to time by the SDO/Engineer- in-Charge and shall be binding on the parties in the stated order of precedence. All these documents taken together with the tendered offer and its acceptance shall be deemed to form the contract and shall be complementary to one another.
(S.B.S. College Of Engineering and Technology is SAME as SBSSTC)

2. The "Common Schedule of Rates" shall mean a printed document containing rates of different items of works pertaining to different Branches of P.W.D. i.e. Irrigation, B & R (Bldgs. & Roads Branch) and Public Health Branch and approved by the Committee of Direction of Chief Engineers of these P.W.D. Branches and Punjab Govt.

3. "Completed Works". shall mean the work completed in all respects as per laid down specifications, drawings, approved N.I.T.

4. The "Contractor" shall mean the individual or firm or company whether incorporated or not, undertaking the work and shall include the legal personal representative or the persons comprising such firm or company or the successors of such firm or company as well as the assignees of such individual or firm or company whose tendered offer has been accepted.

5. The 'completion date' is the date when the Engineer-in-charge certifies that the work can be put to use, after receipt of intimation from the contractor regarding its completion.

6. "Communication" between parties are the written and signed letters, notices, reminders, Memoranda and instructions recorded in the instructions book or books kept at site.

7. "Days & months" are calendar days and calendar months.
The "Engineer-in-charge" means the sub divisional officer, SBSSTC , FEROZPUR who shall supervise the work and administer the contract with the assistance of his authorized subordinates who shall be in charge of the work and who shall sign the contract on behalf of the ,

8. "The department OR The COLLEGE " shall mean the SBSSTC , FEROZPUR PB.
The "Site" shall mean the land and or other places, or, into or through which work is to be executed under the contract or any adjacent land, the or street which may be allowed to be used for the purpose of carrying out the contract.

9. The "Start date" is the date when contract came into existence upon the issue of "letter of acceptance" by the Engineer-in-charge.
"Schedule of items of works" shall mean the items of work to be executed at site of work if extra required to work allotted to the contractor.

10. The "Works or work" shall, unless the context otherwise requires, mean what the contractor is required to execute and hand over to the SBSSTC , FEROZPUR

11. In interpreting these "Conditions of contract", singular also means plural, male means female and vice versa.

Contractor Witness S.D.O

CLAUSES OF THE CONTRACT :

1) PERFORMANCE GUARANTEE AND SECURITY

CLAUSE-1 :The contractor whose tender is to be accepted, shall furnish:

1.1 A bank guarantee of Schedule Bank in the prescribed format in favour of the SBSSTC , FEROZPUR -in-charge for an amount of 5% of the amount of contract immediate after acceptance of tender valid up-to six months beyond the date of completion (Time limit)
or
the Security from bills will be deducted

1.2 The amount of security and Earnest money shall be released after expiry of one month from The date of commissioning of STP.
.

2) EXTENSION OF TIME:

CLAUSE-2:

If the contractor shall desire an extension of the time for completion of the work on the ground of his having been unavoidably hindered in its execution or any other ground, he shall apply in writing to the The Director within thirty days of the date of hindrance on account of which he desires such extension as aforesaid" and the reasonable grounds be shown therefore, authorize such extension of time as may in his opinion be necessary or proper.

3) COMPLETION CERTIFICATE:

CLAUSE-3 :

Within 30 days of the completion of work, the contractor shall give notice of such completion to the Engineer-in-Charge & within 30 days of the receipt of such notice, the Engineer-in-Charge shall inspect the work and if there is no defect in the work, shall furnish the contractor with a certificate of completion, otherwise a provisional certificate of completion indicating the defects (a) to be rectified by the contractor .

Contractor Witness S.D.O

4. WINDING UP OF THE CONTRACT:

CLAUSE-4:

On completion of the work, the contractor shall hand over the same to the Engineer-in-Charge or his authorized representative free from all defects, shortcomings or imperfections.
He shall also furnish the following documents duly signed by him or his authorized representative :.

(i) Completion drawings showing the work as finally constructed.

(ii) Variation statement showing the altered items, if any, against those provided in the original drawings.

(iii) Cement / Steel consumption register.

5) PAYMENT ON INTERMEDIATE CERTIFICATES REGARDED AS ADVANCES:

CLAUSE- 5 :

No running payment shall be made for work agreement costing Rs 3,00000.00 (Three lacs.) till the whole of the work shall have been completed and a certificate of completion given. But in the case of works agreement to cost more than rupees Ten Lac, the contractor shall on submitting a bill thereof be entitled to receive a monthly payment proportionate to the part thereof,
The final bills shall be submitted by the contractor within one month of the date fixed for completion of the work, otherwise the certificate of the SDO / Engineer-in-Charge as
regards measurements and the total amount payable for the work shall be final and binding.

6) BILL TO BE SUBMITTED MONTHLY:

CLAUSE-6 :

A bill shall be submitted by the contractor each month on or before the 10th or any other date fixed by Engineer-in-charge accompanied by the following documents:

6.1 Measurements and quantities of items of works done since last bill.

6.2 Copies of quality control tests in specified format covering the work done since last bill.

The SDO / Engineer-in-charge shall get the bill verified, if possible, within 10 days from its presentation and the contractor shall be required to sign the correction made, if any, in token of its acceptance, before releasing or adjusting the payable amount .If the contractor does not submit the bill within time limit or delays its submission or acceptance of correction after verifications, the entire responsibility for non-payment or delay in payment shall rest with him.

7) BILL TO BE ON PRINTED FORMS/EXTRA-ITEMS:

CLAUSE-7:

The contractor shall submit all bills on the printed forms to be had on application from the office of the Engineer-in-charge and the rates in the bills shall always be entered at the rates specified in the tender or in the case of any extra works ordered, in pursuance of these conditions and not mentioned or provided for in the tender, at the rates hereinafter provided for such works.

The contractor shall deliver in the office of Engineer-in-charge on or before the 10th day of every month during the continuation of the work covered by this contract, a return showing details of any work to be charged of extra with value based upon the rates and prices mentioned in the contract or in the common schedule of rates applicable to the location of work on the date of tender. The contractor shall include in such return particulars of all demands of whatever kind and howsoever arising, which at the date thereof he has in respect of or in any manner arising out of execution of work. The contractor shall be deemed to have waived off all claims not included in such return and will have no right to enforce any such claim not so included, whatsoever be the circumstances.

8) STORES, SUPPLIES, SECURED ADVANCE AND MOBILIZATION ADVANCE:

CLAUSE-8:

The contractor shall arrange all the schedule material required for construction and other required materials at his own cost and will bear all the taxes including transportation, loading, unloading, stacking, storage, safe custody against the damage due to sun, rain, dampness, fire, theft, etc.

8.1 The contractor shall procure all material from sources approved by Engineer-in-Charge in writing. All the materials brought to the site shall be duly accounted for by the contractor and got insured against loss due to any reason what so ever. Proof regarding this supported by the copies requisite document shall be regularly submitted to Engineer-in-Charge. The Director , SBSSTC , FEROZPUR.

8.2 The material procured by the contractor shall be strictly according to the specifications of the material conforming to ISI or any other approving authority applicable, Storage of the material should be as per approved norms.

9) MOBILIZATION ADVANCE:

CLAUSE-9: On application by the contractor, mobilization advance to the extent of 25% of the value of the work may be paid to the contractor after the full fillment of following conditions before payment:

9.1. The contractor shall have physically completed at least 5% of the value of work.

9.2. The contractor shall have collected at site usable machinery and materials valuing at least 5% of the value of works and the same shall be hypothecated to SDO/Engineer-in- Charge by designation.

9.3 The material shall not be pledged for obtaining secured advance.

10) DRAWINGS, ORDERS ETC. WORK TO BE EXECUTED IN ACCORDANCE WITH SPECIFICATIONS:

CLAUSE-10:

The contractor shall execute the whole and every part of the work in the most substantial and workman-like manner, both as regards materials and labour and otherwise in every respect in strict accordance with the DNIT specifications . The contractor shall also confirm exactly, fully and faithfully to the designs, drawings and instructions in writing relating to the work signed by the SDO/ Engineer-in-Charge and lodged in his office and to which the contractor shall be entitled to have access during the office hours or on the site of work.

11) CLAIMS FOR PAYMENT OF AN EXTRA ORDINARY NATURE TO BE REFERRED TO :

CLAUSE -11

No claim for payment of an extraordinary nature, such as claims for bonus, for extra labour employed in completing the work before the expiry of the contractual period at the request of Engineer in-Charge or claims for compensation where work has been temporarily brought to a standstill though no fault of the contractor, shall be allowed unless and to the extent that the same shall have been expressly sanctioned by The Director ,SBSSTC ,

All work under or in course of execution or executed in pursuance of the contract shall at all times be open to the inspection and supervision of the Engineer-in-Charge and his seniors/subordinates 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 SDO /Engineer-in-Charge or his seniors/subordinates to visit the works shall have been given to the contractor, either himself present to receive orders and instructions or have a responsible agent. duly accredited in writing present for that purpose. Orders given to a Contractor's agent shall be considered to have the same force as if they had been given to the contractor himself.

its authorized representative and the contractor in connection with or arising out of this contract or the execution of work there under.

12) CONTRACTOR TO SUPPLY MATERIALS, PLANT, SCAFFOLDING:

CLAUSE-12:

The contractor shall arrange and supply at his own cost all material such as cement, steel, bricks, PVC./GI/DI/CI pipes & specials ,plant, tools, appliances, implements, ladders, cordage, scaffolding, water and power supply and temporary works requisite or proper for effective execution of the work of STP only . All the sewer network already provided by the College and any other future pipe network will be done by college only .

13) CHANGE IN CONSTITUTION:
CLAUSE - 13

Where the Contractor is a partnership firm, the previous approval in writing of Engineer-in-charge shall be obtained before any change is made in -the constitution of the firm. Where the contractor is an individual or a Hindu-Undivided Family Business concern, such approval as aforesaid shall likewise be obtained before the contractor enters into any partnership agreement, where under the partnership firm would have the right to carry out the work hereby undertaken by the contractor.

The contractor shall give not less than one week notice in writing to the SDO / Engineer- in-Charge or his subordinate in-Charge of the work before covering up or otherwise placing beyond the reach of measurement any work in order that the same may be measured and correct dimensions thereof may be taken before the same is so covered up or placed beyond the reach of measurement and shall not cover up the place beyond the reach or measurement .

