TENDER DOCUMENT

Project Title : Setting up 150 KLD- Common Effluent Treatment Plant (CETP) at Block Printing Cluster in Ajrakhpur, Bhuj (Gujarat)

Tender No. Nitra/Pur/PT-3/2017-18

Ref.No. 2171

Sale of Tender Document & downloading (from www.nitratextile.org & https://tenders.gov.in	**Up to 19-07-2017 (11.30 am)**
Last date & time for acceptance of Tenders	**19-07-2017 up to 02.00 pm**
Date & time of opening of Technical bids & Technical presentation	**19-07-2017 from 02.30 pm**
Date & time of opening of Financial Bids	**Will be intimated later to eligible bidders**
Estimated value of the Tender	**Rs.88,00,000/-**
Place of submission of bids	**NITRA, Sector-23, Raj Nagar, Ghaziabad – 201 002**
Pre-Bid Meeting Time & Venue	**At 03.00 pm on 11-07-2017 at NITRA, Sector-23, Raj Nagar, Ghaziabad- 201 002**

NORTHERN INDIA TEXTILE RESEARCH ASSOCIATION

(Linked to Ministry of Textiles, Govt. of India)

SECTOR-23, RAJ NAGAR, GHAZIABAD-201 002 (U.P.), INDIA

Phone No: 0120-2786434/451, 2783334/586/592/638

Fax No: 0120-2783596, e mail: mail@nitratextile.org

Website : www.nitratextile.org

TENDER DOCUMENT

TECHNICAL BID

Name of the Work	**-**	**Setting up of 150 KLD - Common Effluent Treatment Plant (CETP) at Block Printing Cluster in Ajrakhpur, Bhuj, Gujarat**
Time of Completion	**-**	**6 (Six) months + 3 (Three) Months for Process Standardization**
Submitted By	**-**	**(Name of Bidder / Contract Company)**

INDEX

VOLUME – I

TECHNICAL BID

Name of the Work - Setting up of 150 KLD - Common Effluent Treatment Plant (CETP) at Block Printing Cluster in Ajrakhpur, Bhuj, Gujarat

CHAPTER - 1

INSTRUCTION TO BIDDER

1.0 GENERAL

1.1. Tender form may be downloaded from NITRA's website www.nitratextile.org or http://tenders.gov.in up to 19-07-2017 till 11.30 AM. Alternatively hard copy can be obtained from NITRA's office on depositing Rs.1,000/- (Rupees One Thousand) per copy.

1.2 Modifications if any of the above documents will be made by addenda / corrigenda through a notice on websites referred above before the due date of the tender.

The tenderer shall not make any additions / deletions to or amend the text of the documents except in so far as may be necessary to comply with any addenda / corrigenda issued. The tenderer shall use only tender documents as issued for submitting his Technical Bid, quote and shall comply to various terms and conditions.

1.3 E-mail, Fax, Telex or Telegraphic tenders shall not be entertained.

1.4 The tender shall be filled in & submitted in English only. All accompanying literature and correspondence shall also be in English.

1.5 No claim for costs, charges, expenses incurred by the tenderer in connection with preparation of tender submission and for subsequent clarifications of their tender shall be accepted.

1.6 **Bidders are required to submit Earnest Money Deposit minimum @ 2% of the 'Tender Value' (quoted) through a Demand Draft from any scheduled bank, favouring 'Northern India Textile Research Association' payable at Ghaziabad.**

Disqualified bidder/bidders will get back their EMD within 30 days from the date of opening of financial bid/bids. Demand Draft submitted towards EMD shall be returned after receipt of “Performance Bank Guarantee” from successful bidder.

1.7 NITRA reserves it right to alter, change, cancel partially or fully, rescind or modify the terms and conditions of tender without assigning any reason thereof.

2.0 TENDERER TO STUDY DOCUMENTS

2.1 Submission of the tender by the tenderer implies that he has read tender documents and has made himself aware of the specifications of equipment and the terms and conditions.

2.2 The tenderer shall be deemed to have full knowledge of documents and no extra charges consequent on any misunderstanding or otherwise shall be allowed.

2.3 Any question regarding the tender document and discrepancies shall be directed to the Tender Issuing Authority in writing minimum 10 days prior to the due date of submission of tender. The Tender Issuing Authority shall issue all clarifications, interpretations, meanings and specific directions if any in duplicate in writing to all the tenderers. **One copy of these shall be returned duly signed and seal affixed along with tender submission.**

3.0 SUFFICIENCY OF THE TENDERER

3.1 The tenderer shall be deemed to have satisfied himself before tendering as to the correctness and sufficiency of his tender and about the rates quoted by him and cover all his obligations under the tender.

4.0 METHOD OF TENDERING

Each and every paper of tender documents shall be signed by the authorized person(s) and seal affixed.

4.1.0 <u>Authority of signing</u>

4.1.1 If the tender is submitted by an individual, it shall be signed by him.

4.1.2 If the tender is submitted by a proprietary firm, it shall be signed by the proprietor.

4.1.3 If the tender is submitted by a partnership firm, it shall be signed by all the partners of the firm or by a partner holding the power of attorney for the firm for signing the tender, in which case, a certified copy of power of attorney shall accompany the tender.

4.1.4 If the tender is submitted by a limited company or a corporation, it shall be signed by a duly authorized person or the person holding the power of attorney for signing the tender, in which case a certified copy of the power of attorney shall accompany the tender.

4.1.5 All witnesses and sureties shall be persons of respectable status and probity and their full name, occupations and addresses shall be stated below their signatures.

4.2.0 Stating of Rates

4.2.1 The tender shall be filled in English with a neat hand / type and all the figures and words shall be legible.

4.2.2 The **sub-total and total cost** shall be written both in words and in figures. The tenderer shall also show the amount for each section and the grand total of the whole tender.

4.2.3 Correction if any shall be accepted if countersigned with date.

4.2.4 In case of conflict between the figures and words in the rates, the latter shall prevail.

4.2.5 The tenders will be verified for accuracy in the arithmetical calculations.

4.3.0 Packing and Submission

4.3.1 The tender shall be submitted on or before the due Date & Time and at the address given in Appendix-TF given in Tender Form. Any tender received after this date and time shall not be accepted. Tenders shall be packed, marked and sealed and submitted in original with documents listed below. **Tender shall be submitted in two separate sealed cover e.g. "Financial Bid" & "Technical Bid".**

4.3.2 Sealed cover "**Financial Bid**" shall contain the following:

a) Volume-II of the tender document.

b) Bill of Quantities duly completed with unit price.

c) The undertaking that Tender Form is duly completed signed and sealed for entering into agreement with terms and conditions for this contract.

d) Covering letter in duplicate bringing out the tenderer's reservations, if any, regarding compliance with the tender document and his own specific assumption, if any.

e) Bills/Schedule of Quantities duly completed with price which will be inclusive of all taxes (GST, if applicable, Service Tax, Sales Tax without 'C' Form/Concessional Rate), duties (Excise Duty, Custom Duty etc.) any other Govt. levies & all other charges (packing, forwarding, loading-unloading, erection and commissioning, insurance and any other incidental charges by whatever name called). No concessional Sales Tax Form will be provided.

f) **The optional items (page no. 157) are to be quoted separately. This shall not be a part of the final quote submitted by the bidders.**

4.3.3 It is necessary to fill the Tender Value precisely.

4.3.4 Validity of bid/bids (technical & financial) should be 180 Days.

4.3.5 Sealed cover **"Technical Bid"** shall contain

a) Volume-I of the tender document.

b) The detailed technical specifications/quantities are given in Volume-II of tender document. In the technical bid, the bidder shall submit a declaration form duly signed and sealed mentioning that he has read all the details as mentioned in Volume-II and shall comply to those requirements.

c) No financial quotes are to be submitted along with the technical details.

d) The list of clients with CETP/ETP capacity.

e) Profile of bidder's organization.

f) Copy of PAN Card

g) Copy of organization's registration certificate or equivalent document.

h) Other details as mentioned in the Eligibility Criteria (clause D on page 14).

i) Demand Draft, equivalent to 2% of tender value is to be submitted from any Scheduled Bank as EMD. The applicant without EMD will be out rightly disqualified.

j) The SSI Vendor/contractor/Bidder is exempted to deposit EMD. However, self attested copy of certificate is to be submitted if the Vendor/contractor/bidders registered as Micro and Small Enterprises with the Government.

k) DD of Rs.1,000/- towards the cost of tender document which should be in favor of 'Northern India Textile Research Association' payable at Ghaziabad, if tender document is downloaded from website. Otherwise copy of cash receipt is to be enclosed.

l) The bidder needs to give a presentation on project understanding & implementation methodology on Technical Bids opening date, i.e. 19.07.2017.

4.3.6 The sealed envelope containing covers '**Financial Bid' & 'Technical Bid'** as above shall be marked in the name of the **Chairman, Purchase Committee (for CETP), NITRA, Ghaziabad clearly indicating the name of the project/work for which the bid is submitted.**

5.0 TENDER TO BE VALID FOR

Rates quoted by the tenderer shall be valid for a period as given in Appendix-TF from the date of submission or till an extended date mutually as agreed on expiry of the said period.

The Tenderer shall not withdraw or revise or alter any conditions, rate(s) quoted within the stated period, unless he is called upon to do so in mutual agreement /

negotiations. NITRA reserves the right to cancel the bid if the tenderer revokes or withdraws the tender within a stated period.

5.1 OPENING OF TENDER

5.1.1 The tender shall be opened by the Purchase Committee NITRA on the designated date and time in the confidence or event of any change in the date and time of tender opening, the same would be informed to the tenderer through public notice or individual correspondence

6.0 AGREEMENT

6.1 The successful tenderer shall be bound to implement the contract on receipt of intimation of acceptance from the Purchase Committee, NITRA.

6.2 The successful tenderer shall bear stamp duty and other expenses pertaining to preparation and execution of contract document / agreement.

7.0 PROCEDURE FOR REJECTION

7.1 The Purchase Committee, NITRA Ghaziabad reserves the right to accept or reject any tender or reject all tenders without giving any reasons for their decision.

7.2 Tenders are liable to be rejected in which any of the particulars / prescribed information is either missing or incomplete in any respect and or if the prescribed conditions are not fulfilled.

7.3 Canvassing in connection with tender is strictly prohibited and tender submitted by tenderers who resort to canvassing will be liable to rejection.

7.4 Tenders containing uncalled remarks or any additional conditions are liable to be rejected. Tenderer can bring out in his / their covering letter along with submission of tender cover “Financial Bid”, his / their’s any reservations, additions, omissions, and assumptions they might have made while pricing the tender. Tender Issuing Authority reserves the right to ignore such additions, deletion other than brought out in covering letter packed in cover “Financial Bid”, by the tenderer. Decision of the Purchase Committee NITRA, Ghaziabad, in this regard shall be final and any non-compliance shall reject the bid.

APPENDIX - TF

Sr. No.	Particulars	Remarks
1	**Validity of Tender**	180 days
2	Address, date and time of submission of the Tender Documents.	The Chairman, Purchase Committee (for CETP), NITRA, Sector-23, Raj Nagar, Ghaziabad, U.P.- 201002, India. UP to 2.00 pm 19-07-2017
3	Supply/ construction/fabrication/ erection, installation and commissioning of the CETP	Within 6 months from the date of placement of order or advance paid failing which order may be cancelled.
4	Period of warranty / guarantee of Related machines.	1 Year
5	Submission of the Programme for delivery.	Within 21 days from the date of the acceptance of the order placed.

SEAL AND SIGNATURE OF TENDERER

* * * * * * * * *

DECLARATION FORM

The Chairman
Purchase Committee (for CETP)
NITRA
Ghaziabad.