14. DISPUTES AND ARBITRATION:
CLAUSE -14

14.1 If any dispute or difference of any kind whatsoever shall arise between the SBSSTC , FEROZPUR and contractor ,The chairman SBSSTC will settle the matters .If due to any reason the department could not pay or not willing to pay the due amount as per the payment schedule ,contractor can approach any court of law.

14.2 Whether before its commencement or during the progress of works or after the termination abandonment or breach of the contract. It shall, in the first instance, be referred for settlement to the SDO / Engineer in-charge of the work and he shall, within a period of 15 days after being requested in writing by the contractor to do so convey his decision to the contractor. Such decision in respect of every matter so referred shall subject to arbitration as hereinafter provided be final and binding upon the contractor. In case the work is already- in progress, the contractor shall proceed with the execution of the work on receipt of the decision of the SDO / Engineer-in-charge as aforesaid with all due diligence, whether ,any of the parties require arbitration as hereinafter provided or not.

15. STORAGE OF CEMENT AND RECORD OF CONSUMPTION:

CLAUSE:- 15:

Cement bags arranged by the agency shall be stored in separate godown to be constructed by the, contractor. Each godown shall be provided with a single door and two locks. The keys of one lock each shall remain with the authorized representative of the College and the contractor at the site of work. Cement shall be taken out of the store according to daily requirement with the knowledge of both the parties and the account shall be maintained in the Performa as to be supplied by the Engineer in charge at the time of commencement of the work.

16) SPECIFICATIONS:

CLAUSE-16:

In the case of any class of work for which there is no specifications as mentioned in clause 11, the work shall be carried out in accordance with specifications laid down by the Bureau of Indian Standards and in the event of there being no such specifications, the work shall be carried out in all respects in accordance with the instructions and requirements of the SDO /Engineer-in-charge.

CONCRETE WORK :All the concrete work shall be design mix and have to be done with mechanical mixture unless permitted otherwise by the Engineer-in-charge. All R.C.C. work shall be compacted with a mechanical vibrator driven by petrol, diesel or electricity.

CURING OF CEMENT WORK: The contractor shall ensure proper curing of all work involving use of cement strictly as per stipulations of the Punjab P.W.D/BIS specifications. Since proper curing during the critical period has a direct bearing on the strength and safety of cement work, the Engineer-in-charge shall in the case of any default on the part of the contractor, take prompt action to arrange adequate curing at the cost of the contractor without issuing any prior notice in this respect, to avoid lapse of period of curing.

17. TAXES & LEVIES:

CLAUSE - 17

INCOME TAX :Income tax shall be deducted at source as per provisions of the Income Tax Act and a certificate of such deductions made in each financial year shall be furnished to the contractor by the officer.

SALES AND OTHER TAXES: Sales tax on Mechanical Items shall also be paid by Contractor to sales tax departments only.

ADDITIONAL CONDITIONS

1. The work shall be executed strictly in accordance with DNIT specification (latest edition correct up to date) to the entire satisfaction of the Engineer-in- charge coupled with provision that the various item of work will be carried out as per the specifications given in the NIT.

2. Should the tendered withdraw or modify his tender within 120 days from the date of opening of tenders or before allotment, whichever is earlier; his earnest money will be forfeited. In case the contractor does not start the work within a reasonable time after allotment, the Engineer-in-charge will be at liberty to de-bar the contractor for participating in tendering process in the collage for a particular period in addition of forfeiture of Earnest Money.

3. The contractor has to make his own arrangement for water, bricks, Cement, Steel. R.C.C./CI/PVS/DI/SW pipes & specials, wood work and every other item required directly or indirectly for completion of work.

4. No claim shall be entertained on account of increase in freight, price of labour and material or levy of any fresh tax during the currency of work or due to any cause what so ever. How ever if department delay the payment or fail to provide space in time then extra charges can be given. Actual quantities of completed/Accepted work will be paid for.

5. The rates given in the attached schedule of rates are inclusive of octroi incidental charges, terminal tax, sales tax / Vat, and other local taxes and any/ all other charges(prevailing on the date of tendering and levied during the currency of the work).

6. Material like cement, steel and pipes etc. are to be arranged by the contractor himself and payment for the work involves these items shall be based on documentary evidences based on invoices from the approved agencies as per chart given below:-.

Contractor Witness SDO

Cement: OPC cement of Vikram/ Shree/J.K/Ambuja /Birla/ACC make with the approval of the concerned Engineer-in-charge.

Steel : Fe500 grade TMT bars of RINL / TATA / SAIL / TISCO brand with the approval of the concerned Engineer-in-charge.

Any other item: As provided in the list of approved makes attached with this document and if not provided as per the approval of the concerned Engineer-in-charge.

7. The agency will arrange his own tools and plants and will make his own arrangement of water required for works i.e. for curing, watering earth before rolling etc., at his own cost. Nothing extra shall be paid for this purpose.

8. No carriage or incidental charges will be borne by SBSSTC , FEROZPUR. on any account.

9. The contractor shall provide at his cost and expenses all labour, materials etc., necessary for checking up of any portion of the work whenever required by the Engineer-in-charge or his staff and nothing etc. shall be paid for any /all labour or materials required. The rate to be quoted shall include the cost of all such works.

10. Over writing in tender is strictly forbidden & tender containing any doubtful figures shall be rejected. Correction if any, should properly be signed by the bidder.

11. For reinforced concrete work design mix can be adopted.

12. Income Tax shall be deducted as fixed by the Govt. From time to time from the running bills/payment of the contractor.

13. All arrangements for traffic during construction / maintenance shall be considered as part of the work and contractor's responsibility, nothing shall be payable to him on this account.

14. Any item got executed at site which is not included in the DNIT is payable to the contractor as under:

i) If it is CSR item it will be paid @ CSR+SP .

ii) If it is N.S. item it will be paid as per analysis of rates submitted by the contractor and approved by the competent Authority.

15. All required quality control tests will be performed and recorded in the test record register as advised by the Engineer of the contractor and this register will be presented to the Executive Engineer duly checked by Sub-divisional Engineer concerned before any payment is made to the contractor/society.

16. Before tendering, the contractor is advised in his own interest to visit the site and acquaint himself about the site conditions. No claim will be entertained later on any account whatsoever.

17. Validity of tender shall be 90 days.

18. The work shall be carried out according to the standard Drawings/design approved by SBSSTC , FEROZPUR The rate for all items of the work shall be tendered for the complete job work.

19. If at any time, it is proved that work is below specifications or inferior, the contractor shall be equally responsible with the college officials and contractor has to rectify the defect at his own cost .

20. Shifting of machinery by the contractor during currency of work shall be his own liability.

21. Tenders received telegraphically will not be accepted.

22. If there comes a holiday on the date of receipt opening of tenders the same shall be received & opened on the next working day at the same time.

23. Only authorized signatories of the firms/ contractors/ societies can apply for tender with proof of their being authorized signatory.

24. Tenderer should give his complete address, telephone number/mobile no. for correspondence.

Contractor Witness S.D.O

SECTION -2

ANNEXURE AND FORMS

ANNEXURE – 1

(TO BE ATTACHED WITH PRE –QUALIFICATION DOCUMENTS)

EXPERIENCE ON SIMILAR WORKS FOR PURPOSE OF TECHNICAL ELIGIBILITY CRITERIA.

(USE COPIES OF FORMAT FOR MORE THAN ONE WORKS)

(The bidder can use the following format)

(The certificate must be signed by Executive Engineer of the Department)

All individual firms are requested to complete the information in this form. Applicants should enclose testimonials/ Clients' certificates in support of their claim.(In case of foreign currency, the figures are to be given in relevant currency and Figures in INR may be worked out as per SBI Foreign Currency selling rates prevalent on 1.02.2015 .)

1. Identification Number of Contract

   Name of Contract

   Location of works

   Technology of STP work(Specify)

   Country

2. Name of Employer
3. Employer's address (Give telephone and fax, e-mail no.)
4. Nature of works

5. Value of the total contract
6. Date of award
7. Date of Completion
8. Contract duration (years and months)

NOTE: Similar work means work of sewage treatment plant on any technology except waste stabilization pond theory.

(contractor signature)

Contractor

Witness SDO

ANNEXURE -2

(TO be attached with Pre –Qualification documents)

EQUIPMENT AVAILABILITY OR ACCESS COMMITMENT

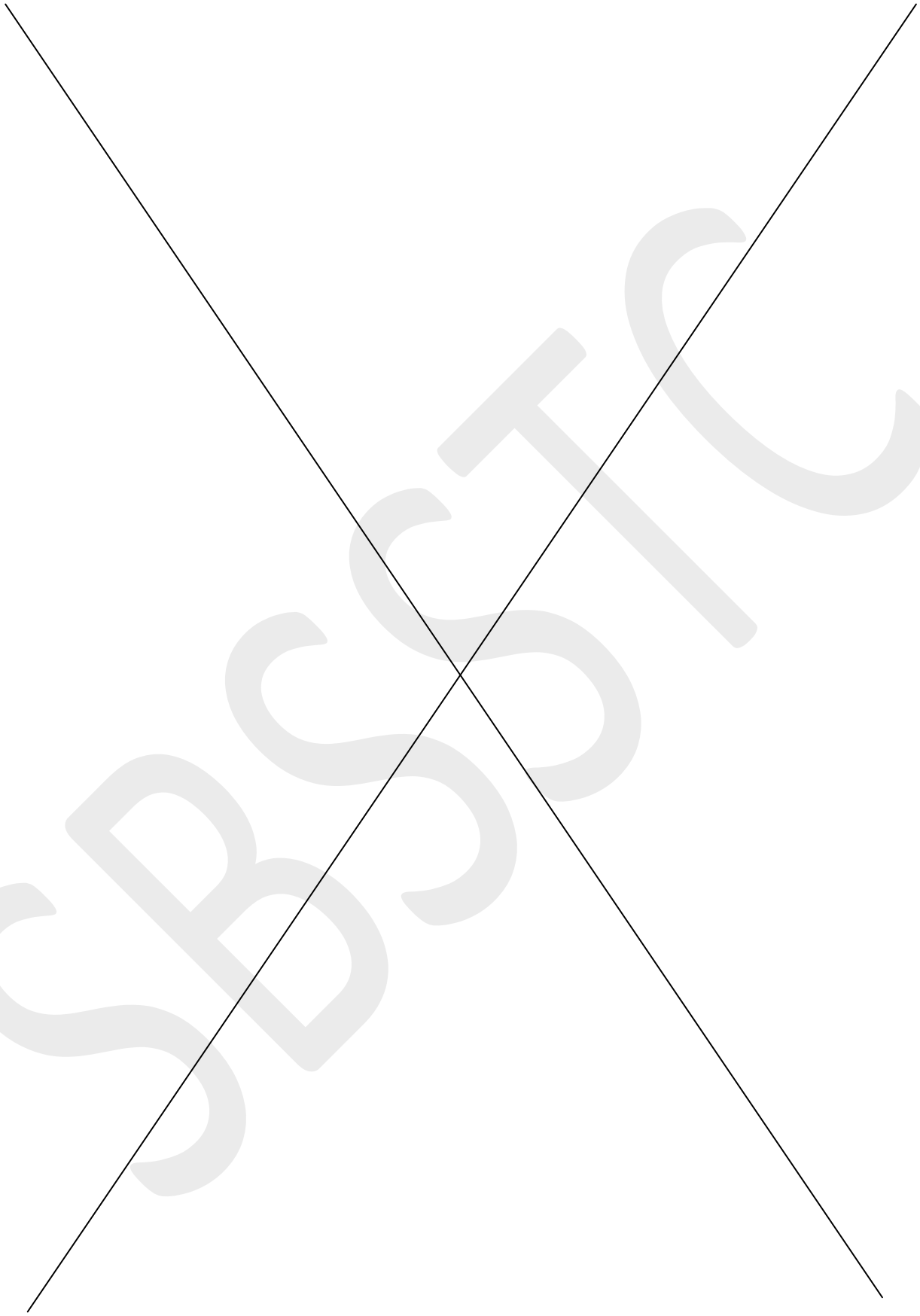
(A) FOR CONSTRUCTION

1. Steel shuttering ----------
2. Concrete mixer with hoppers ----------
3. Concrete Vibrators ----------
4. Pump Sets (for dewatering of sub soil water) ----------
5. G. I. Pipe line with specials ----------
6. Flexible pipe line ----------

Note: Only major equipment needs to be reported here.

(contractor signature)

Contractor Witness SDO



ANNEXURE - 3

(To be attached with Pre –Qualification documents)

FORMAT FOR EVIDENCE OF ACCESS TO OR AVAILABILITY OF OVERDRAFT/CREDIT FACILITIES

BANK CERTIFICATE

This is to certify that M/s ……..…… is a reputed company with a good financial standing.

If the contract for the Project/Work, namely "
……..……
…..... …… ……
……..." is awarded to the above firm, we shall be able to provide overdraft/credit facilities to the extent of INR …… to meet their working capital requirements for executing the above contract.

Name of the Bank ……:……

Senior Bank Manager :……..……..

Address of the Bank :……..

:……

……

Contractor Witness SDO

ANNEXURE – 4

(To be attached with Pre –Qualification documents)

UNDERTAKING

I, the undersigned do hereby undertake that our firm

M/s_____

_____

_____

__would invest a minimum cash up to Rs…..... lacs during implementation of the

Contract.

_____
(Signed by an Authorized Person of the Firm)

_____
Title of Authorized Person

_____
Name of Firm

Contractor Witness SDO

TENDER DOCUMENTS FOR " Design, Supply, construction, Installation, and Commissioning of Sewage treatment plant based on moving bed biological reactor technology (Attached growth Process) of0.75 MLD capacity complete in all respects with MCC panel room & all contingent Electrical , Mechanical , piping and instrumentation works including operation & maintenance for 6(six) months thereafter at **SBSSTC , FEROZPUR** ."

ON TURN KEY

BRIEF DESCRIPTION – SCOPE OF WORK AND TECHNICAL SPECIFICATIONS

(A) CIVIL WORKS

(B) E & M WORKS

OPERATION & MAINTENANCE

Contractor Witness SDO

Brief Scope of work and technical Specifications

VOLUME –II (PART 'A') – CIVIL WORKS

1.0 DETAIL OF WORK & SPECIFICATIONS: - This volume contains scope of the work and technical specifications for the bidder with respect to Civil works for the work of " Design, Supply, construction, Installation, and Commissioning of Sewage treatment plant based on moving bed biological reactor technology (Attached growth Process) of 0.75 MLD capacity complete in all respects
The tender is for turnkey job and the responsibility of the contractor will include all preparatory work, leveling and dressing of site, detailed design(hydraulic & structural), procurement, excavation work including de-watering and lowering of sub-soil water if required, disposal of all surplus earth at suitable site, civil works, testing and commissioning of MPS & STP and operation & maintenance during trial run /defect liability period for 90 days and operation & maintenance for 6 (Six) months thereafter at SBSSTC – Ferozpur.

1.1 LOCATION: SBSSTC , FEROZPUR highway and is about 5.00 Km From FEROZPUR bus stand and also from FEROZPUR railway station.

1.2 DISPOSAL WORKS : There exists sewerage system in the college campus and at present sewage is being treated with oxidation pond technology. The site is located on the back side in the end of the campus.

1.3 PROPOSED SITE FOR STP WORKS: The proposed STP shall be installed in the existing disposal site and its adjoining land. The existing pumping system need rejuvenation and the same is proposed to be covered in the scope of work of this project .One collecting tank exists at site and shall remain in use. The present use of machinery or area is included in the scope of this work.

1.4 ESTIMATION OF SEWAGE FLOW: STP will be designed for a flow of 0.75 MLD. However the provision for 0.25 MLD in term of space only to be made with site to consider the future requirement.

1.5 DESIGN & DRAWINGS:

a) A basic scheme for rejuvenation of main pumping station & for construction of sewage treatment plant is described in the scope of work. Site plan can be seen in the office of the director SBSSTC , FEROZPUR . The bidder shall quote his rates based on the scope of work. However, this shall not absolve the bidder from responsibility of performance of the assets created in this contract. The bidders are required to furnish the following documents along with bid at the time of award of contact.

i. Site Plan and Flow diagram / Plan layout.

ii. Hydraulic flow diagram .

1.6 The Scope of work for successful bidder includes:-

(a) Submission of all documents required according to the contract parameter.

(b) Submission of a guarantee that the treated effluent will correspond to the requirements given below.

1.7 Raw sewage & treated sewage characteristics:

For the design purpose for the proposed STP following parameters can to be adopted or Bidder can take sample at their own level .

Characteristics of Influent Sewage

Parameters	Influent sewage Characteristics
pH	6-8.0
TSS mg/l	200
COD mg/l	550
BOD mg/l	450
TDS mg/l	2000
O&G mg/l	5

Characteristics of the effluent (from final out let of STP)for the treated sewage for on land irrigation

Parameters	Effluent characteristics
pH	6.5-8.00
BOD mg/l	≤ 100
COD mg/l	≤ 200
TSS mg/l	≤ 50

1.8 Drawings.

(a) The agency shall submit the final lay-out plan, hydraulic flow diagram and general arrangement drawings of individual units for STP , within 20 days of issuance of letter of award. The bidder shall include the units of existing MPS to be used for the purpose in the drawings .

(b) Training of the college's operational staff for the operation & maintenance of MPS & STP in the last two months of the O&M period of 6(Six) months.

(c) The bidder should provide details of the manpower required for the operation and maintenance of MPS & STP.

(d) RESIDUE MANAGEMENT:

Disposal of Solid Waste: Solid waste shall be the property of the college ,however disposal of all solid waste including that from sludge drying beds as generated from the STP during construction, commissioning, and O & M shall be responsibility of the contractor and will be thrown at 10m distance

Grit and screenings: The evacuated grit and screenings are to be disposed from the site by the contractor at landfill site identified by the Engineer in charge from time to time and the rates cover this item.

1.9 MAIN PUMPING STATION & PLANT'S CAPACITY

NORMAL CONDITIONS:

Normal operation period	24 hrs.
Day discharge	0.75 MLD(STP)
Raw water pumps	32.0 kilo litre per hour [For each of 2 no.(2W) MPS
Sub soil water table	30.00 M below ground.
Invert level of incoming sewer	(-) 3.00 approximate Meter.
Inlet pipe dia.	As required
NGL	0.00 M

1.10 SCOPE OF WORK REQUIRED (CIVIL WORKS):

1.11 Design and engineer the STP to be operator friendly.
1.12 Design and engineer the STP for the operator's safety, health and hygiene.

****[Designed concrete will be minimum M-25 or more and steel Fe-500 grade for all Water retaining structures. For all other structures designed concrete will be minimum M-20 or more and steel Fe-500 grade.]

2.0 MAIN PUMPING STATION (Rejuvenation): the existing pump chamber can be used .

2.1. Screening channel for Coarse Fitting Screen :

Provide one set of coarse screens for the same. Coarse screen channel manually operated designed for flow of 1.0 MLD shall be provided. The details shall be as below;

Number	1
Material of fabrication of screens	MS-Epoxy coated .
Clear spacing between bars	30 mm.
Screen bar size	10mm x50 mm (10 mm facing toward the flow
Flow velocity	≤ 1.0 m /sec.

2.2 Raw sewage pumps:

The raw water pumps shall be SUBMERCIBLE or centrifugal, non-clog, solids handling (NC-SH) pumps with open impellers and shall be installed in the existing pump house. The NC-SH pumps shall be rated to handle solids up to even 30 mm size with an open impeller design.

Quantity	=	2 No. (2W) standby already exist.
Capacity of each pump	=	32.00 m3 / hour
Head	=	10m
Type	=	SUBMERCIBLE SLUDGE / SEWER PUMP, non-clog, solids handling .
MOC	=	As per detailed specifications of various components
Max .solid size	=	20 mm non compressible.
Drive	=	Electric driven by a Suitable motor.
Accessories	=	Panel, guide rail, chain , all suction and delivery pipes and specials such as bend ,tees , etc; valves , and cable of required length.

All the three no. pumps ,suction /delivery pipes & Valves etc; shall be adjusted in the existing pump house . Preferably the pumps shall be equipped with a Non Return Flap valve in the body itself, which functions as a normal foot valve

The delivery header of the pumps must conform to good piping engineering practice with necessary fittings for isolating the pumps for maintenance,

Sufficient space must be allowed around the pump for movement of operators and technicians for routine operation and maintenance activities.

2.3 Delivery header & Rising Main:

The delivery line of each pump & common header within the existing pump house shall be in MS or CI double flanged .

2.4 Sluice Valves:

Sluice Valves to be provided on the delivery side of each pump for isolation of the pumps. All other accessories, whether specified or not, but required for completeness shall form part of contractors scope.