Sub: Tender for Setting up of 150 KLD- Common Effluent Treatment Plant (CETP) at Block Printing Cluster in Ajrakhpur, Bhuj, Gujarat

Dear Sir,

I/We hereby undertake that I/we have read all the details as mentioned in Volume-II and shall comply to those requirement.

Yours faithfully,

Signature_____

In the capacity of _____ duly authorized to sign the tender for and on behalf of M/s_____

WITNESS:

Address _____
_____

Signature_____

TERMS AND CONDITIONS

1. Before submissions of the tender, the prospective bidders are expected to examine Technical Specifications of the equipment/machineries allied items required, terms and conditions, etc., given in the Tender Documents. Failure to furnish all information required by the Tender documents may result in the rejection of the bid. Detailed specifications of the items tendered and other accessories should be given, in the bid.

2. The descriptive leaflet giving the technical details of the related equipment/ machineries allied items should be supplied along with the quotation.

3. All accessories required for using the main equipment/machinery to make it fully operational for production are to be specified.

4. The Vendor/contractor/bidder should provide both theoretical and practical training after commissioning the machinery or at an appropriate stage.

5. In the Financial Bid, the Bidders shall indicate the prices of material & services proposed to supply under the contract. All costs shall be inclusive of all taxes, duties, charges and levies of State or Central Governments, as applicable, at the time of submitting the financial bids. No concessional form will be provided by the NITRA. In case of upward revision to duties and taxes the Bidder will be responsible to incur the additional cost. The Bidder has to include all costs like Travel, Lodging and Boarding, Local Travel expenses etc. Incurred during the implementation and NITRA will not bear any additional costs on these. Break-up of cost may be given.

6. All material should be under Insurance coverage at the time of despatch till the time of completion of the project and handing over to NITRA.

7. Successful Bidder needs to submit a Performance Bank Guarantee of 10% of the contract value from any scheduled bank in favour of NITRA before release of advance payment on following terms:

   a) Amount will be 10% of the Contract Value

   b) Validity of the bank guarantee should be of one year i.e. Work completion period (6 months) + Process Standardization Period (3 Months) + 90 days

   c) If the work is not completed within the stipulated period as per the terms of the contract, the Bank guarantee should be extended for such period.

8. The terms of payment shall be as under :

   a) 20% of the contract value will be paid as advance against confirmation of orders and after submission of Performance Bank Guarantee.

   b) 25% of the contract value will be paid on receiving of all the material at site after pre-despatch inspection (wherever necessary) and certification of the equipment/items to be supplied.

   c) 25% of the contract value will be paid on completion of erection of CETP at site.

d) 20% of the contract value will be paid on completion of hydraulic and dynamic testing, equipment confirmation and plant operation and result confirming to the standard as mentioned in the tender document.

e) Balance 10% payment will be made after completion of the work in all respect duly certified by the NITRA's authorised representative.

9. Construction/fabrication/erection of the CETP should be as per the commitment from the date of receipt of initial payment against acceptance of order.

10. Validity of the tender should be available up to 180 days. The tender may be rejected if the validity is not given up to 180 days.

11. The Vendor/contractor should take responsibility for construction/fabrication/ erection and commissioning of the "Common Effluent Treatment Plant" at 'Block Printing Cluster, Ajarakhpur, Bhuj, Gujarat at the places specified in the tender. The address will be specified in the Purchase Order.

12. Late / delayed tender offers will not be considered at all.

13. Any non-fulfilment of the stipulation given above will make the bid invalid.

14. If the tenders received are not sealed properly, they will not be considered at all.

15. Purchase Committee, NITRA reserves the right to accept or reject any or all the bids either in full or part without assigning any reason thereof.

16. The Vendor/contractor shall be entirely responsible for all taxes duties, license fees etc., incurred until completion of the contract.

17. The construction/fabrication/erection and commissioning period of the CETP as agreed to should not be extended under normal conditions. Suitable penalty for non-execution of the order may be enforced to the extent of 1% of the Contract Value for every week extended. In case of the delay beyond scheduled period due to some unforeseen reason, written permission is required from the Chairman, Purchase Committee (for CETP), NITRA, with proper justification to avoid penalty.

18. During the guarantee / warrantee period, servicing / maintenance should be undertaken regularly, subsequently Servicing/maintenance should be undertaken by the manufacturer or authorised agency of the manufacturer.

19. Warranty / performance guarantee period of one year should be given in respect of all the related machinery and accessories supplied for setting up of CETP.

SCOPE OF WORK, IMPORTANT INSTRUCTIONS & QUALIFICATION CONDITIONS FOR SUBMISSION OF TENDER

A. WORK AND SITE

The work consists of Setting up of 150 KLD- Common Effluent Treatment Plant (CETP) at Block Printing Cluster in Ajrakhpur, Bhuj, Gujarat

The tenderers are advised to inspect the site/ work before tendering the rates so that they may fully acquaint themselves with the nature of the work to be done, the means of communications and availability of materials and water required for the work.
The tenderer must complete the work in accordance with the specifications and to the entire satisfaction of the NITRA within the specified period. The drawings regarding this work are attached with tender document and clarifications can be dealt during pre-bid meeting on 11-07-2017 in the office of the NITRA.

The prospective contractor in whose favour the tender would be awarded has to execute a separate and distinct agreement with the NITRA notwithstanding anything contained herein.

B. SCOPE OF WORK

The Scope of work consists of construction civil work, Supply & installation of electro-mechanical equipments, Piping work, Hydraulic testing, electrical & instrumentation work, set up of laboratory, trial run and commissioning and hand-holding support for 1 year etc. etc. related to 150 KLD- Common Effluent Treatment Plant.

C. RATES

The tenderers should fill in the schedule in ink and the ***rates should be written in words as well as in figures.***

The contract shall be for overall work as per the scope of work as described in tender document. The Contractor shall be paid for the actual *rates finalized in the agreement* (to be signed during award of work).

That rates quoted shall include labour, materials, tools and plants, equipments, applications, transports, taxes, charges, levies, contractor's supervision, overheads, pollution, PF, ESI and other legislations and all charges necessary for the satisfactory completion of the work. *Rates for the work should include all such expenses.*

Rate in Rupees shall be quoted and the tender shall remain good and open for acceptance for a period of 180 days from the date of opening of tender. The tenderer/contractor shall make his own arrangement in regard to *electricity and water supply* required for the execution of the works as well as for drinking water for his own people and he shall pay all charges in this connection and include in his rate an adequate amount to allow for these requirements.

The rates given by the tenderer/ contractor shall be for complete items of work covering all materials, labours, carriages, royalties, sovereignage, fees, rents, sale tax, octoroi, wastage, tools, plants, equipment, transports, temporary constructions, WCT (*Work Contract Tax), Labour Cess* and other taxes as applicable, overhead charges and profits as well as general liabilities, obligations and risks arising out of the conditions of the contract or carrying the work in parts or under/ across/ along drains, etc., complete.

D. ELIGIBILITY / QUALIFICATION CONDITIONS

1) Should have valid Registration for *VAT/ Service Tax/ WCT/ GST.*

2) Bidder/Contractor/Vendor must have experience in setting up of Common Effluent Treatment Plant/ Effluent Treatment Plant (CETP/ETP). Relevant documents in support of above experience are to be submitted.

3) Bidders should have a minimum annual turnover of Rs. 3 Crore for last three years.

4) EMD- Demand Draft, equivalent to 2% of tender value from any scheduled bank (Micro & Small enterprises are exempted on submission of relevant certificate)

   Bids will not be considered of those bidders, who will not fulfil the above requirements.

5) **Bids/Tender Opening and Evaluation Criteria:** A Purchase Committee has been constituted to open and evaluate the bids (tender No. NITRA/Pur/PT-3/2017-18). The bidders would be required to make a presentation to the NITRA Purchase Committee on opening of technical bids.

6) **valuation of Bids:** Following evaluation criteria will be adopted in evaluating the bids:

6 a) **Evaluation Criteria of Technical Bids:**

S.No.	Evaluation Criteria/Definition	Maximum Score
1	Detailed Profile of the Bidder: (Profile of bidder's organization, PAN, TAN, TIN, GST No., Service Tax Registration No., Copy of organization's registration certificate or equivalent document - (copies are to be submitted along with document)	5 Points
2	CETP/ETP Projects • up to 5 Projects - 5 points • 6-10 Projects - 10 points • Above 10 Projects - 15 points	15 points
4	Bidder having experience in executing Common Effluent Treatment Plant/ Effluent Treatment Plant (CETP/ETP), which includes supply & installation of electro-mechanical equipments. • up to 50 KLD - 5 points • 51 – 150 KLD - 10 points • Above 150 KLD - 20 points	20 Points
5	Does the bidder have office in NCR (if yes, provide the address & contact details)	5 Points
6	List of key professionals / technical staff who will be employed for the project with their qualification & experience.	5 Points
7	Time Lines for execution: (Capacity to complete the work as per the timelines given in tender document)	10 Points
8	Execution methodology: • Understanding the treatment scheme. • Description of the methodology to be adopted to execute the overall work. • Answering the question during presentation.	40 Points
	Total	100 Points

Bidders who will secure at least 70% of the score in technical evaluation of bids will be technically qualified.

6 b) <u>Evaluation of Financial Bids:</u>

The financial bids will be opened for only technically qualified bidders. Out of the technically qualified bidders L1 bidder will be selected.

E. MATERIALS

All materials supplied by the contractor and brought on the site shall be got tested frequently to check up to conform to the specifications. All tests as may be necessary shall be performed at the contractor's expenses and he shall make all necessary arrangements for conducting the tests in the approved laboratories or as directed by the NITRA.

F. TIME OF COMPLETION AND DEFECT LIABILITY PERIOD

All works, specified herein, shall be completed in all respects to the entire satisfaction of the NITRA and handed over to it or any person nominated by it to take within the period of 6 ***(Six) months*** *from the date of letter for commencement of work* plus 3 (Three) months for Process Standardization.

The **contractor's/vendors responsibility** shall, however, not end till the maintenance **period of 12 months** from the date of completion is over. If any defect during this period is notified, he shall rectify the same, failing which the same shall be rectified at his risk & cost.

G. ACCEPTANCE OF TENDERS

The Contractor must sign all the pages of the tender document Volume-1 (Technical Bid) and Volume-2 (Financial Bid) and submit the same to NITRA before due date of submission. **Tenders should be properly packed, marked and sealed and submitted in originals with supporting documents. Tender shall be submitted in two separate sealed cover e.g. "Financial Bid" & "Technical Bid".**

The acceptance of tender shall rest with the NITRA, which does not bind itself to accept the lowest tender and reserves to itself the authority to reject any or all the tenders received without assigning any reasons thereto. All tenders, in which any of the prescribed conditions are not full- filled or are incomplete in any respect, are liable to be rejected. The NITRA also reserves the right of accepting the whole or any part of the tender and the Contractor shall be bound to perform the same at the quoted rates.

H. REJECTION OF TENDERS

The tenders received after due date of submission shall be rejected. The contractor should fill in the rates in figures as well as in words for sub-total & Total Price. The tenders, which do not fulfil this requirement, are liable to be rejected.

No alterations be made by the Contractor in the notice to the tender, instructions to the contractors, the contract form, conditions of contract, the specifications or the

quantities accompanying the same shall be recognized and if any such alterations are made or any special conditions are attached, the tender is liable to be rejected.

I. CHECK RATES AND FIGURES

If on checking and verification, differences are found between the rates given by the contractor in words and in figures or in the amounts worked out by him, the following procedure shall be followed.