3.0 SEWAGE TREATMENT PLANT (STP):

The components specified in this DNIT are the minimum requirement and are for the guidance purpose only. However this does not absolve the contractor from his responsibility of giving satisfactory performance and meeting desired discharge standards as specified in tender document. The contractor can add any other process / method/ machine from his own level to give satisfactory results.

3.1 Brief Description of units :

COMPONENTS	UNIT Minimum
Receiving chamber	One Number
Screening/screen channels (manual).	2(1W+1SB)
MBBR	TWO Reactors

Flocculation Tank with Polymer / Alum dosing tank	One No:
Secondary clarifier	One No:
Filter feed Sump	One No:
Filter feed pumps	4(3W+1SB)
Dual media Pressure filter or Self Clean Filter	Four nos: each 0.20 MLD each One no: 0.75 mld
Filter Back wash water pumps	2(1W+1SB)
Liquid Chlorine dosing tanks with Dosing Pumps	Two No:
Treated water collection cum chlorination tank	5000 litre Two No:
Treated Effluent pumping sets	2(all Working)
Sludge thickener feed pumps	2(1W+1SB)
Sludge thickener	One
Sludge holding tank	One
Sludge drying beds feed pumps	2(1W+1SB)
Sludge drying beds	Minimum 4 No.
Dry Sludge Platform	One
MCC Room	One.
Interconnecting pipes, gates, valves, weirs, valve chamber, channels for conveyance of wastewater, sludge and filtrate.	LOT
Stairs as per requirement	LOT
Railings along the walkways , platforms & stairs	LOT
External water system in the plant area	LOT
Painting to all the above units, wherever required	JOB
Distribution Network by gravity of PVC pipe 10 m length	JOB.

3.2 Receiving Chamber:

Receiving chamber will receive raw sewage from the raw sewage pumping station .Inlet chamber shall be designed for flow of 1.0 MLD. The entire construction will be in RCC M-25 (Minimum) . 100mm CI or G.I pipe with flanged sluice valve of same size for scouring during maintenance. There shall be a platform of 1.0m wide all around the receiving chamber with railing as per specifications.

Quantity = 1NO:

Total design flow = 1.00 MLD

Detention period = 45 seconds.

Min. free board = 0.5 m

Shape = Rectangular with L:B ratio around 2:1

3.3 Screening Channels:

There shall be two manually operated screening channels (one working and one stand by) each designed for peak flow considering design Flow = 1. 0 MLD. capacity. The materials of construction for screens shall be MSEP flat. The screens will have 6 mm clear spacing between two bars each of 10mm thickness & 25 mm depth . Designed velocity through screen shall be between 0.6 M/sec to 1.2 m/sec. Each screen channel shall have a down take CI DF (100mm) pipe with a S.V. to drain out sewage into a collecting chamber from where it will be discharged into the sump of main pumping station through external sewerage system.

The angle of inclination of the manual bar screen with the horizontal shall be 45 ^{0} to 60^{0}. The assembly (bars and frames by using ISLC, 75 mm x 40mm x 6mm) shall be installed in such a way that it can be installed and removed as and when required. The parts other than stainless steel shall be given two coats of epoxy paint.

There shall be a platform of 1.0m wide all around the screen chamber with railing as per specifications. RCC stairs 1.00 m wide for climbing up from ground level to platform and connecting inlet chamber ,screening chamber ,grit channel ,collecting sump & MBBR shall be provided. Hot dip galvanized or epoxy coated MS Chute for screening disposal up to tractor trolley level is to be provided. If all the structures cannot be approached with one stair , another RCC stair shall be provided for proper approach and as decided by the Engineer in Charge.

There shall be one number CI sluice gate at each inlet of the screen channel with manually operated gear to regulate the flow of raw sewage.

Free board Minim.: 500 mm.

Minimum channel length ahead of bar screens shall be = 3 x depth of flow OR 1.50 m whichever is greater.

All other accessories, whether specified or not , but required for completeness shall form part of contractors scope.

3.4 Grit Removal chamber:

The grit particles in the sewage need to removal to protect mechanical equipment from abrasion. Manually cleaned grit chamber should be provided with adequate capacity to store the grit between intervals of cleaning.

There shall be 2 numbers (one working & one stand by) Grit channels, operated manually and each designed at Flow = 1.00 MLD.

There shall be sufficient space for storage of two days grit in each grit channel. Floor shall have 1.0% slope towards the inlet of the grit channel having a hopper in the end with cast iron sluice valve of 150 mm diameter for withdrawal of grit at a suitable height in the tractor trolley for disposal.

Below the down take pipes a brick masonry collection chamber shall be constructed from where the spillage and drain water will be discharged into the external sewerage system.

There shall be 1.0 M wide platform all around the grit channel/chamber with pipe railing and cast iron rungs for going inside the chamber fro cleaning and maintenance purpose.

There shall be a suitable platform for operation of 150 mm diameter S.V. ISI marked at the hopper of grit chamber operation.

Proportional weir as flow control device to be provided in grit channels. Proportional weir shall have free fall so that it never works under submerged conditions.

Design Criteria

Design Flow for each channel unit (MLD)	=1.00 MLD
NO. of Units	= 2 (1 working +1 stand by)
Size of grit particle to be removed (mm)	= 0.16
Specific gravity of grit	= 2.60
Velocity controlled device at outlet	= Proportional weir
Free Board (m)	= 0.50 min.
Design temperature for sewage	= 20 degree C.

All other accessories, whether specified or not , but required for completeness shall form part of contractors scope.

3.5. MBBR feeder channel : for 0.75MLD

There shall be one collection sump of suitable size (Minim. 20 seconds HRT at designed flow) constructed in RCC M-30 (min. with 500 mm free board) and with 100 mm i/d CI D/F drain pipe with CI D/ F SV of the recommended make for scouring in a separate manhole . The sump shall be connected to MBBR for feeding the influent.

The bed level of this sump shall be so maintained that it is 30 cm. (minim.) above the FSL of the MBBR. This is to avoid the entry of media in the channel through the inlet pipe.

All other accessories, whether specified or not , but required for completeness shall form part of contractors scope.

3.6. Moving Bed Bio Reactor (Aerobic Attached Growth Bio film Reactor)for 0.75 MLD

The sewage shall be conveyed to MBBR unit for treatment. The concept underlying the MBBR is to provide continuously operating Bio-film reactor, which is non-clogable , does not require back washing and has a very low pressure drop. This is achieved by growing bio-film on smaller carrier elements that move along with the waste water in the reactor. The air stream constantly keeps the bio-media in suspension and at the same time provided required oxygen to the biomass. Reactor shall be designed for single stream operation with 2 reactors , liquid depth not less than 4.00 m and free board not less than 0.5 M.
The bioreactor shall be designed to treat the sewage with aerobic attached growth moving bed process.

The reactor shall be rectangular in shape and constructed in RCC (M-25) (minimum) of suitable size to take the organic and solid load in the raw sewage and to deliver consistently the outlet sewage quality as per treated waste water quality mentioned.

There shall be a 1.00 m wide platform with pipe railing with the reactors and a RCC Stair of 1.00 m width which can be common with the primary unit.

Reactor shall have minimum 100 mm diameter pipe in a separate valve pit having provision for extended rod with wheel for scouring. CI rungs in all valves chambers and reactor, for maintenance and shall be connected to common pit or sump for drainage of reactors in to the main sump by gravity. Suitable sieve shall be provided in scour pit to prevent escape of media.

There shall be suitable piping arrangement with valves/gates for by passing reactors.

The media shall be of PVC/ HDPE . The media quantity shall be adequate to provide sufficient surface area for maintaining the microbial strength as required achieving the quality. Nominal carrier dia. should be around 25 mm and depth equal to 10 mm.

The oxygen requirement for BOD removal shall not be less than 1.00 kg Oxygen/Kgs. of BOD_5 removed. The air quantity required shall be sufficient for maintaining minimum 2 PPM necessary dissolved oxygen at 20^0 C liquid temperature at all times . The diffusers used shall be suitable for coarse bubble air diffusion and for design purpose 0xygen transfer efficiency

shall be considered not more than 15%. The air agitation or diffusion is to be applied continuously to circulate the media and keep in suspension.

Cylindrical Sieves in SS-304 construction shall be provided at the outlet of each reactor to retain the media. The sieves shall be sized for max. flow.
The inflow & outflow in each compartment shall be opposite to each other . The launder shall be provided with suitably designed weir to maintain control on the water level in the MBBR.
After the launder the reactor can be connected to a Flocculation tank and then to secondary clarifier through pipe .

3.6.1 Diffusers & Air Blowers:

Diffusers (EPDM)shall be submerged coarse bubble, high transfer efficiency, low pressure type, low energy consumption, low maintenance, non buoyant type. The coarse aeration system with diffusers shall be so arranged to provide a mixing pattern that causes the media to be thoroughly mixed through the whole depth and area of the Toxic volume and shall prevent media from floating at the tank surface.
The entire piping for distribution of air in reactor shall be of G.I material only. All the pipes in reactor shall be of G.I B class.

The inlet arrangement to the reactors shall be provided in such a fashion so as to bypass one compartment and to bypass all the reactors, if so required.

3.6.2 Air blowers:

The air shall be supplied using positive displacement rotary type air blower .
minimum 3 in numbers (2 working + 1 Stand by) each of 50% capacity. The capacity and head for the blowers shall be decided on the basis of S.O.R. requirements of diffusers as specified elsewhere duly considering the losses between the governing point of delivery (diffusers) and the blowers.
Blowers shall be complete with motor and accessories like base frame, anti-vibratory pad, silencer, non-return valve, air filter, , silencer, etc; as per requirements.
Vibrations due to air blowers shall be minimum to avoid damage to structures.

3.7 TUBE SETTLER Clarifier:

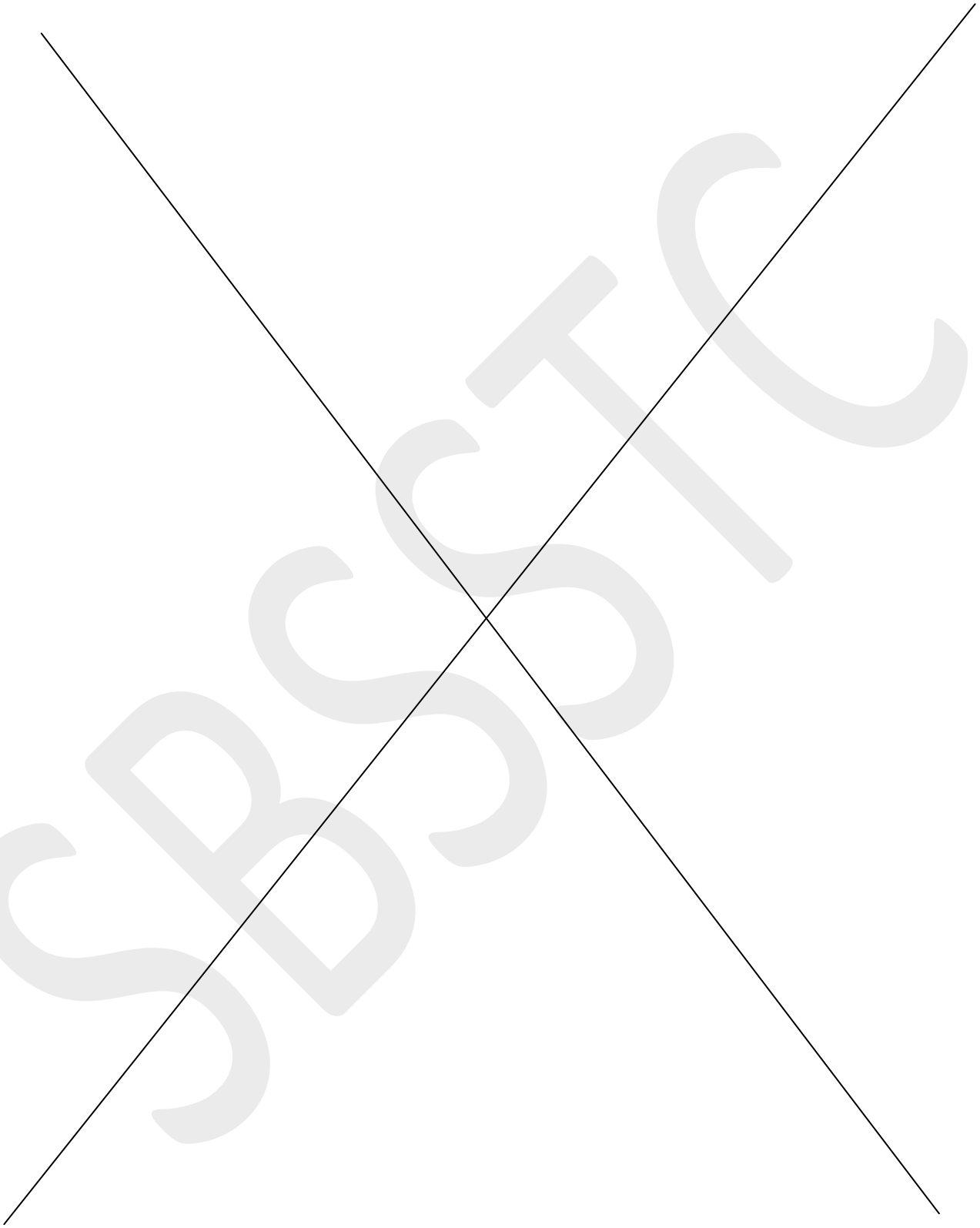
The clarifier should be designed for 0.75 MLD flow. The unit shall be constructed in RCC (M-25) with 30 mm thick IPS (1:1 ½ :3) smooth floor finish over the base slab. The flow shall enter in a RCC central pier with outlet ports at FSL and distributed radials in to the unit and outlet shall be through MSEP V-Notch type weir. The clarifier shall be designed at 20.00 cum/ sqm /day surface loading and solids loading at average flow @ 70 kg/day at 6000 MLSS with SWD not less than 3.00 M. The free board shall be 500 mm . Clarifier shall be provided with inlet GI pipe of suitable size with central column and inlet drum of diameter not less than 10% of clarifier diameter .
The tube settler media shall be of PVC made slanting wedge attached ; supported by M.S. Frame Box epoxy painted . The necessary supporting channel framed structure to be provided below the Tube media.

The sludge hopper will be designed to collect the sludge and allow moving towards drain pit with . The solids separated shall be drained out with established frequency for further disposal.

There shall be 150 mm diameter CI S.V. with sludge decanting system, telescopic type, for continuous sludge bleeding and scouring of the settling tank.

The valve shall be installed in a separate pit with rungs as provided in the MBBR as above.

Suitable bridge structure to be provided to access the central well.



Contractor Witness SDO

Other Specifications of Tube Settler :	Material RCC (M-25) (minimum)
Feed well	MS. EP
Bridge	MSEP
V-notch weir	Ms FRP/SS-316
Platform	MS Chequered plate/Grating
Handrail	40 NB MSPVC coated.
Vertical post	MS angle
Anchor Bolt	SS-316

Contractor Witness SDO

Fasteners – under water	SS-316
Fasteners – Above water	SS-316

All other accessories, whether specified or not , but required for completeness shall form part of contractors scope.

3.8 Filter feed sump :

Overflow water from the clarifier is collected in an intermediate clarified water sump or Tanks This tanks /sump acts as a buffer tank between the secondary and the tertiary treatment stages in an STP. The filter inlet sump made of RCC shall be provided to feed sewage to filter on continuous basis.

Design flow= 0.75 MLD

Number of units = 1

Detention time = 2 Hr.at designed flow

Free Board = 0.5 M

The platform 1000 mm wide with railing as per specifications shall be provided . The stair case minimum 1000 mm wide shall be provided for access from the ground level to the top of the unit and operating platforms.

The inlet and outlet pipes shall be designed for design flow + 25%.

All other accessories, whether specified or not , but required for completeness shall form part of contractors scope.

3.9 Filter feed pumps:

Filter feed pumps are used to take the water from the clarified water sump and pass it through the pressure sand filters or Self clean Micron Filter.

Type	=	Horizontal Centrifugal , slurry/turbid duty (open impeller type)
Working hours	=	18 hrs (per day)
Capacity	=	20 m^3 /hr.
No. of pumps	=	4 if sand filter Two No: if S.C. M. Filter with Suitable pump
Head	=	15 Meter.
Pumps installation platform	=	Pumps shall be installed on a concrete platform 60 cm higher that the level of nearest road and shall be covered with GI/fibre glass sheet as directed. The shed shall be extended in such a way that the pumps are protected from rain.

3.10 Pressure Sand filter: CAPACITY = 200 M3/day each , Quantity : 4 nos:

Or

SELF CLEAN MICRON FILTER , CAPACITY = 0.75MLD ,ONE NO:

The filters should be able to treat all the water that is decanted from the Secondary Clarifier tank. The following calculations show the filter capacity required for our STP.

put flow

parameter	Value/calculation	Remarks
Design throughput flow	200 m^3/day	Quantity of sewage to be handled by the STP on daily basis'
Design filtration hours	12 Hrs (per day)	6 Hrs. for rest and back washing etc;
Loading rate on filter	12m^3/m^2/hr.	Empirically taken optimum value ,to achieve filtration efficiency at minimum size of filter.
Depth of the sand layer	0.60 m to 0.75 m	By convention.

The pressure sand filter (PSF) is used as a tertiary treatment unit to trap the trace amounts of solids which escape the clarifier, and can typically handle up to 50 mg/l of solids in an economical manner.

The Filter vessel shall be designed as a pressure vessel (it consists of a straight cylindrical shell, with convex dish-shaped ends welded to the top and bottom). The vessel should be designed to withstand a pressure of 5 kg/cm^2. In this vessel, a bolted dish at the top for ease of maintenance shall be provided. A hand-hole of > 200 mm dia shall be provided at the bottom of the cylinder, to facilitate removal of media from the vessel at the time of servicing. A set of pipes, valves, bypass line, backwash

waste line etc. shall also provided to facilitate operations such as filtration, bypass (during servicing), backwash etc. Pressure gauges shall be provided at the inlet and outlet, to monitor the pressure drop across the filter.

The shell height shall typically vary between 1.2 m to 1.5 m .. Graded pebbles ranging from 0.5" to 1" are filled as bottom layers in the filter, up to a depth of nearly 0.5 -0.6 m. The

top layers consist of the filtering sand media (Coarse and fine sand) to a depth of 0.6 – 0.7 m. A freeboard of nearly 0.3 m above the level of sand shall be provided (to allow for expansion of sand during backwash).Necessary appurtenances shall be provided at the top for distributing the inflow uniformly across the cross-sectional area of the filter: similarly, a pipe manifold with laterals shall be fitted at the bottom as the under drain system.
The pressure filter shall be made of MS with FRP lining inside and epoxy coating outside to avoid corrosion. The overflow effluent channel/CI pipe of suitable capacity from unit shall be connected to inlet chamber by gravity.

Filter outlet shall be collected in Treated effluent cum chlorine contact tank by RCC Channel / CI pipe . Necessary piping arrangement to be done

All other accessories, whether specified or not , but required for completeness shall form part of contractors scope.

3.11 Sludge Sump & Pump house:

Sludge sump shall be provided to collect the sludge settled at the bottom of clarifier and to collect the back wash water from generated during the back wash of pressure filter. Sludge sump shall be circular or rectangular RCC structure and shall be connected through pipe with clarifier.
Minimum working depth of the sump shall be 1.0 m below the invert level of the incoming pipe. Top level of the sump shall be 60 cm above the Formation Level. The blending in the Sludge sump shall be arranged to ensure minimum surface loading of 12 cum/sq m/day for sludge thickener and this blended sludge be pumped using non clog submersible pumps 2 units (1W + 1 SB) in to sludge thickener. The sludge thickening and mechanical dewatering plant shall designed suitably so as to give 100% trouble free operation at all times

Sludge from the sump shall be pumped to the thickener by means of common rising main.

Sludge sump shall be constructed in M 30 grade concrete . Pumps shall be installed on a concrete platform 60 cm higher that the level of nearest road and shall be covered with GI/fibre glass sheet as directed. The shed shall be extended in such a way that the pumps are protected from rain. The platform shall be enclosed with PVC encased wire mesh up to 2.00 M height with a MS frame gate, the design for which shall be approved by the EIC .

Sludge sump shall be painted inside with appropriate abrasion and corrosion resistant paint .

Sludge pumps:

Type = Centrifugal type

No. of pumps = 2(1W+1SB)

Drive = Electric motor of suitable capacity

All other accessories, whether specified or not , but required for completeness shall form part of contractors scope.