1) Where there is a difference between the rate in figure and in words, the rate which corresponds to Total amount worked out by the contractor, shall be taken as correct.

2) Where amount in not worked out by the or it does not correspond with the rate written either in figure or in words, then the rate quoted by the Contractor in words shall be taken as correct.

3) Where rate quoted by the Contractor in figure and in words tallies but the amount is not worked out correctly, the rate quoted by the Contractor shall be taken as correct and not the amount.

J. COMPETENCE

If the tender is made by an individual, it shall be signed with his full name and his complete address, both present and permanent. If it is made by a firm, it shall be signed by a member of the firm who shall sign his own name and give the name and address of the each member of the firm and submit with the tender the power of attorney authorizing him to do so on their behalf. Certified copy of the Registered Partnership Deed shall also be submitted along with the tender. In case the tender is made by or on behalf of a company incorporated under the companies Act (1 of 1956), it shall be signed by its Managing Director duly authorized on their behalf and shall bear the official seal of the company. Tender is to be in a sealed cover.

SIGNATORY OF CONTRACTOR **SIGNATORY OF NITRA**

DATE : _____

CHAPTER - 2

FORM OF TENDER

The Chairman
Purchase Committee (for CETP)
NITRA
Ghaziabad.

Sub: Tender for Setting up of 150 KLD- Common Effluent Treatment Plant (CETP) at Block Printing Cluster in Ajrakhpur, Bhuj, Gujarat

Dear Sir,

I/We hereby tender for the execution of the work specified in the tender written memorandum within the time specified, at the rate specified therein and in all respects in accordance with the specifications, drawings, designs, supply of related equipment/ machines and the instructions supplied in writing and with such materials as are provided for and in all respect in accordance with such conditions so far as possible.

1. **MEMORANDUM**

GENERAL DESCRIPTION - Setting up of 150 KLD- Common Effluent Treatment Plant (CETP) at Block Printing Cluster in Ajrakhpur, Bhuj, Gujarat

PERFORMANCE BANK GUARANTEE - Amount equal to 10% of the contract Value from any scheduled bank.

PERIOD OF COMPLETION- 6 (Six) Clear Calendar months from the date of written order to commence the work plus 3 (Three) months for Process Standardization.

2. I/We hereby distinctly and expressively declare and acknowledge that before the submission of my/our tender, have carefully followed the general instructions and read detailed specifications and clearly understood all conditions of the contract.

I/We have seen the location where the said work is to be done and investigated the works required in regard to materials required so as to enable me/us to complete the work successfully, should this tender be accepted in whole or in part.

I/We hereby agree, to abide by and fulfil all the terms and conditions annexed hereto, to execute all the works referred to in the tender documents/ drawings / specifications upon the terms and conditions contained or referred to therein and carry out such deviations as may be ordered in future by the NITRA.

If I /We fail to commence the work by the specified date as per the Memorandum, I/We agree that my/our contract may be cancelled. I /We fulfil to start the work, the Performance Bank Guarantee shall be kept by NITRA as security deposit as per clauses of general directions as specified above.

I / we agree to keep the offer open for 180 days from the date of opening of the tender.

I/We /am/ are ---------- (position in the Company).

Yours faithfully,

Signature_____

In the capacity of _____ duly authorized to sign the tender for and on behalf of M/s_____

WITNESS:

Address _____
_____

Signature_____

CHAPTER - 3

GENERAL

CLAUSE – 1 : CONTRACT

The "***Contract"*** means the documents forming the tender and acceptance thereof and the formal agreement executed between NITRA and the Vendor/Contractor, together with the documents referred to therein, including the conditions, specifications, designs, drawings, supply of equipments/machines and instructions issued from time to time by NITRA , and all these documents taken together shall be deemed to form one contract and shall be Complementary to one another.

CLAUSE – 2 : MEANING OF WORDS

In the contract the following expressions shall, unless the context otherwise requires, have the meanings herewith respectively assigned to them.

(a) The "***works or work"*** shall unless there be something, either in the subject or context repugnant to such construction, Supply of equipment/machines shall be construed and taken to mean and work by or by virtue of the contract contracted to be executed, whether temporary or permanent. and whether original , altered, substituted or additional as described therein or in the drawings, including all deviations as may be ordered from time to time by the NITRA.

(b) The *'site'* shall mean the land of the 'Ajarakhpur Hastkala Vikas Sangthan (AHVS) situated at Block Printing Cluster, Bhuj, Gujarat. and or other places on, into or through which works, is to be executed under the contract, or any adjacent land, path or street, which may be allotted or used for the purpose of carrying out the contract.

(c) The "*contractor"* shall mean the individual or firm or company, whether incorporated or not, undertaking the works and shall include the legal personal representatives of such individual or the persons composing such firm or the successors or such firm or company and the permitted assignees of such individual or firm or company to which work is given for execution and signed the contract agreement withNITRA.

(d) The "*NITRA*" or Employer shall mean the NITRA its successors or assignees nominated by the NITRA.

(e) "*Project Engineer"* shall mean the engineer or any representative of NITRA for supervision of work.

(f) The "***Consultant"*** shall mean CONSULTANT for this project, or their successors or assignees.

Words imparting the singular number include the plural number and vice versa Similarly words imparting masculine gender shall include feminine and vice versa.

CLAUSE – 3 : COMPENSATION FOR DELAY / LIQUIDATED DAMAGES

The time allowed for carrying out the work as entered in the tender shall be strictly observed by the Contractor and shall be reckoned from the 15th day on which the order to commence work is given to the Contractor. The work shall throughout the stipulated period of the contract be proceeded with all due diligence (time being deemed to be the essence of the contract on the part of the contractor) and the Contractor shall pay as compensation an amount equal to one percent or such smaller amount as the officer accepting the contract on behalf of the NITRA, (whose decision in writing shall be final), may decide on the amount of the estimated cost of the whole work as shown in the tender, for every week that the work remains uncommenced or unfinished after the proper dates . And further to ensure good progress during the execution of the work, the Contractor shall be bound in all cases to complete the whole of the work within **SIX (6) months** from the date of written order to commence the work. In the event of the Contractor failing to comply with this condition, he may be liable to pay as compensation of an amount equal to one percent, or such amount as the NITRA may decide for every week that the due quantity of work remains incomplete. Provided that before taking action under this clause, the NITRA shall give a notice of 10 days in writing to the contractor and provided always that the entire amount of compensation to be paid under the provisions of this clause shall not exceed 10% of the estimated cost of the work as Shown in Contract.

CLAUSE – 4 : TERMINATION OF CONTRACT

The NITRA shall have the power, without prejudice to their right against the contractor in any respect of any delay of inferior workmanship or otherwise or to any claims for damage in respect of any breaches of the contract and without prejudice to any right or remedies under any of the provision of this contract or otherwise whether the date for completion has or has not elapsed by the notice on writing to terminate the contract in any or the following cases.

(i) If the contractor having been given a notice in writing (which notice under the hand of any one of them shall be conclusive evidence) to rectify by the NITRA, reconstruct or replace any defective work or any work damaged by any reason whatsoever or that the work is being performed in any inefficient or otherwise improper or unworkman – like manner shall omit to comply with the requirements of such notice for a period of seven days thereafter or if the contractor shall delay or suspend the execution of the works so that either in judgement of the NITRA he will be unable to secure completion of the work by the date of completion or he has already failed to complete the work by that date.

(ii) If the contractor being a company shall pass resolution or the court shall make an order that the company shall be wound up or if a receiver or a manager on behalf of a creditor shall be appointed or if circumstances shall arise which entitle the court of creditor to appoint a receiver or manager or which entitles the court to make a winding up order.

(iii) If the contractor commits breach of any of the terms and conditions of this contract.

(iv) If the contractor commits any act mentioned in the Clause –19 hereof.

(v) When the contractor has made himself liable for action under any of the cases aforesaid, NITRA shall have powers to adopt any one or more of following courses as it may deem best suited to the interest of the NITRA:

a. To determine or rescind the contract as aforesaid of which termination or rescission notice in writing to the contractor under the hand of the NITRA shall be conclusive evidence. Upon such determination or rescission, the Performance Bank Guarantee will be presented to bank for payment and shall be absolutely at the disposal of the NITRA.

b. To employ labour and to supply materials to carry out the works or any part of the work or to employ another agency debiting the contractor with the cost of the labour and the price of the material (the certificate under the hand of the NITRA shall be final and conclusive against the contractor) and crediting him with the value of work done in all respects in the same manner at the same rates as if it had been carried out by the contractor under the terms of his contract. The certificate of the NITRA as to the value of the work done shall be final and conclusive against the contractor provided always that action under this sub- clause shall only be taken after giving ten days notice in writing to the contractor. Provided also, that if the expenses incurred by the NITRA are less than the amount payable, to the contractor at his agreement rates, the difference shall not be paid to the contractor.

c. After giving notice to the contractor to measure up the sound work in quality and to take such part thereof as shall be unexecuted out of his hands and to give it to another agency to complete, in which case any expenses which may be incurred in the excess of sum which would have been paid to the original contractor if the whole work had been executed by him (of the amount of which excess the certificate in writing of the NITRA shall be final and conclusive) shall be borne and paid by the original contractor and may be deducted from any money due to him by the NITRA under this contract or on any other account, whatsoever or from his security deposit or the proceeds of sales thereof or a sufficient part thereof as the case may be. In the event of any one or more of the courses being adopted by the NITRA, the contractor shall have no claim to compensation for any loss sustained by him by reason of his having purchased or procured any material or entered into any engagement or made any advances on account or with a view to the execution of the work or the performance of the contract. And in case action is taken under any of the provision aforesaid, the contractor shall not be entitled to recover or be paid any sum for any work thereof or actually performed under this contract unless and until the NITRA has certified in writing the performance of such work and the value payable in respect thereof and he shall only be entailed to be paid the value so certified.

CLAUSE - 5 : CONTRACTOR LIABLE TO PAY COMPENSATION IF ACTION NOT TAKEN

If any case in which any of the powers conferred upon the NITRA by Clause 4 thereof shall have become exercisable and the same are not exercised, the non-exercise thereof shall not constitute a waiver of any of the conditions hereof and such power shall not withstanding be exercised in the event of any further case of default by the contractor and the liability of the contractor for compensation shall remain unaffected. In the event of the NITRA putting in force all or any of the powers vested in it under three proceeding clause, the NITRA may if it so desires, after giving notice in writing to the contractor, take possession of all or any tools, plant, materials, and stores in or upon the works or the site thereof, paying or allowing for the same in account at the contract rates or in the case of these not being applicable at current market rates to be certified by the NITRA whose certificate thereof shall be final. Otherwise the NITRA may give notice in writing to the contractor or his clerk of work, foreman or other authorized agent order him to remove such tools, plants ,materials or store from the premises (within a time to be specified in such notice). And in the event of the contractor failing to comply with any such requisition. The NITRA may remove at the contractor's expenses or sell them by auction or private sale on the account of the contractor and at his risk in all respects ,and the certificate of the NITRA as to the expense of any such removal and the amount of the proceeds and expenses of any sales shall be final and conclusive against the contractor.

CLAUSE – 6 : TIME EXTENSION

If the contractor shall desire an extension of time for completion of the work on the grounds of his having been unavoidably hindered in its execution of any other ground, he shall apply in writing to the NITRA within 15(fifteen) days of the date of hindrance on account of which he desires such extension as aforesaid, and the NITRA shall if in its opinion (which shall be final) reasonable grounds be shown therefore authorize such extension of time of any as may in its opinion be necessary or proper. No cost escalation shall be admissible for the extended period , if any.

CLAUSE - 7 : FINAL CERTIFICATE

Within thirty days of the completion of the work, the contractor shall give notice of such completion to the NITRA and within SIXTY days of the receipt of such notice the NITRA with consultant shall inspect the work, and if there is no defect in the work shall furnish the contractor with certificate of completion otherwise a provisional certificate of completion indicating defects (a) to be rectified by the contractor and / or (b) for which payment will be made at reduced rates shall be issued but no certificate of completion provisional or otherwise shall be issued , nor shall the work be considered to be complete until the contractor shall have removed scaffolding, surplus materials, rubbish and all huts and sanitary arrangements required for their work. People on the site in connection with the execution of the works, as shall have been erected or constructed by the Contractor and cleaned of the dirt from all wood work , door window , walls floors or other part of building, in upon or about which the work is to be executed or of he may have had possession for the purpose of which the execution there of and not until the work shall have been measured by the NITRA. If the Contractor shall fail to comply with the requirement of this clause us to removal of scaffolding, surplus material and rubbish and all huts and sanitary arrangement as aforesaid and cleaning off dirt on or before the date fixed for the

completion of work, the NITRA may at the risk & costs of the Contractor remove such scaffolding surplus material and the rubbish etc. and dispose of the same as they think fit and clean of such scaffolding or surplus materials as aforesaid except for any sum actually realized by the sale thereof.

CLAUSE – 8: OBJECTION TO MEASURMENTS

Before taking any measurements of any work as has been referred to in Clause 6, 7 and 8 hereof, the NITRA shall give reasonable notice to the Contractor. If the Contractor fails to attend at the time of measurements after such notice or fails to countersign or to record the difference within a week from the date of measurements in the manner required by the NITRA then and in any such event , the measurements taken by the NITRA's authorised representative /project engineer as the case may be shall be final and binding on the Contractor and the Contractor shall have no right to dispute the same. A bill shall be submitted by the Contractor every month on or before the date fixed by the NITRA for all works executed in the previous month. If the Contractor does not submit the bill within the time fixed as aforesaid, the NITRA‟s Project Engineer is entitled to measure up the said work in the presence of the Contractor whose countersignature to the measurement will be sufficient warrant.

CLAUSE - 9 : MATERIALS TO BE SUPPLIED

The contractor shall arrange at his own, all materials of required quality (as specified in schedule of quantity as per approved list of makes) and the required quantities at appropriate times. If the specification of schedule of items/quantities provides for the use of any special description of materials to be supplied by NITRA or it is required that the tenderer / Contractor shall use certain materials to be provided by the NITRA, the Contractor shall be supplied, by the NITRA, such materials and stores as are required for contract only. And value of the full quantity of materials and stores actually used in the works for which measurement have been taken may be set off or deducted from any sums then due, or thereafter to become due to the Contractor under the contract or otherwise or against or from the security deposit or the proceed of the sale thereof. It shall be responsibility of the Contractor to ascertain from time to time from the NITRA about the position of availability of the materials as aforementioned and any delay on the part of the NITRA to arrange supplies or the same shall not entitle the contractor to any compensation but in the event of all such delays the contractor shall be granted reasonable extension of time. All materials supplied the contractor shall not on any account be removed from the site of the work, except with the written permission of the NITRA or under its orders and shall at all times be open to inspection by the NITRA. Any such materials unused and in perfectly good condition at the time of the completion or taken over by NITRA at the prevailing market rates, if required for use on works in progress provided that the price allowed shall not exceed the amount charged by the Contractor. Daily account of the material supplied by the NITRA will be maintained by the Contractor and the same will be left open for check of the NITRA.

CLAUSE - 10: WORK TO BE DONE WITH GOOD WORKMANSHIP.

The Contractor shall execute the whole and every part of the work in the most substantial and workmanlike manner as per standard engineering practice and both as regard

materials and otherwise in every respect in strict accordance with the specifications, quality and quantity.

CLAUSE - 11: ALTERATIONS IN SPECIFICATIONS & DESIGNS

The NITRA or his nominee shall have the power to make any alteration in, omissions from, additions to or substitutions for the original specifications of equipments/machines, drawings, designs and instructions that appear to him to be necessary during progress of the work and the Contractor shall carry out the work in accordance with any instructions which may be given to him in writing signed by the NITRA and such alterations, omissions, additions or substitutions shall not invalidate contract and any altered or additional or substituted work which the Contractor may be directed to do in the manner above specified as part of the work, shall be carried out by the Contractor on the same conditions in all respects on which he agreed to do the main work. The time for the completion of the work shall be extended in the proportion that the altered, additional or substituted work bears to the original contract work, and the certificate of the NITRA shall be conclusive as to such proportion. The rates for such additional, altered or substituted work under this clause shall be worked out in accordance with the following provisions in their respective order.

CLAUSE - 12(a) : RATES OF ADDITIONAL/SUBSTITUTED ITEMS

In case of any item/items which have not been detailed either in drawings or in the body of the specifications of the contract documents and the NITRA desires for their execution along with the normal work caused under this contract, the Contractor will be bound to carry out such work /works and the same will be treated as extra item/ items and will be paid as per Clause 12(b). Any refusal for carrying out such work/ works by the Contractor will be treated as breach of agreement and actions here on will be taken in accordance of Clause 4 of this agreement.

CLAUSE - 12(b) : RATES OF ADDITIONAL/ SUBSTITUTED ITEMS

(i) If the rates for the additional, altered or substituted work are specified in the contract for the work, the Contractor is bound to carry out the additional, altered or substituted work at the same rates are specified in the contract or work.

(ii) If the rates for additional, altered or substituted work are not specially provided in the contract for the work, then such rates will be derived from the rates for a similar class of work as are specified in the contract for work.

(iii) If the additional, altered or substituted work includes any work for which no rate is specified in the contract for the work and cannot be derived from the similar class of work in the contract, then such work shall be carried out at the rates entered in CPWD / Delhi Schedule of Rates 2015.

(iv) If the rates for the altered, additional or substituted work cannot be determined in the manner specified in the sub clause (i) to (iii) above, then the rates for such work shall be worked out on the basis of the concerned Schedule of Rates of the Districts specified above minus / plus the percentage which the total tendered amount bears to the estimated cost of entire component of work put to tender. Provided always that if the rate for a particulars part or the item is not in the Schedule of Rates, the rate for such part or parts will be determined by the NITRA on the basis of the prevailing market rates when the work was done.

(v) If the rates for the altered, additional or substituted work cannot be determined in the manner specified in sub clause (i) to (iv) above, then the Contractor shall within 7 days of the date of receipt of order to carry out the work, inform the NITRA of the rate which it is his intention to charge for such class of work supported by analysis of rates claimed and the Authorised representative of NITRA shall determine the rate or rates on the basis of prevailing market rates to pay the Contractor accordingly. However, the NITRA by notice in writing will be at liberty to cancel his order to carry out such class of work and arrange to carry it out in such a manner as it may consider advisable. But under no circumstances the Contractor shall suspend the work on the plea of non-settlement of rates of the falling under this clause.

(vi) Except in case of items relating to foundations, provisions contained in sub–clause (i) to (v) above shall not apply to contract or substituted items as individually exceed the percentage set out in the tender documents (referred to herein below as deviation limit), subject to the following restrictions:

(A) The deviation limit referred to above is the net effect (Algebraically sum) of all additions and deductions ordered on all items;

(B) Extra items and foundation work shall not exceed deviation limit.

(C) The deviation ordered on items of any individual trade include in the contract shall not exceed including the additional items and of any other in the trade 50% of the value of that trade in the contract as a whole or half the deviation amount whichever is less;

(D) The value of additions of items of any individual trade not already included in the contract shall not exceed 10% of deviation amount. For the purpose of operation of clause 12 (iv) the following work shall be treated as work relating to foundations:

(a) For buildings, compound wall, plinth level or 1.2m (4 ft.) above ground level whichever is lower, excluding items of flooring and D.P.C. but including base concrete below the floors.

(b) For roads, all items of excavation and filling including treatment of sub- base and soiling work.

(c) For water supply lines, sewer lines ,underground storm water etc. and similar work, all items of work below ground level except items of pipe work, proper masonry work.

(d) For open storm water drains, all items of works except lining of drains.

The rate of any such work except the items relating to foundations which is in excess of the deviation limit shall be determined in accordance with the provisions contained in clause 12 C.

CLAUSE – 13 : NO COMPENSATION FOR PART WORK

If at any time after the commencement of the work the NITRA shall, for reason whatsoever, not require the whole work thereof as specified in the tender to be carried out, the NITRA, shall give notice in writing of the fact to the Contractor who shall have no claim to any payment or compensation whatsoever on account of any profit or advantage, which

he might have derived from the execution of the work in full, but which he did not derive in consequence of the full amount of the work not having been carried out, neither shall he has any claim for compensation by reason of any alterations having been made in the original specifications, drawings, designs and instructions, which shall involve curtailment of the work as originally contemplated nor shall he has any claim to compensation by reason of having purchased or procured materials with a view to the execution of the work of the performance of the contract. But the NITRA shall have the option either to take over the materials at site, if of approved quality and not in excess of the requirements of the work and to pay to the contractor the actual cost thereof. In the event of this option not being exercised, the Contractor may submit to the NITRA within two weeks of the date of the order, closing down the work, a detailed statement of the loss that he estimates he will sustain by removing, selling, or otherwise disposing of the materials. The estimate will be forwarded to the NITRA who will decide what sum, if any, should, as matter of grace be paid to the Contractor to compensate him for the loss suffered by him, and the decision of NITRA shall be final and building on the Contractor.

CLAUSE - 14 : BAD AND UNSOUND WORK TO BE REMOVED

If it shall appear to the NITRA, that any work has been executed with unsound, imperfect or unskilful workmanship, or with materials of any inferior description or that any materials or articles provided by him for the execution of the work are unsound or of a quality inferior to that contract for or otherwise not in accordance with the contract, the contractor shall on demand in writing from the NITRA, specifying the work, materials or articles complained or not withstanding that the same may have been in advertently passed, certified and paid, for with rectify or removed and reconstruct the work so specified in whole or in part as the case may require or as the case may be, and remove the materials or articles specified and other proper and suitable materials or articles at his own charge and cost, and in the event of his failing to do so within a period to be specified by the NITRA in his demand aforesaid, then the Contractor shall be liable to pay compensation at the rate of one percent on the amount of the estimated cost of that particular work for every day not exceeding the ten days, while his failure to do so shall continue and in the case of any such failure the NITRA may rectify or remove and re- execute the work or remove or replace with others, the materials or articles complained of as the case may be at the risk and expense in all respect of the Contractor.

CLAUSE – 15 : WORKS TO BE OPEN TO INSPECTION

All works under or in the course of execution or executed in pursuance of the contract shall at all times be open to the inspection and supervision of the Consultant and NITRA's project Engineer or authorized member of the NITRA and the Contractor shall at all times during the usual working hours, and at all other times, at which reasonable notice of intention of the NITRA or its nominee to visit the work shall have been given to the Contractor either himself be present to receive orders and instructions or have a responsible agent duly accredited in writing, present for that purpose. Orders given to the Contractor’s agent shall be considered to have the same force as if they had been given to the Contractor himself.

CLAUSE - 16 : WORK NOT TO BE COVERED WITHOUT PERMISSION

The Contractor shall give minimum seven days notice in writing to the NITRA 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 be taken before the same is covered up or placed beyond the reach of measurement, any work in order that the same may be measured and correct dimensions thereof be taken before the same is covered up or placed beyond the reach of measurement, any work without the consent in writing of the NITRA or his subordinate in charge of the work, and if any work shall be covered up or placed beyond the reach of measurement without such notice having been given and consent obtained, the same shall be uncovered at the Contractor's expense, or in default thereof no payment or allowance shall be made for such work or the materials with which the same was executed.