3.12 Sludge thickener

The Sludge from the clarifiers shall be taken in to sludge sump of minimum 2 hours HRT with aeration facility for sludge mixing with clarified water drawn from clarified water sump to ensure surface loading minimum as 12 cum/sqm/day for sludge thickener and this blended sludge be pumped using non clog submersible pumps 2 units (1W + 1 SB) in to sludge thickener.

Thickener can be a circular RCC construction in M-25 (minimum) tank of suitable size material designed at 40 kg/sqm/day solids loadings. The excess sludge wasted shall be calculated for not < 0.50 kg/kg BOD_5 removed . 50% TSS shall be considered as non volatile solids with 4 –hours loading for peak flow for the design of thickener with mechanical scrapper .The tank shall be provided skimmer, trough, scum baffle , weir plate and sludge scrapping mechanism. Suitable piping and valve arrangement shall be done. Scum from thickener shall be taken to the thickened sludge holding sump. Mechanical scrapper shall be provided for increasing concentration of sludge from 1% to 3.50%. The supernatants shall be collected in the launders outside/inside the periphery of the tank and shall be carried to the sludge holding sump by gravity..

3.13 Thickener Mechanism (Central Driven fixed full bridge type)

Thickener Mechanism shall be suitable for installation in RCC tank of specified size. The mechanism shall comprise of the following main components.

- Bridge Superstructure spanning the tank diameter.
- Drive assembly complete with drive head, chain and sprocket, geared motor etc.
- Feed well
- Central Shaft
- Cone scraper
- Rake arms
- Tie rods for rake arms
- blades and squeegees
- Weir plate

Brief Technical Specification :

Bridge Superstructure

The shall span the entire diameter of the tank. The bridge shall rest on the clarifier wall at both the end. The bridge shall be of truss type welded steel construction with walkway of gratings/ chequered plates for the bridge and central platform. The truss bridge shall be provided with one row of the middle.

Drive Assembly with Drive Head

The central drive had shall rest on the bridge at the centre. The drive head shall be coupled to a geared motor through chain and sprocket and shall support the centre shaft at the bottom for rotating the rake arms. The service factor for the gear shall not be less than 2.5.

Feed Well

A fixed feed well shall be of hung from the bridge superstructure. The inlet feed pipe shall run under the bridge up to the feed well.

Central shaft

The centre shaft shall be of SS welded ERW pipe and shall be attached to the output shaft of the drive head. The centre shaft shall be bolted to the drive head at the top and shall support the rake arms at the bottom through torque frame.

Cone Scraper

A cone scraper shall be attached to the bottom of the centre shaft and shall serve to stir the sludge in the bottom hopper.

Rake Arms and Tie Rod

Two sets of rake arms shall be attached to the centre shaft torque cage in diametrically opposite direction through a hinged connection. The rate arms shall be attached to the centre shaft through tie rods with provision for adjustment of inclination of the rake arms. Each rake arms shall be provided with plough blades at the bottom and adjustable renewable squeegees for scraping of sludge.

Weir Plate

V-notch weirs of size 5mm thick x 150mm wide shall be provided along the periphery of thickener for uniform draw-off of the overflow. The weir plate shall be fixed to the tank wall by means of plate washers.

Inclusions.

All civil works along with anchor bolts, inserts etc.

All electrical, instrumentation and cabling including motor starters.

Inlet piping and sludge outlet piping.

Material of Construction :

Tank	RCC (M-25)(minimum)
Feed well	MSEP

Bridge	MSEP
Rake Arm	MS
Vertical shaft / Center cage	MS
Blades	SS-316
V-notch weir	FRP/SS-316
Squeegees	Neoprene
Walkway	MS Chequered plate/grating
Handrail	40 NB MSPVC coated.
Vertical post	CI
Scum skimmer	SS-316
Scum Box	SS-316
Scum Baffle	FRP
Anchor Bolt	SS-316
Fasteners – under water	SS-316
Fasteners – Above water	SS-316

3.14 Thickened Sludge holding sump:

There can be one thickened sludge holding sump of RCC M-25 as per IS :3370.Thickened sludge shall be collected in a sludge holding sump with mixing facility.

The Sludge from this sludge sump shall be pumped on the sludge drying beds with the help of non clog submersible pumps, 2 units (1 working + 1 standby). Pumps shall be installed on a concrete platform 60 cm higher that the level of nearest road and shall be covered with GI/fibre glass sheet as directed. The shed shall be extended in such a way that the pumps are protected from rain. The platform shall be enclosed with PVC encased wire mesh up to 2.00 M height with a MS frame gate, the design for which shall be approved by the EIC .

3.15 Sludge Drying beds (SDB) (minimum 2 No.)

Suitably sized Sludge drying beds constructed in brick work (1:4) with suitable drainage arrangements have to be designed for one complete cycle of 10 days. Flat brick lining in 1:5 cement sand mortar on 12.5mm thick 1:3 cement sand slurry is proposed at the bottom of sludge drying beds and necessary slope for drainage are to be achieved by grading the natural ground to required slopes. A 150mm thick layer of gravel having 30-50 mm size is spread on the brick lining which is followed by 150 mm thick layer of gravel having a size of 12-30mm. On top of this gravel layer, a 300 mm thick layer of sand having 0.3-0.7 mm size is laid.

The sludge thickness applied over sludge drying beds should not be more than 300mm. There should be access of 1.0 M concrete paved path from one side of each S D B s. The concrete paving on path shall consist of under layer of 100 mm thick CC 1:3:6 with stone ballast and covered with 150 mm thick upper layer of CC 1:2:4 .

3.16 Back Wash Water collection sump:

The waste water from pressure filter is to be collected to the back wash collection sump. This structure will be in RCC M-30 and the minimum size shall be 2.00 M x 2.00 M x 1.50 M. In case Self clean filter the sump and back wash pumps may not be required .It is the choice of the bidder to Provide self clean SS filter or Sand filter .The bidder has to quote the rate accordingly with one bid cost Only.

3.17. Back Wash Water pumps : The overflow of back wash water sump shall be transferred to the inlet of raw sewage pumping station by gravity and the solids collected at the bottom of the sump shall be transferred to the sump or chamber through pumping.

BACK WASH WATER PUMPS:

Type	= Horizontal Centrifugal type
Qty.	= 2(1W+1SB)
Capacity	= 10.00 m^3 /hr.
MOC	= The material of construction for all parts coming in contact with the liquid shall be of stainless steel of most appropriate grade and thickness.
Pumps installation platform	= Pumps shall be installed on a concrete platform 60 cm higher that the level of nearest road and shall be covered with GI/fibre glass sheet as directed. The shed shall be extended in such a way that the pumps are protected from rain.

3.18. Treated water Cum chlorination sump:

A treated water cum chlorine contact tank shall be provided with mixing arrangement for disinfection using Sodium Hypochlorite as disinfectant. The tank shall be constructed in civil . The baffle walls shall be provided to achieve proper disinfection. The baffle walls shall be constructed in brick masonry CM 1:4 and plastered with 20 mm thick cement plaster 1:2 on either side. The length /width ratio of this tank shall not be < 3.00 and the water depth not < 2.50 mtr.

The treated water is disinfected to destroy and render harmless disease-causing organisms, such as bacteria, viruses, etc. The common form of Chlorine to be used shall be Sodium Hypochlorite (Hypo) available commercially at 10-12 % strength, being safe, easy to handle and having a reasonable shelf life.
The Chlorine disinfection system shall consists of a Hypo-holding tank (size depending on the flow rate of the STP) and an electronically metered dosing pump. Hypo solution of desired concentration shall be prepared in the tank.
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Treated effluent from pressure filter shall be taken to the treated effluent cum chlorination sump through pipe/channel. The chlorinated effluent is to be used for horticultural purposes in the college campus .

Design flow	= 0.75 MLD
Number of units	= 1
Detention time	= 30 minutes for designed flow
Free board	= 1.00 M
Top of the tank	= open

3.19 MCC room (1 no.):

M.C.C. (Motor control center) room building:

The MCC room building shall be single storey brick masonry structure with RCC roof and shall accommodate MCC & PCC panels. Bidder shall consider following parameters for the preparation of lay out plan.

Unit	Minimum floor area
MCC Room	12.00 Sq. m
Clear height	3.0mtr.

3.20 Inter connecting Pipes, Gates, Valves, Channel etc;

All interconnecting Pipes, Gates, Valves, Channels for conveying wastewater/sludge from one unit to the other and also for bypassing various units shall be included in this scope of work.

Entire piping used for inter connection shall be GI/CI/DI . Internal pipe of MBBR shall be GI B CLASS .

All inter connecting pipes and channels shall be designed hydraulically for designed flow + 25%.

All valves & gates are manually operated.

All items of piping works for MPS & STP shall be inclusive of excavation in any type of strata, including supply, laying, jointing and testing of all pipelines, construction of sewer appurtenances and valve chambers, pipe support pedestals complete in all respects.

3.21 Stairs as per Requirement

RCC/MS staircase shall be provided to access all the platform provided/required for all the units above ground level. The tread width shall be minimum 250mm and c/c spacing between two consecutive treads shall not be more than 175 mm. The width of the staircase and their type shall be as approved by Engineer-in-charge before execution of the work.

3.22 Railing along Platforms and stairs:

Railing along all platforms and stairs shall consist of 40mm GI pipe class B (two rows) & height of railing 0.9 m with CI vertical posts at distance of 2.0 m c/c .The vertical pipe apart from painting shall be epoxy coated also.

3.23 External Sewerage System :

The external sewerage system consisting of GSW, GI/CI/DI pipes shall be provided for conveying the wastewater from all the units to the sump of Main pumping station. Required number of manholes shall be constructed as per drawings approved by Engineer-in-charge.

3.24 Painting, Whitewashing and Allied works

All the units/items/equipment of the MCC room shall be painted/ coated wherever required. All the internal surfaces of the walls, ceiling of the building shall be painted with synthetic enamel paint. All the external surfaces of the building shall be either brick faced or plastered with cement sand mortar 1:4 and outside with cement based paint.

The inner concrete surfaces of all the water retaining structures including channel shall except the reactor be painted (two coats) with approved make bitumen paint.

The reactor basin shall be painted with Epoxy.

All the CI/DI pipes and specials and other equipment shall be painted with two coats of approved make anti corrosive paints.

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4.0 SCOPE OF WORK SHALL ALSO REQUIRE ;

Operation and maintenance of plant(the assets created in this contract and the structures /machineries to be used from existing ones) for a period of 6 (six) months after testing and running the same successfully for 30 days during trial run /defect liability period.