CLAUSE - 17 : CONTRACTOR LIABLE FOR IMPROPER WORK

If the Contractor or his work people or servants shall break, deface, injure or destroy any part of a building, road, fence, enclosure or grass land or cultivated ground continuously to the premises on which the work is being done or has been done or if any damage shall happen to the work due to any defect or shrinkage, or if any faults appear in it within six months after certificate, final or otherwise, of its completion as given by the NITRA as aforesaid, the Contractor shall make the same good at his own expense, or in default, the NITRA may cause the same to be made good by other workmen and deduct the expense from any sums that may then or at anytime thereafter, become due to the Contractor or from his security deposit, or the proceeds of sale thereof or of a sufficient portion thereof or in any other manner, legally permissible.

CLAUSE – 18 : CONTRACTOR TO SUPPLY MATERIALS, TOOLS & PLANTS, LABOUR, SCAFOLDINGS ETC.

The Contractor shall supply at his own cost all materials, labour, plants tools, appliances, implements, ladders, cordage, tackle, scaffolding and temporary works requisite or proper for the proper execution of the work, whether original altered or substituted and whether included in the specifications or other documents forming part of the contract or referred to in these conditions or not, which may be necessary for the purpose of satisfying or complying with the requirements of the NITRA as to any matter as to which he is entitled to require, together with carriage therefore, to add from the work. The contractor shall arrange **adequate stock of materials OPC (Ordinary Portland Cement) and reinforcement steel of approved make** in advance so that work does not suffer due to non-availability of materials at particular time. In such cases, the use of *other grade of cement shall NOT be allowed*. The Contractor shall also supply without charge the requisite number of persons with the means and materials necessary for the purpose of setting out works and counting, weighing and assisting in the measurement or examination at any time and from time to time of the work or materials. The Contractor shall also provide all necessary fencing and lights required to protect the public from accident, and shall be bound to bear the expenses of defense of every suit, action or other proceedings at law that may be brought by any person, or which may with the consent of the Contractor be paid to compromise any claim by any such person. If any equipment is issued departmentally, rent will be recovered from the Contractor's bill at current rates fixed by the NITRA, the terms of such issue to be ascertained by the Contractor from the

NITRA in writing in advance. NITRA shall arrange/ provide only designated area / land for storage of materials. The safety, security and shelter for storage of men and materials is the sole responsibility of the prospective contractor.

CLAUSE – 19 : WORK NOT TO BE SUBLET

The *Contract shall not be assigned or sublet without the written approval of the NITRA*. And if the Contractor shall assign or sublet his contract, or attempt to do so, or become insolvent or commence any insolvency proceeding or make any composition with his creditors, or attempt to do so, the NITRA may thereupon by notice in writing rescind the contract, and the security deposit of the Contractor shall thereupon stand forfeited and be absolutely at the disposal of the NITRA and the same consequence shall ensure as if the contract had been rescinded under clause–4 hereof, and in addition the Contractor shall not be entitled to recover or be paid for any work, actually performed under the contract.

CLAUSE - 20 : MINIMUM AGE OF WORKERS

The Contractor shall not for the execution of the work employ any labor under 18years of age to fulfil the requirement of Indian Labour Act. For every breach of this convenient the Contractor shall be liable to pay by way of liquidated damages such sum not exceeding fifty rupees, as the NITRA may fix and may recover such sum by deduction from any sums which may be due, or may at any time thereafter become due to the Contractor.

(a) The Contractor shall pay to his labourers a minimum wage and shall supply every labourer employed by him with a wage card on which the rate of wages, the attendance and payments will be entered.
(b) The Contractor, before he commences work shall display in a conspicuous place of the work a notice board giving the rates of wages which shall not be less than the minimum wages applicable.
(c) Minimum wage here into above refer to Minimum wages prescribed under the Act.

CLAUSE – 21 : PERIOD FOR WAGES

The Contractor shall be bound by all statutory provisions with regard to the period for which wages shall be paid or for deduction from wages as the case may be.

CLAUSE – 22 : COMPLIANCE TO LEGISLATIONS

The Contractor shall comply with all the provisions of the Minimum Wages Act, 1948. (Regulations & Abolition Act, 1970, Building and Construction Workers (Regulations of Employment and Condition of Service) Act, 1996 and rules framed there under the other labour laws, affecting Contract labour that may be brought into force from time to time.

CLAUSE – 23 : HEALTH AND SANITARY ARRANGEMENT

In respect of all labour directly or indirectly employed in the works for the performance of the Contractor's part of this agreement, the Contractor shall comply with or cause to be complied with all the directions issued by the Health authorities from time to time for the protection of health and sanitary arrangements for workers employed by the Contractor.

CLAUSE - 24 : MATERNITY BENEFITS

As per Government Rules, applicable / enforce from time to time.

CLAUSE – 25 : HEALTH REGULATIONS TO BE STRICTLY FOLLOWED

(a) In the event of the Contractor committing a default or breach of any of the Provisions of the Related administration's directions to Contractors for the protection of health and sanitary arrangements for the workers or furnishing any information or submitting or filling any statement under the provisions of the above directions which are materially incorrect, the Contractor shall, without prejudice to any other liability, pay to the NITRA a sum not exceeding Rs.50/- for every default or breach, and in the events of the Contractor defaulting continuously in this respect, the penalty may be enhanced to 2 percent of the estimated cost of the work put to tender. The decision of the NITRA shall be final and binding on the Contractor.

(b) should it appear to the NITRA that the Contractor is not properly observing and complying with the said directions for the protection of health and sanitary arrangements for work people employed by the contractor (herein referred to as the said directions), the NITRA shall have the power to give notice in writing to the Contractor requiring that the said directions be complied with and the amenities prescribed therein be provided to the work- people within a reasonable time to be specified in the notice. If the contractor shall fail, within the period specified in the notice, to comply with the observe the said directions and to provide the amenities herein before mentioned at the cost of the Contractor. The Contractor shall erect, make and maintain at his expense and of approved standards, all necessary huts and sanitary arrangements required for his work–people on the site in connection with the execution of the works.

(c) The Contractor shall also construct temporary latrines and urinals for the use of the labourers each on the scale of not less than four each per one hundred of the total strength. Separate latrine and urinals being provided for women.

(d) The Contractor shall construct sufficient number of bathing and washing places, one unit for every 25 persons residing in the camp. These bathing and washing places shall be suitable curtained.

(e) All the huts shall have walls of sun-dried or burnt bricks laid in mud mortar or other suitable local materials as may be approved by the NITRA. In case of sundried bricks, the walls should be plastered with mud–gobri on both sides. The floor may be katcha but plastered with mud–gobri and shall be laid at least 6" (15mm) above the surrounding ground.

(f) The Contractor shall provide each hut with proper ventilation.

(g) All doors, windows and ventilators shall be provided with suitable leaves for security purposes.

(h) There shall be kept an open space of at least 8 yards (7. 31) between the rows of huts which may be reduced to 20 ft (6. 1m) according to the availability of site with the approval of the NITRA. Back to back construction will be allowed.

(i) Disposal of excrete -The Contractor shall make necessary arrangements for the disposal of excrete from the latrine by trenching or incineration which shall be according to the requirements laid down by the local Health Authorities. If trenching or incineration is not allowed, the Contractor shall make arrangement for the removal of excrete through the Municipal Committee/ Authority and inform it about the number of labourers employed so that arrangements may be made by such committee/ authority for the removal of the excrete. All charge on this account shall be borne by the Contractor and paid directly by him to the municipality / authority. The Contractor shall provide one sweeper for every eight seats in case of dry system.

(j) Drainage - The Contractor shall provide efficient arrangements for drainage away sewage water so as to keep the camp neat and tidy.

(k) The Contractor shall make necessary arrangements for keeping the site area sufficiently lighted to avoid nay accidents to the workers.

(l) Sanitation - the Contractor shall make necessary arrangements for conservancy and Sanitation in the labour camps according to the rules of the local public Health and Medical authorities.

CLAUSE - 26 : SUM PAYBLE BY WAY OF COMPENSATION TO BE CONSIDERED AS RESONABLE COMPENSATION WITHOUT REFRENCE TO ACTUAL LOSS

All sums payable by way of compensation under any of these conditions shall be considered as reasonable compensation to be applied to the use of the NITRA without reference to the actual loss or damages sustained and whether or not any damage shall have been sustained.

CLAUSE - 27 : CHANGES IN CONSTITUTION OF FIRMS

In case of a tender by partners, any change in the constitution of the firm shall be forthwith notified by the Contractor to the NITRA for its information.

CLAUSE - 28 : SETTLEMENT OF DISPUTES BY ARBITRATION

If any dispute, question or controversy, the settlement of which is not herein specifically approved for, shall at any time arise between the NITRA and the Contractor relating to this contract or any clause or thing contained or the construction thereof or any matter connected with this contract, or the portion of the same or the rights or duties or liabilities of either party, then in every such case, the matter in dispute shall be referred to the arbitration of the authorised representative of the NITRA. The Authorised representative of NITRA shall be the sole arbitrator. The provisions of the Indian Arbitration Act, 1940 as amended from time to time shall apply to such arbitration proceedings. Arbitration proceeding shall be held in U.P. and only U.P. courts will have the jurisdiction in the matter. It will not be open to the Contractor to object to the appointment of such persons

as Arbitrator on the ground that he has dealt with the matter in question in the course of his duties or has expressed views on all or any matter in dispute. Services under this contract shall not withstanding the existence of any such dispute/question or controversy, continue during the arbitration proceedings and no payment due to our payable by the NITRA to the Contractor or viceversa shall be withheld on account of such proceedings unless such payments are the direct subject of such arbitration proceedings. It is also a term of the contract that the party invoking arbitration shall specify the dispute or disputes to be referred to arbitration under this clause together with the amount or amounts claimed in respect of each such dispute and in the event of non–availability of specifications in C.P.W.D. relevant 1996 Vol. 1 to V1. If for any reason, that is not possible, the matter is not to be referred to arbitration at all. In all cases where the total amount of all claims in dispute is Rs.75,000/- (Rupees Seventy Five Thousand Only) and above, the arbitrator shall give reasons for the award. If the Contractor (s) do/ does not make any demand for arbitration in respect of any claim(s) in writing within 90 days of receiving the intimation from the NITRA, that the bill is ready for payment, the claims of the Contractor(s) will be deemed to have been waived and absolutely barred and the NITRA shall be discharged and released of all liabilities under the contract in respect of these claims.
The arbitrator may, from time to time with the consent of the parties, enlarge the time for making and publishing the award. Subject as aforesaid the provisions of the Arbitration Act, 1940 or any statutory modification or re-enactment thereof and the rules made there under and for the time being in force shall apply to the arbitration proceedings under their clause.

CLAUSE - 29 : ACTION WHERE NO SPECIFICATIONS GIVEN

All works shall be carried out in accordance with the detailed specifications of C.P.W.D. 1996 Vol. I to VI corrected up-to-date, ISI specifications and in the event of there being no detailed specifications for the same in both, the work shall be carried out in all respects in accordance with the instructions and requirements of the NITRA.

CLAUSE - 30 : ENCROACHMENTS TO BE REMOVED.

It shall be the responsibilities of the Contractor to see that the building under construction is not occupied by anybody unauthorisedly during construction and to hand over to the NITRA vacant possession of complete building. If such building, though completed, is occupied illegally then the NITRA will have the option to refuse to accept the said building/ buildings in that position and delay in acceptance on this account will be treated as delay in completion and for such delay a levy up to 5% of the estimated cost put to the tender may be imposed by the NITRA whose decision shall be final both with regard to the justification and quantum. However, the NITRA may require the Contractor through a notice to remove the illegal occupation any time on or before construction and delivery.

CLAUSE - 31 : COMPENSATION TO WORKERS

(1) In every case in which by virtue of the provisions of Section (12) of the worker's compensation Act, 1923, the NITRA is obliged to pay compensation to a work-man employed by the Contractor or by any subcontractor for him in the execution of the said work, the NITRA will recover from the Contractor the amount of the compensation so paid, and without prejudice to the rights of the NITRA under section 12, sub/ section (2) of the said Act, the NITRA shall be at liberty to recover

such amount or any part thereof by deducting it either from the security deposited the Contractor to his credit under clause 1 of these conditions or from any other sum due to the Contractor under this contract or otherwise.

(2) The NITRA shall not be bounded to contest any claim made against it under section 12, subsection (1) of the said act except on the written request of the Contractor and upon his giving to the NITRA full security for all costs for which the NITRA might become liable in consequence of contesting the claim.

CLAUSE - 32 : DEFECTS AFTER COMPLETION

Any defect, shrinkage, settlement or other faults which may appear. Within the "Defects Liability Period" stated in the Appendix hereto, in the opinion of the NITRA, from materials or workmanship, the same shall be, upon the directions in writing of the NITRA and within such reasonable time as specified therein, amended and made good by the Contractor at his own cost. In case of default, the employer may employ and pay other persons to amend and make good such defects, shrinkage, settlement or other faults and all damages, loss and expenses consequent thereon or incidental thereto shall be made good and borne by the/ recoverable from him by the NITRA or may be deducted by the NITRA from any money due or that may become due to the Contractor including security deposit/ retention money. If any defective work has been done or defective material has been supplied by any of the subcontractors employed on the works who has been approved by the NITRA, the Contractor shall be liable to make good in the same manner as if such work or materials has been done or supplied by the Contractor and is subject to the provisions of this clause and scope of contract.

CLAUSE - 33 : OTHER PERSONS ENGAGED BY EMPLOYER

The employer reserves the right to use the premise and any portion of the site for the execution of any work, not included in this contract which he may desire to be carried out by other agencies and the Contractor shall coordinated and provide reasonable facilities for the execution of the works but is not required to provided any plant or materials for the execution of such works except by special arrangement with the employer.

CLAUSE - 34 : VARIATION IN PRICES/ WAGES

The rates quoted are firm for the contract period and no escalation on cost materials and labour is admissible.

CLAUSE - 35: INSURANCE IN RESPECT OF DAMAGE TO PERSONS & PROPERTY

The Contractor shall be responsible for all injury to persons, animals or things and for all structural and decorative damage to property which may arise from the operation or neglect of himself of any nominated subcontractor employees, whether such injury of damage arise from carelessness, accident or any other cause whatsoever in any way connected with the carrying out of this contract. This clause shall be held to include, inter-alia, any damage to buildings, whether immediately adjacent or otherwise, and any damage to roads, streets, footpaths, bridges or ways as well as all damages caused to the building and works forming the subject of this contract by rains or other inclemency of weather. The Contractor shall indemnify the employer and hold him harmless in respect of

all and any expenses arising from any such damage under any Acts of Government of otherwise and also in respect of any award of compensation of damages consequent upon such claims.

The Contractor shall reimburse all damages of every sort mentioned in this clause, so as to delivery up to the whole of the contract works complete and perfect in every respect and so as to make good or otherwise satisfy all claims for damage to the property of third parties.

The Contractor shall indemnify the employer against all claims which may be made against the employer by any member of the public or the third parties in respect of the works or in consequence thereof and shall, at the his own expense, arrange to effect and maintain, until the virtual completion of the contract with an approved office of a policy of insurance in the joint names of the NITRA and the Contractor against such risks, and deposit such policy or policies with the NITRA from time to time, during the currency of this contract. The Contractor shall similarly indemnify the employer against all claims which may be made upon the currency of this contract or ant common law in respect of any employees of the Contractor or any subcontractor and shall at his own expense effect and maintain until the virtual completion of the contract with an approved office, a policy of insurance in the joint names of the NITRA and the Contractor against such risks and deposits such policy or policies with the NITRA from time to time during the currency of the contract.

The Contractor shall be responsible for anything, which may be excluded from the insurance policies above referred to and also for all other damages to any property arising out of an incident due to the negligent or defective carrying out of this contract. He shall also indemnify the employer in respect of any costs, charges arising out of any claim or proceedings, and also in respect of any award or compensation of damages arising there from. The NITRA shall be at liberty and is hereby empowered to deduct the amount of any damage, compensation, costs, charges and expense arising or accruing from or in respect of any such claims or damage from any sum or sums due or become due to the Contractor including the security deposit/retention money.

CLAUSE - 36 : OPENING OF TENDER

No excuse on the part of the Contractor as regards to want of information or any particular point shall be entertained after the tender has been received. *No request of any change in rate after the opening of the tender shall be entertained*.

CLAUSE - 37 : CANVASSING

Any canvassing in any form in connection with the tenders is strictly prohibited and the tenders submitted by the Contractor who resort to canvassing shall be liable to rejection.

CLAUSE - 38 : ACKNOWLEDGEMENT OF ACCEPTANCE

The Contractor whose tender is accepted shall within a week’s time from the date of receipt of such written order intimate to the NITRA of his acknowledgement duly made on a nonjudical stamp paper of Rs.100/- only. Contractor’s failure to furnish stamp paper

within the stipulated shall give right to the NITRA to revoke and acceptance of tender without any further notice to the Contractor.

CLAUSE - 39 : MUNICIPAL BYELAWS

Any soil, filth and other matter of on offensive nature taken out of any trench, sewers, drains cess poll or other matter shall not be redeposited on the surface but shall at once be cleared free of charge to some pit or place to be provided by the Contractor as per the local municipal bye-laws.

CLAUSE - 40 : INCOME-TAX, WORKS CONTRACT TAX, LABOUR CESS AND SALES-TAX DEDUCTION ON WORKS CONTRACT

Income tax, Works Contract Tax, Labour Cess as applicable, under the income tax rules framed from time to time by the Government of India and sales tax on work contract at the prescribed rates, shall be recovered from ~~each~~ bill of the Contractor.

CLAUSE - 41 : SIGNATURE OF CONTRACTOR

The Contractor will sign each and every page of the tender and submit complete tender without removing or adding any page thereto.

SIGNATORY OF CONTRACTOR **SIGNATORY OF NITRA**

DATE : _____

CHAPTER - 4

SPECIAL CONDITIONS OF THE CONTRACT

1. APPLICATION OF LAW

The law of the place of the work shall govern the construction/fabrication/ erection etc. under this contract. The disputes shall be subject to Courts in Ghaziabad jurisdiction.

2. USE OF DOCUMENTS

None of the documents herein before mentioned shall be used by the Contractor for any purpose other than this contract.

3. TYPE OF CONTRACT

The contract shall be of individual item-wise cost break-up & total cost with supply, erection & commissioning of CETP inclusive of taxes and other charges/expenses. The Contractor shall be paid for the actual cost as per the rates finalized in the agreement.

4. CONTRACT DRAWINGS

(i) In general the drawings shall be indicative of dimensions, position and type of Fabrication/Construction. The specifications shall indicate the quantities, methods and materials of Fabrication/construction. Any work indicated on the drawings and not mentioned in the specification or vice versa, shall be finished as though fully set forth in both.

(ii) The Contractor's work shall not deviate from the drawings and the specifications. The NITRA"s interpretation of these documents shall be final and without appeal. In case the situation arises to deviate from the drawings, prior written approval has to be taken from the concerned authority/NITRA.

(iii) Errors or inconsistencies discovered in the drawings and specifications shall be promptly brought to the attention of the NITRA for interpretation or Correction. Local conditions, which may affect the work, shall likewise be brought to the notice of the NITRA. If at any time, it is discovered that work being done is not in accordance with the drawings and specifications, the Contractor shall correct the work immediately. Corrections of defective work shall not be a basis for any claim for extension of time and cost. The Contractor shall not carry on work except with the written intimation to the NITRA.

(iv) **Dimensions and Drawings**

Figured dimensions on drawings shall supercede measurements by scale and drawing to a large scale shall take precedence over those to a smaller scale. The special dimensions or directions in the specifications shall supersede all else. The Contractor shall verify all dimensions at site. Matters not covered by the specifications given in this contract as a whole shall be covered by relevant C.P.W.D. specifications. For items of work not covered by C.P.W.D. specification, relevant I.S.I. specifications shall be followed. In case of items of work where no such specifications have been framed, the decision of the NITRA shall be final and binding on the Contractor and shall not be questioned. The different items of works included in the specifications shall be done at different height and depths above and below subsoil water level, on alignment straight or curved in plan or elevation and for any or all these different situations nothing extra over and above quoted amount shall be payable to the Contractor.

(v) All drawings and specifications and copies thereof furnished by the NITRA are their property. They shall not be used on any other work.

5. CONTRACT SUM

The contract sum shall not be adjusted or altered in anyway whatsoever otherwise than in accordance with the clauses of these conditions. Any error, whether arithmetic or not, in computation of the contract sum shall be deemed to have been accepted by the Contractor hereto.

6. CONTRACT BILLS

The addition/deletion of any item or activity will be adjusted on prorate basis on total value of the contract.

7. SCOPE AND INTENT

The general character and the scope of the work is illustrated and defined by the specifications and drawings attached herewith. If the Contractor shall find any discrepancy in or divergence between the drawings and/ or the contract bills he shall immediately give to the to the concerned authority of NITRA a written notice specifying the discrepancy or divergence and the concerned authority of NITRA shall issue instructions in regard thereto and such instructions shall be binding on the Contractor .

8. FACILITIES AND CO-OPERATION

(1) In the case of works indicated in the drawings but not included in the contract, the Contractor shall provide necessary facilities and cooperation to other Contractor or suppliers who may be appointed by the NITRA.

9. APPROVED MAKES

All materials including Pumps, blowers, pipes, fittings, cables, cement, tor steel electrical fitting, fixtures etc should be of standard make as mentioned in the technical documents.

10. PROGRESS CHART

The Contractor shall prepare progress charts and submit the same for approval of the NITRA within seven days of the award of the contract. The charts shall indicate the expected date of commencement and completion of each of the item of the work. The chart shall also indicate the scheduling of shop drawings and approvals, and the same shall at all times be displayed in the NITRA's site office.

11. DISMISSAL

The Contractor shall on the request of the NITRA immediately dismiss from the works any person employed thereon by him who may in the opinion of the NITRA be incompetent or misconducts himself and such person shall not be again employed on the work without the permission of the NITRA.

12. CONTRACTOR"S FIELD ORGANISATION/ EQUIPMENT

12.1 The Contractor shall constantly keep on the work during its progress one or more whole-time qualified graduate Engineers having knowledge of civil, mechanical & electrical work who will be responsible for carrying out the works to the true meaning of the drawings, specifications and schedule of the quantities.

12.2 **Materials & Equipments** – The Contractor shall provide and install all necessary hoists, ladders, scaffolding, tools, tackles, plants, all transport for labour, materials and plant necessary for the proper carrying on, execution and completion of the work to the satisfaction of the NITRA.

12.3 **Watchman**- The Contractor shall make his own security arrangements to guard the materials and the portion of work under his control site at all times, at his own expenses.

12.4 **Storage of materials**- It is the responsibility of the contractor to safe storage of all materials till the completion of project and handed over to NITRA.