5.0 Miscellaneous

1. All liquid retaining RCC structure should be M-25(minimum) designed mix with protective coating as required.
2. All PCC shall be minim. 10 cm thick M-15.
3. Internal lighting, exhaust fan, ceiling fan, cables, switchgears and other control equipment is in scope of contract.
4. Contractor will have to make own arrangement for water requirement during construction.
5. Contractor will have to make own arrangement for electricity requirement during construction.
6. All the reaction tanks/chambers with drain and filtrate shall be connected in such a way that the entire tank can be emptied and taken into main pumping station by gravity. There should be no necessity of filtrate pumps.
7. Pipe network for conveying water to various units/locations in the plant area, required during operation/maintenance of the plant is also covered in the scope of work. However, source of water shall be the college's responsibility.

6.0 Contract Limits:

1. Contract limits starts from the provision of inlet Submersible Pumps in the receiving chamber of STP to the Final outlet of filter .

2. Contract limit terminates at the laying of PVC delivery pipe of with up to 50 M from the filter pumps to on land irrigation.
3. All electrical cabling from main panel in MCC Room to various consumption points of STP area only.

7.0 Scope of Work For Operation & Maintenance Of MPS & STP:

NOTE: For this purpose apart from the assets created in this contract ,the existing structures /machineries to be used shall also be included in the term work.

On the completion of all work, the contractor shall run the MPS & STP (the assets created in this contract and the structures/machinery to be used from existing one)to stabilize the same for three months (90 days) before handing over the same to the college. at the cost of the contractor and produce the results specified in the NIT .

Contractor Witness SDO

Following points will be kept in view by the agency during O&M period and the cost of the same is also included in the scope of O&M work.

7.1 The MPS & STP and the space around various units shall be kept clean. Proper illumination will be ensured at night.

7.2 The contractor may employ qualified and trained employees as per the requirement of the SDO or Engineer in charge on contract basis. These employees whether they are employed by the agency directly or through any agency shall be the employees of the contractor for all purpose whatsoever and shall not be deemed to be in the employment of college for any purpose whatsoever.
Any repair to the structures damaged due to natural disaster e.g. earthquake/floods, shall be done by the college.

The incoming/treated sewage water shall be tested for the following parameters on daily basis and College may order analysis of treated water for parameter pH , Suspended solids , COD , BOD oil and grease etc.

Operation and maintenance of assets created by the contractor in this contract and also structures/machineries to be used from the existing ones will be done by him for 6 (six) months after completion and commissioning of the MPS & STP including. During these 90 days contractor shall also operate and maintain the assets created under this contract and also structures/machineries to be used from the existing ones.

The contractor will maintain a complaint register and rectify the complaint within 24 hours and report the compliance to SDO , SBSSTC . In case of

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Any instructions regarding operation of the scheme by the Engineer-in-charge or his representative from time to time shall be binding on the contractor.

Contractor Witness SDO

7.3 The contractor shall have to keep his maintenance/watch & ward staff round the clock at Disposal area.

7.4 The contractor is required to include the cost of work which has been left in the scope of work, but is essential for the successful completion & running of the MPS & STP. It will be sole responsibility of the contractor to achieve the parameters of the effluent indicated in this document.

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Contractor Witness SDO

SPECIFICATIONS

Note: Specifications for various jobs and Products / materials have been incorporated in this document. Bidders are requested to refer the relevant specifications only as per scope of work described in this document.

CIVIL WORK SPECIFICATIONS

1. Earthwork, Plain cement concrete, Reinforced Cement Concrete, Brick Masonry ,Plastering, Pipe laying, flooring,doors & windows. finishes & other contingent building works will be done as per standard procedure and guideline.

1.1 All surplus soil/earth shall be transported and disposed of as directed by the Engineer-in-charge . In case the excavated material falls short of requirement, the backfill soil/earth shall be taken from borrow pits approved by the Engineer in charge. The rates quoted by the contractor shall be deemed to be inclusive of all such works

1.2 A permanent baseline, cross lines & bench marks shall be established to serve as reference.

1.3 All excavated materials obtained from excavation shall be college's property.

Scope of Electrical & Mechanical Work

TECHNICAL SPECIFICATIONS

1. Scope of Work (Electrical & Mechanical)

General

This volume contains scope of the work & technical specification w.r.t. Electrical and Mechanical works for design, construction, erection, testing and commissioning of Sewage Treatment Plant of 0.75 MLD capacity based on M.B.B Reactor technology (attached Growth process) complete in all respect including operation and Maintenance for 90 days thereafter at SBSSTC, FEROZPUR.

Scope of Electrical & Mechanical works.

The components of E&M works of the MPS & Sewage Treatment Plant for the bidder are as under:

FOR MPS;

Providing, installing , testing & commissioning 2 no. Submersible / centrifugal type electric driven pump sets for sludge water each of 35.00 m^3/hr (per day) capacity and of head as per process flow sheet submitted by the bidder complete with all electric fittings such as panel board fittings , earthling etc; complete to enable the unit to run efficiently and successfully. .

2. FOR STP:

1. Fine and Coarse Screen
2. Grit chamber valve.
3. Air Blowers- 3No. [2W+1 SB] each of 50% capacity.
4. Aeration system, piping work etc; as per the specifications provided for.
5. Tube Media Mechanism—1 no.
6. Sludge Thickener Mechanism- 1no.
7. Submersible Sludge pumps for feeding sludge thickener —2no. (1W + 1 SB)
8. Sludge transfer pumps for pumping sludge in to drying beds -- 2no. (1W + 1 SB)
9. Hypo chlorite feed system—(1W+1SB)
10. Main Electrical Panel.

11. Electrical Cabling of stp only.
12. Earthing.
13. Plant lighting.
14. Distribution Boards.
15. Manufacture's manual for operation and maintenance of equipment supplied.
16. Supply of Equipment drawings, technical specifications and catalogue for each equipment supplied.

Brief description of some of the units is as under:

3.0 Pumping Machinery: -

The pump shall confirm to the specification as mentioned under mechanical items. Each pump will have independent suction pipe with sluice valve & an independent delivery pipeline with sluice valve, Non Return Valve, Expansion/ detaching joint up to common header shall be provided.

Raw Sewage Lifting Pumps:

There shall be 3No. (2W) of 32.00 m^3 / hr. capacity at suitably designed head. The raw water pumps shall be SUBMERCIBLE TYPE

4.0 Air Blowers:

This includes supply, erection, testing and commissioning of positive Displacement type rotary air blowers to be provided for supplying air to the bio reactors and sludge sumps. The working head for blowers shall be decided on the basis of maximum liquid depth in tank duly considering the losses between point of delivery (diffusers) and the blowers. Blowers shall be complete with electric motor and accessories like base frame ,anti-vibratory pad, silencer ,NRV, air filter etc; as per requirements. Vibrations due to operation of blowers should not da mage the structures. Further blowers should acoustic enclosure to ensure that the noise level at10.00 away from the blower is below 120 db. The header / rising main shall be adequately anchored suitably . The header shall be designed to supply required quantity of air to basins at various locations through air supply pipes. Air supply pipes above water level shall be of epoxy coated GI and below water level shall be of GI.

Rating : 3 nos. (2 working + 1 standby)

5.0 Flocculation Tank Mechanism:

This includes supply, erection, testing and commissioning of Flocculation Tank mechanism including pedals , electric dive unit with reduction gear suitable for installation in the RCC tank proposed by the bidder to meet the requirements specified in the scope of civil works.

Flocculation Tank Mechanism complete:1 Nos.

6.0. Tube Media Mechanism

This includes supply, erection, testing and commissioning of tube media mechanism suitable for installation in the RCC tank proposed by the bidder to meet the requirements specified in the scope of civil works.

7.0 Filter feed Pumps:

This includes supply, erection, testing and commissioning of Filter feed pumps of suitably designed capacity for feeding the effluent in to Pressure Filter provided by the bidder to meet the requirements specified in the scope of civil works.

Filter Feed pumps:: 4 Nos.

8.0Sludge Thickener Mechanism:

This includes supply, erection, testing and commissioning sludge thickener mechanism suitable for installation in the RCC tank (M-25) proposed by the bidder to meet the requirements specified in the scope of civil works.

Sludge Thickener Mechanism
(Central driven fixed full bridge type) : 1 No.

9.0 Hypo Mixing Mechanism:

This includes supply, erection, testing and commissioning of Hypo Chlorite mixing mechanism including pedals , electric dive unit with reduction gear suitable for installation in the Hypo tank proposed by the bidder to meet the requirements specified in the scope of civil works.

HYPO Solution preparation Mechanism complete:1 Nos.

10. Submersible Sludge Pumps:

This includes supply, erection, testing and commissioning of 2 Nos. (1 W + 1 SB) Sludge Pumps provided at the Sludge Sump. The details of the sludge pump is as follows:

No. of stations:1 No.

No. of pumps::2 Nos.

11. Sludge transfer pumps;

Sludge transfer pumps shall be provided to feed sludge to the sludge drying beds. The pumps can be screw type suitable for handling biological sludge of 2 to 2.5% solids consistency . Suitable platform and cover shed with FRP top shall be provided for these pumps.

Pumps capacity & head Sufficient for handling total sludge .

Type Screw type

Liquid to handle Bio-sludge of 3 to 3.50 consistency

Specific gravity1.03

Efficiency>30%

Installation mode Fixed

Quantity2 (1W+1SB)

12. Main Electrical Panel (MEP)

This includes supply, installation, testing and commissioning of STP Main Electrical Panel complete in all respects with suitable switchgear. It shall be provided with a mechanical interlock between the two incomers, metering, ACB's with S/C & O/L release, switch fuse units, lamps, bus bars etc. The accessories used shall conform to the latest IS codes.

STP-MEP:1 No.

13. Cabling, Cable Trays and Junction Boxes

This includes supply, erection, testing and commissioning of L.T. power & control cabling required for inter-connecting all the control panels/ light distribution board/Power Distribution Board to their respective sources and loads at STP. The cabling shall be complete in all respects. Civil works like construction of cable trenches with angles, chequered plates etc. are also included in the scope. Cable trays & junction boxes shall be installed to accommodate the cables wherever required.

Earthing works

This includes earthing arrangement of all ground exposed non-current carrying metal components of electrical equipment at STP.