12.5 **Sanitary conveniences** – The Contractor shall provide and erect all necessary sanitary convenience for the site staff and the workmen, maintain it in a clean orderly way.

13. TAXES

The Contractor shall add to the amount to this tender the amount of sales **tax duty, including WCT, Labour Cess, sales tax on works** contract or any other tax for octroi legally payable and it shall be assumed that his rates cover for all such taxes and duties and no claim on this account will be entertained.

14. WATER & ELECTRICITY FOR CONSTRUCTION

The contractor is to get himself insured for smooth supply of water and electricity through mutually agreed terms on chargeable basis. The payment is to be made before handing over the project to NITRA.

15. CLAIM FOR EXTRA CHARGES

When any instruction or decision given at site involves an extra or whereby the Contractor may plan to claim an extra amount it shall be the responsibility of the Contractor to inform the NITRA of the extra amount and obtain written authorisation from the NITRA before proceeding with the work involved. Any modification carried out for expediting or simplifying work at the request of the Contractor or his representatives shall not be taken as the basis for claiming an extra charge. However, if such modification shall also involve an extra, the rate for such modification shall be settled in advance and written authorisation be obtained by the contractor from the NITRA before proceeding with the work involved. If no such authorisation in taken by the Contractor in writing from the NITRA, such modification shall not be accepted as the basis for extra charge.

16. GUARANTEE

To include Guarantee about works to be done by contractor:

(1) The Contractor shall protect and preserve the materials from all damage or accident by providing any temporary roof, window and door coverings, boxing or other construction as required by the NITRA. The protection shall be provided for all material on the site.

(2) The Contractor shall properly clean the work as work progresses and shall remove all rubbish and debris from the site from time to time as is necessary and as directed.

17. TOLERANCE

The Contractor shall exercise every care to ensure satisfactory mechanical/ electrical/civil work including of quality of work, good quality branded items/ equipments/spares.

18. INSPECTION BY THE AUTHORISED REPRESENTATIVE OF NITRA/ NITRA

The Contractor shall at all times provide every facility, assistance and opportunity for inspection of each and every work done by him to the Authorised representative of NITRA and to all members of the NITRA and no obstruction, hindrance will be ever put by Contractor or his men.

SIGNATORY OF CONTRACTOR **SIGNATORY OF NITRA**

ANNEXURE - 1

FORMAT OF BANK GUARANTEE OF 10% OF CONTRACT VALUE
(ON NON-JUDCIAL STAMP PAPER OF RS.10/-)

Bank guarantee No. _____ Date :

This deed of guarantee made this _____ day of _____ 20 (Two Thousand ---------- Only) (Name and address of the Bank) _____ _____hereinafter referred to as 'the Bank') which expression shall where successors and assignees of the Bank and the Chairman, Purchase Committee (for CETP), NITRA, which expression shall unless repugnant to the context of the meaning thereof include its legal representatives, successors and assignees.

WHEREAS the Nitra has placed its Work / Purchase Order bearing No. _____ dated _____ on (name and address of the party) _____ _____(hereinafter called `the supplier' for the supply of _____.

AND WHEREAS the Chairman, Purchase Committee (for CETP), NITRA has agreed to pay to the Vendor/Contractor/Bidder an initial advance of 20% of the contract value on submission of a Bank Guarantee of 10% of the contract amount , which will be kept valid upto _____ being the period of 12 calendar months from the date of Bank Guarantee.

In consideration of the Chairman, Purchase Committee (for CETP), NITRA having agreed to pay to the supplier Rs. _____ Rupees _____ only) being the initial advance of 10% of the value of the Contract, we (name of the Bank) hereby undertake and guarantee to make repayment to the _____ of the said 10% amount or any part thereof which does not become payable to the supplier by the Chairman, Purchase Committee (for CETP), NITRA in accordance with the subject to the terms and conditions of the said order within _____ days from the date of dispatch / from the date of receipt of the material at site. The Bank further undertakes not to revoke this guarantee during its currency except with the previous consent of the Chairman, Purchase Committee (for CETP), NITRA in writing and this guarantee shall be a continuous and irrevocable guarantee up to a sum of Rs. _____ (Rupees _____ only).

The Bank shall not be discharged or released from this guarantee by any arrangement between the Vendor/Contractor/Bidders and the Chairman, Purchase Committee (for CETP), NITRA with or without the consent of the Bank or any alterations in the obligation of the parties or by any indulgence, forbearance shown by the Chairman, Purchase Committee (for CETP), NITRA to the vendor/contractor/bidder and the same shall not prejudice or restrict remedies against the Bank nor shall the same in any event be a ground of defence by the Bank against the Chairman, Purchase Committee (for CETP), NITRA. We (name of the Bank) do hereby undertake to pay an amount equal to 10% of the order value being the amount due and payable under this guarantee without any demur, merely on demand from the Chairman, Purchase Committee (for CETP), NITRA stating that the amount claimed is due to the Chairman, Purchase Committee

(for CETP), NITRA. In case the Chairman, Purchase Committee (for CETP), NITRA puts forth a demand in writing on the Bank for the payment of the amount in full or in part against this Bank guarantee, the Bank shall considered that such demand by itself a conclusive evidence and proof that the supplier has failed in complying with the terms and conditions stipulated by the Chairman, Purchase Committee (for CETP), NITRA in the work / purchase order and payment shall be made to the Chairman, Purchase Committee (for CETP), NITRA without raising any dispute regarding the reasons for any such lapse/failure on the part of the vendor/contractor/bidder.

This guarantee shall be in addition to and without prejudice to any other securities or remedies which the Chairman, Purchase Committee (for CETP), NITRA may have to hereinafter possess against the vendor/contractor/bidder and the Chairman, Purchase Committee (for CETP), NITRA shall be under no obligation to marshal in favour of the Bank any such securities or fund or assets that the Chairman, Purchase Committee (for CETP), NITRA may be entitled to receiving or have a claim upon and the Chairman, Purchase Committee (for CETP), NITRA at its absolute discretion may vary, exchange renew, modify or refuse to complete or enforce or assign any security or instrument.

The Bank agrees that the amount hereby guaranteed shall be due and payable to the Chairman, Purchase Committee (for CETP), NITRA on the Chairman, Purchase Committee (for CETP), NITRA, serving with a notice requiring the payment of the amount and such notice shall be deemed to have been served on the bank either by actual delivery thereof to the Bank or by dispatch thereof to the Bank by Registered Post shall be deemed to have been duly served on the Bank notwithstanding that the notice may not in fact have been delivered to the Bank.

In order to give full effect to the provisions of this guarantee, the Bank hereby waives all inconsistent with the above provisions and which the Bank might otherwise as guarantor be entitled to claim and enforce.

NOTWITHSTANDING anything contained herein before, the liability under this guarantee is restricted to Rs._____ (Rupees _____only). The guarantee shall remain in force till the _____ and unless the guarantee is renewed or a claim is preferred against the Bank within three months from the said date all rights of the Chairman, Purchase Committee (for CETP), NITRA, under the guarantee shall cease and Bank shall be released and discharged from all liability hereunder.

_____

(SIGNATURE)

PLACE :

DATE : SEAL CODE NO.

NOTE : SUPPLIERS SHOULD ENSURE THAT SEAL AND CODE NO. OF THE SIGNATORY IS PUT BY BANKER, BEFORE SUBMISSION OF THE BANK GUARANTEES.

CHAPTER - 5

DESIGN CONSIDERATION

5.1 CHARACTERSTICS OF EFFLUENT

TABLE - A: RESULTANT INLET EFFLUENT CHARACTERISTICS

S. No.	PARAMETERS	UNITS	RESULTANT INLET EFFLUENT CHARACTERISTICS
1.	pH value	-	7.4
2.	Total Solids	mg/l	3400
3.	Total Suspended Solids (TSS)	mg/l	650
4.	Total dissolved Solids (TDS)	mg/l	2000
5.	Chemical Oxygen Demand (COD)	mg/l	1050
6.	Biochemical Oxygen Demand (BOD, 3 days, 27 ^{0}C)	mg/l	350
7.	Oil and Grease	mg/l	20
8.	Residual Chlorine (as OCl^-)	mg/l	15
9.	Sulfide (as S)	mg/l	16
10.	Calcium (as $CaCO_3$)	mg/l	744
11.	Chromium (as Cr)	mg/l	0.5
12.	Silica(as SiO_2)	mg/l	85
13.	Total Hardness (as $CaCO_3$)	mg/l	1600

5.2 TREATMENT SCHEME

The treatment scheme starts with the collection of process effluent and other domestic effluent into an equalization tank after passing through an oil and grease trap. Due to rapid discharge, the peak flow rate would be high which will be absorbed into the equalization tank of sufficient storage capacity.

Before oil & grease trap, the effluent will pass through Bar & Coarse screen which has to be cleaned manually at regular intervals. The mixed effluent from equalization tank would then be subjected to a physico-chemical treatment in a reaction tank having multiple chambers fitted with agitators where Acid & Ferrous Sulphate dosing will be carried out followed by lime dosing for pH enhancement. This leads to final precipitation of chromium and dye stuff materials which gives effluent clarification.

Subsequently, it will be taken into a tube settler for settling of flocs through settling process. The overflow from the settler-1 will be imparted an aerobic treatment for the reduction of BOD/COD. Aerobic system will function on the principle of attached growth and suspended model. This lowers BOD/COD load easily. It also partially removes color successfully through bio-adsorption. The process is effective enough for handling peak load and easy for trouble-shooting.

The effluent would now pass through a secondary clarifier for the separation of bio-mass and its recycling as per design requirement in to the aeration tank. This reduces BOD/COD value of the treated effluent to virtually a negligible level. Moreover, it removes foul smell, improves effluent transparency, residual color etc. The system needs nutrient dosing of Nitrogen (N) & Phosphorus (P) as per ratio BOD: N: P::100: 5: 1 to promote the bio-growth.

The partially treated effluent will then pass through a series of reaction chambers for final polishing through precipitation technique. The oxidation process would remove color more than 99%, improve transparency and make the effluent fit for subsequent polishing treatment. At this stage, part of the effluent could be discharged into green belt as the treated effluent characteristics would be meeting the statutory norms of the state pollution control board (given in Table B).

For the purpose of recycling, the partly polished effluent will be passed through battery of conventional filters consisting of multi-grade filter, iron filter in order to achieve cent percent transparency. Afterwards, it will be taken through a series of cartridge filters.

Major part of water 75% will be reclaimed & recycled for washing purposes.

5.3 DISCHARGE CUM RECOVERY STANDARDS

TABLE- B : ACHIEVABLE VALUES VIS-À-VIS STATUTORY NORMS

S.No.	PARAMETERS	UNIT	STATUTORY NORMS	ACHIEVABLE VALUES
1.	Appearance		-	CRYSTAL CLEAR
2.	Colour, P.C.U.(Platinum Cobalt Units)		150	≤ 100
3.	Ph		5.5-8.5	6-8
4.	Suspended Solid	Mg/l	100	≤ 50
5.	Total Dissolved Solid	Mg/l	2100*	≤ 2500
6.	Chemical Oxygen Demand	Mg/l	250	≤ 150
7.	Bio-Chemical Oxygen Demand(BOD, 3 days, 27 ^{0}C)	Mg/l	30	≤ 10
8.	Oil and Grease	Mg/l	10	≤ 5
9.	Residual Chlorine (as OCl–)	Mg/l	1	≤ 1
10.	Calcium (as $CaCO_3$)	Mg/l	-	≤ 50
11.	Chromium (as Cr)	Mg/l	2	≤ 2
12.	Silica (as SiO_2)	Mg/l	-	≤ 2
13.	Total Hardness (as $CaCO_3$)	Mg/l	-	≤ 100
14.	Surfactant	Mg/l	-	≤ 2
15.	Sulphide (as S)	Mg/l	2	≤ 0.5
16.	Bio Assasy		90% of survival of test animals after 96 hours in the 100% effluent	90% of survival
17.	Phenolic Compound	Mg/l	1	≤ 1

*Low TDS water will be used as a part to bring down the TDS level during reuse.

CHAPTER - 6

GENERAL GUIDELINES FOR CIVIL ACTIVITIES

1. The contractor is to undertake internal road construction with 2 Nos. of gates as per drawing layout (Drawing no:- 02A).

2. The width of the road with interlocking tile finish will be 3 meter and length of 90 meters.

3. The road has to be on a suitable foundation base, which the contractor must be specify in the tender.

4. There is a control panel room as shown in the drawing (Drawing no:- 03) and door, window, slab, stair etc. as per drawing. The vendor has to submit the structural drawing and the tender cost. It has the following components.

    a. Portico at the front with 2m x 5m area with height of 2.5m with acrylic sheet top.

    b. One reaction tank foundation having width 1.2m and length 1.5m as shown in the drawing.

    c. Second reaction tank foundation having width 1.2m and length 4m as shown in the drawing.

    d. It has 3 floors, ground floor will have a tile finish and will be used for the office purpose. Tentative floor area will be 20 m^2.

    e. First floor will have the laboratory and panel. Floor will have tile finish. Tentative floor area will be 20 m^2.

    f. Top floor will have an acrylic roof top.

    The contractor is to quote the rate as per specification.

5. Main gate will be decided as per boundary wall.

6. The contractor is to make the foundation for MBBR cum Aeration tank as per drawing.

7. The contractor has to make the foundation as per GA drawing for the following items, assuming the tank is filled up to TWL.

    a. Tube settler-1(Drawing no:- 05A)

    b. Tube settler-2 (Drawing no:- 06A)

    c. Secondary clarifier (Drawing no:- 07A)

8. The contractor is to make the underground tank for the storage of treated effluent as per drawing with top cover and manhole position 2 nos. as shown in the drawing

with partition wall. This will be make of RCC with M25 grade.

9. The contractor has to make the following foundation, which will be 0.2m above the ground level.
    a. Blower foundation
    b. Sludge recycling foundation
    c. Lime slaker foundation
    d. D.G. set foundation
    g. MGF, IF & cartridge filter foundation. Tentative foundation area will be 15 m^2.
    h. Sludge storage tank foundation of 2m x 3m.

    The dimensions may be taken from the layout of the plant.

10. There will be cut outs with PVC collar injection of 150 mm (20 nos.) on the top of existing equalization tank.

11. Contractor may have to make the boundary wall also but it will be consider as an optional item for which the quote will be taken separately subsequence.

12. There will be 10 nos. of lamp-post for which the foundation is to be made separately if civil boundary wall is not made at this stage.

13. Sludge storage canopy of size 2m x 2.5m x 3m with acrylic top.

14. Rain water drain will be taken up along with the boundary.

CHAPTER - 7

GEOTECHNICAL INVESTIGATION REPORT

The net safe bearing capacity for various sizes of individual footings having vertical static load intensity is evaluated as in Table-C.

TABLE-C: SAFE BEARING CAPACITY AND SAFE BEARING PRESSURE

Foundation Details			Safe Bearing Capacity (SBC) in t/m^2	Permissible Settlement of 50mm for RCC Open Foundation (SBP) in t/m^2	Recommended Safe Bearing Capacity in t/m^2
Type	Depth below EGL (Mtr.)	Size in (Mtr.)			
RCC Open Foundation	1.50	1.5 x 1.5	23.07	+25	23.1
		2.0 x 2.0	22.17		22.2
		2.5 x 2.5	21.70		21.7
	2.00	1.5 x 1.5	25.17	+28	25.2
		2.0 x 2.0	23.90		23.9
		2.5 x 2.5	19.88		19.9

Note : 1) Minimum value of SBC & SBP shall be considered in design of foundation.

CONCLUSION & RECOMMENDATION

1. The present report covers the Geotechnical investigation carried out of One borehole location at Ajrakhpur Site, Bhuj.
2. Based on the proposed type of project, bore log data, Laboratory test results safe bearing capacity is suggested for RCC Open Footing as shown in Table-C.
3. Settlement computed as per I.S.8009, Part I for 50mm permissible settlement for RCC Open Foundation.
4. Suitability of Soil for back filling: The top soil is of Moderate swelling characteristic, which is suitable for structural back filling and the same shall be compacted at 95% of MDD.
5. Effect of Water table was not considered in analysis of SBC as it was not encounted.
6. At founding level, care to be taken that “Gentle Slope” should be maintained for the deposition of excavated material and necessary shoring arrangement may be done if required.
7. The above report is based on the soil strata encountered at site upto depth of Investigation i.e.10.0 mtr.
8. The above recommendations are based on the collected field data, laboratory tests results conducted on soil samples recovered from the test locations.

TECHNICAL SPECIFICATIONS

For item-wise detailed specifications including quantities, make, etc. refer Table-D to Table-AB given in Volume-II. Specifications as given in Table-D to Table-AB are indicative to cater to the equipment requirement as per quality. Accessories for completeness and required operational performance are understood to be included.

CHAPTER - 8

SPECIFICATION FOR MECHANICAL WORKS

8.1 General & Technical Specifications for Mechanical Works

The Bidder shall prepare his bid on the basis of General Mechanical Requirements and Technical Specifications for Mechanical works given below for the various items.

The requirements of these specifications are subject to the General conditions of contract. Other applicable sections of the specification shall be constructed to form a part of this section where the context so requires specific characteristic dimensions and other details applicable to any particular equipment shall be given in the schedule of Technical Data provided at the end of the relevant Section.

The contractor shall provide all the required labour, permanent equipment and electrical tools, construction plant and equipment, safety equipment, transportation and test equipment for supplying, installing, adjusting and fully testing all the mechanical work shown on the Drawings included in these schedules or ordered by the Site Engineer.

If there is any mismatch or non-conformity in between the written specification & drawing, former will be deemed final.

Tagging

Name tags shall be provided and attached with each item of equipment and device to identify it. The name tag shall be of rectangular shape and shall be approximately 37 mm x 76 mm in size. They shall be made from brass or stainless steel metal and have a minimum thickness of 0.75 mm.

Manuals

The contractor shall obtain from the manufacture and hand over to NITRA, four sets of instruction and maintenance manuals for the equipment furnished under these specifications to provide adequate information for proper installation, operation and maintenance of the equipment. The NITRA shall approve the manuals for the adequacy of the contents and the format, and return one (1) set to the contractor for his use. If any errors or in adequacies

discovered are of a minor nature, errata sheets or addenda shall be supplied by the contractor in consultation with the Site Engineer.

The errata sheets, addenda or revised manuals shall all be resubmitted to the NITRA for recreating and approval within fourteen (14) days of the date on which the Site Engineer comments are conveyed to him.

Schedule Manual for approval shall be submitted to the NITRA not later than the date of dispatch from factory.

Contents: The instruction Manual shall contain, but not be limited to, at least the following information, where applicable.

General introduction & over all equipment description, purpose, functions simplified theory of operations etc.

Specifications, Installation, Instruction and precautions, Start-up procedures, Shut down Procedures, short and long-term inactivation procedures, Schedule of preventive, Maintenance, calibration and repair instructions, parts list and spare parts recommendations, Name and address of closest spare parts and repair facility, operation Procedure etc.

Equipment Bases and Bed Plates

A heavy cast iron or welded steel base shall be provided for each item of equipment, which is to be installed on a concrete foundation. Equipment assemblies, unless otherwise specified or shown on the drawings, shall be mounted on a single, heavy cast iron or welded steel bedplate. Bases or bedplates shall be provided with machined support pads, tapered dowels for alignment or making adjustments adequate openings to facilitate grouting and openings for electrical conducts. All seams and contract edges between steel plates and shapes shall be continuously welded and ground smooth. The plates shall have a minimum thickness of 6.0 mm.

Drives

All drive units shall have rating and service factor suitable for “twenty four" (24) hours per day operation under operating load. Drive unit housings shall be constructed of high grade cost iron-welded steel or other suitable approved material. The thermal rating of each unit shall exceed the design load or proper cooling devices shall be provided. All drives shall be designed specially for the service, which they are required to perform.

Electrical Motors

All Electrical motors supplied under this contract shall conform to all requirements specified elsewhere in the Section dealing with motors. The contractor’s attention is drawn here to the fact that requirements more rigorous than those stipulated in general or the Indian standard or other sections of these specifications to meet special process requirements. The

contractor shall accordingly coordinate the work of all different specials comprising the integral system and the corresponding functional safety and code requirements for each installation, in order to comply with these specifications. Drives shall be non-overloading at all point on the equipment-operating curve.

Lubrication

Contractor shall insure constant presence of lubricant on all wearing surfaces, lubricant filling and draining openings shall be ready accessibility. Easy means for checking the lubricant level shall be provided prior to testing and or operation; the equipment shall receive prescribed amount and type of lubricant as required by the equipment manufacturer.

Pump Balance

All rotating parts shall be accurately machined and shall be in rotational balance. Excessive vibration shall be sufficient cause for rejection of the equipment. The mass of the unit and its distribution shall be such that resonance at normal operating speeds is avoided. In any case the amplitude of vibration as measured at any point on the pumping unit shall not exceed the limits mentioned in the latest edition of Indian Standard. At the operating speed, the ratio of relative. Speed to the critical speed of the unit or components shall be as per the requirement of relevant IS code.

References

Unless they are at variance with the cusses of this specification, the squirrel cage induction motors and their components shall comply with the applicable Indian Standards listed below. Where Indian Standards do not exist, the relevant British or German (VDE) Standards shall apply.
IS: 325 - Three phase induction motors.

IS: 1231 - Dimensions of three phase, foot mounted induction Motors.

IS: 2223 - Dimensions of flange mounted AC induction motors.

IS: 2253 - Types of construction of mounting arrangement of Rotating Electrical Machine.

IS: 4691 - Degrees of protection provided by enclosures for Rotating Electrical Machinery.

IS: 4889 - Methods of determination of efficiency of electrical Machinery.

IS: 4722 - Rotating electrical machines.

IS: 4029 - Guide for testing 3 phase induction motors.

IS: 4729 - Rotating electrical machine vibration of measurement and evaluation

8.2 Special Specification for Equipment & Accessories

Materials thickness, where ever not mentioned, shall be sufficient to withstand against the loads including allowance for corrosion, wear & tear.

a. Makes of all fabricated and bought out equipment including major components, shall be as per List of Vendors /makes mentioned in tender doc / DNIT.

8.3 Special Specification for Pumps & Blower

a. Materials thickness, where ever not mentioned, shall be sufficient to withstand against the loads including allowance for corrosion, wear & tear.

b. Makes of all fabricated and bought out equipment including major components, shall be as per List of Vendors /makes mentioned in tender doc / DNIT.

8.4 Special Specification for Pipe & Fittings

8.4.1 General

The diameters and types of pipes shall be as described in the approved drawings. All the materials shall be as per relevant Indian Standards. The specials and fittings shall be installed in locations as per approved drawings or as directed by Site Engineer.

The work includes supply of all types of pipes at the site of work, road cutting and remaking, excavation of trenches in all types of soil, lowering of pipes into the trenches, concrete bedding where specified, aligning to line and grade, jointing, testing, back filling of trenches to meet the