14. **Earthing Works**

General specifications for cabling and earthing shall be as follows:

Cabling: This includes supply, erection, testing and commissioning of power panel & Control cabling required for inter-connecting all MPS. The cabling shall be complete in all respects. Civil works like construction of cable trenches with angles, chequered plates etc. are also included in the scope. Cable trays & junction boxes shall be installed to accommodate the cables wherever required.

Power & Control Cables:LOT
Junction Boxes:LOT
Cable Trays:LOT

Earthing: This includes the earthing arrangement of all ground-exposed non-current carrying metal components of electrical equipment, cable grounding conductors armour or shielding and enclosures . Earthing Works:LOT

15. FITTING OF MACHINERY

15.1 The Contractor shall provide the required cutting, drilling and welding etc. that will be required for the mechanical/electrical construction work.

15.2 Cutting and drilling of structural members shall not be permitted, except when approved by the Engineer-in-charge. A core drill shall be used wherever it is necessary to drill through concrete or masonry.

15.3 The Contractor shall provide the required welding for equipment supports as desired by Engineer in Charge.

15.4 Switch plates in designed areas shall be suitably engraved with a legend showing function or areas where required by Codes or shown on the drawings.

16. Painting

- Shop painting should conform to the standard requirements. All equipment shall be shop primed and finished with high-grade, oil-resistant acrylic enamel or other coating approved in writing by the Engineer-in-charge. Surfaces that will be in-accessible after assembly shall be painted or otherwise protected before assembly by a method that provides effective protection throughout the expected economic life of the equipment.
- Unless otherwise required in the detailed equipment specification, surfaces to be painted at the plant site shall be shop-painted with one or more coats of a primer, which will adequately protect the equipment until finishing coats are supplied at site.
- Machined and polished metallic surfaces that are not to be painted shall be coated with an approved rust-preventive compound.
- Before applying paint, the surfaces to be painted shall be cleaned and shall be free from rust, dust, oil etc. The painting shall be with two coats of zinc rich /chrome primer and two coats of finish paint. Each coat shall not be less than 50 micron.
- Contractor shall provide the required painting for all unfinished surfaces of electrical materials, including supports.
- All scratched or marred surfaces shall be refinished with touch up paint to match the original finish.

17 - Liability of the contractor

- The contractor shall obtain and pay for the required bonds, insurance's, licenses, permits and pay all taxes, fees and utility charges that shall be required for the works.
- If during the period of erection, Contractor or his workmen damage willingly or accidentally any part of the building structure or materials, the contractor shall be completely responsible for the damages and he will have to make rectification /replacement at his own cost.

- All equipment and materials shall be of latest design, and standard products of established manufacturers.
- The equipment approval at the factory only allows the manufacturer to ship the equipment to the project site. The contractor shall be responsible for the proper installation and satisfactory start-up operation of the equipment in accordance with the manufacturer's requirement and to the satisfaction of the Engineer-in-charge.
- Inspection of the equipment at the factory by the Engineer-in-charge will be made after the manufacturer has performed satisfactory checks, adjustment tests and operations.
- The contractor shall be absolutely and solely responsible for damages due to accidents, injuries or losses, occurring to any person and property by his sub- contractor, agents or employees involved on his behalf in the execution of the work.

List of Approved Makes for Major Items

S.NO.		APPROVED MAKES
1	Bus Bars	Marsh / L&T / Rotork/C.E
2	All Cables	L&T-C Power/Siemens-3wn6/Schneider- Master pact/
3	Motors	Kirloskar/C:Greaves/ABB
4	PUMPS	Kirloskar / Crom: Greaves/Grundfose
5	**BLOWERS**	Usha / Everest / BETA / Swan
6	CI Sluice Gate	PRINCE / Audco /Kartar / JALOTA
8	Paint	Berger, Asian Paints and
9.	Pipes	Jindal / Ravindra
10.	DI Pipes	Hindalco, Jindal, Mahavir,
11.	Diffusers	PPAQUA / MICRO /USHA/WELCOME
12.	Doors & Windows a) Aluminum Section b) Glass Section c) Hinges d) Laminated Board	Indian Aluminum , Modi, Saint Gobain Earl Bihari or equivalent Kit ply, Nova pan
13.	Dosing Pumps	PPAqua / Neuton
14.	WATER METER	Kranti / Hudco/Guru/

S.NO.	ITEM	APPROVED MAKES
15	Exhaust Fan	Bajaj / Crompton Greaves / GE / Khaitan
16	Fabrication of Aluminum Items	Hindalco, Jindal, Mahavir, Indian Aluminum
17	Glazed Tiles	Somany, Kajaria,Orient
18	HDPE Pipes	Reliance (Nocil) , Duraline, Hasti, Jain Irrigation
19	Indicating Lamps	L&T / Esbee / Siemens
20	Instrumentation	Forbes Marshall / Endress Hauser / ABB / Emerson / Toshniwal
21	a) Level Transmitter, Flow transmitter, Level Switch b) Air Flow Meter c) Wastewater Flow Meter d) Pressure Gauge	Fitzer Instruments / George Fitcher / Toshniwal Forbes Marshall / Endress Hauser / ABB / Emerson / Toshniwal H. Guru
22.	Knife Gate Valves	Fouress / BDK / Jash / Intervalve / VAG Valves / Audco / IVC
23	Luminaries	Wipro / Phillips / Crompton / Osram / SSK / Bajaj / Anchor / Havells
24.	MCC	ABB/L and T
25.	Mechanical Bar Screens	Jash / Voltas / Triveni / Huber/Champion
26.	Mechanical Detritor	Voltas / Triveni / HUBER/Champion
27.	Motors	Siemens / Crompton / Bharat Bijlee / Kirloskar Jyoti/NGEF/ALSTOM
28.	Moulded Case Circuit Breaker (MCCB)	L&T-DH / Schneider-NS / Siemens-Sentron / ABB-
29.	MS Open Channel Gate	Jash / Yashwant / Upadhyay / BIC / Oriental Castings Champion

- Engineer in charge can decide the make of the machinery or part

Cont: Witness SDO

/S.NO.	ITEM	APPROVED MAKES
30	Receptacles	Automation / Tata Honeywell / Alstom
31	Sanitary wares	Anchor / Kalinga / SSK / Crompton
32	Screw Pump	Hindware / Johnson / Parryware
33	Selector Switch	ROTO / Tushaco / Ramo
34	Sewage Pumps(Centrifugal)	L&T Salzer Kirloskar/Mather Platt/Beacon/KSB/Jyoti/Worthington
35	Single Phase Preventer Sluice Valves, NRV, Reflux Valves, Check	L&T / Minilec/prince
36	Valves, Butterfly Valves	Indian Valve Company (IVC) / Kirloskar / VAG Valves / BDK / Inter valve/champion
37	Structural Steel	SAIL/TATA/Rashtriya Ispaat Udyog
38	Submersible Raw Sewage Pumps	Kishor / Grundfos / KSB / Aqua / ABS / Kirloskar
39 40.	Volt and Ampere Meter with Selector Switch	L & T / Siemens / GE Kirloskar/Voltamp/Alstom/CROMPTON/BHEL KIRLOSKAR ELECTRIC Co.,Schnider, Crompton, Alstom ,L&T / Rishabh,
41.	Water Tanks	Sintex / Diplast
42	MBBR media	PPAQUA / Aqwise / Siemens.

NOTE: Though various options have been given to the bidder for quoting the rates , but the final choice of the brand shall lie with the SDO.

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Contractor Witness SDO

Volume - III

PRICE SCHEDULE
&
BREAK UP OF PAYMENTS

To Be Submitted with in
Envelope “C”

“ Design, Supply, construction, Installation, and Commissioning of Sewage treatment plant
based on moving bed biological reactor technology (Attached growth Process) of 0.75 MLD capacity complete in all respects with MCC panel room & all contingent Electrical , Mechanical , piping and instrumentation works including operation & maintenance for 6(six) months there-after at SBSSTC,FEROZPUR.

THE DIRECTOR ,
SBSSTC , FEROZPUR -PB.

Contractor Witness SDO

1.0 SCHEDULE OF PAYMENTS:

S.No. Particulars

A Sewage Treatment Plant

CIVIL WORK:

Design ,construction ,erection ,testing & commissioning of 0.75 MLD capacity sewage treatment plant based on moving bed biological reactor technology (attached growth process) complete in all respects including all contingent electrical, mechanical ,piping & instrumentation works at sewage treatment plant complete as described in the scope of work ,O& M of the unit for 90 days after the completion.

		% age of quoted price
1.1	On submission of Site plan /Hydraulic flow / Structural Drawings.	8%
On Completion of Civil unit :		
1.2	Inlet chamber and Screen Chamber	1%
1.3	Grit removal channels.	1%
1.4	Pre- Aeration Tank	16%
1.5	Sludge Drying Beds .	12%
1.6	MBBR tanks	24%
1.7	Secondary Tube settler clarifier	20%
1.8	Sludge sump	1%
1.9	Sludge thickener	5%
1.10	Thickened Sludge holding sump	1%
1.11	Sludge drying beds filling .	1 %
1.12	Treated Effluent cum chlorination tank	5%
1.13	On plant Commissioning	5%

		Total = 100%

Contractor Witness SDO

2.0 BREAK UP OF PAYMENT FOR SUPPLY & ERECTION OF MECHANICAL, ELECTRICAL MACHINERY ETC:

S.NO.	ITEMS	Percentage of Mechanical & Electrical quoted
2.1	Submission of design ,drawings.	20%
2.2	Supply of equipment at site of work	70%
2.3	Installation at desired place	5%
2.4	Testing & commissioning for 3 months	5%

(The mechanical work includes all types of specials, valves piping etc; along with other requirements for completion of the job.)

(While quoting the price for this job , contractor/bidder is requested to read whole of the document. The bid has been prepared with special format and font .)

THE DIRECTOR
SBSTCC , FEROZPUR-PB

2.0 PRICE BID : (TO BE QUOTED)

	SEWAGE TREATMENT PLANT	Total amount in INR (Rupees)
A	Design ,construction ,erection ,testing & commissioning of 0.75 MLD capacity sewage treatment plant based on moving bed biological reactor technology (attached growth process) complete in all respects including all contingent electrical, mechanical ,piping & instrumentation works at sewage treatment plant complete as described in scope of work (all inclusive)	.....
A-1	Complete civil work	.....
A-2	Complete mechanical work	.....
A-2	Complete electric work	

Total:.....
.....
.....
.....

Seal and signature of bidder: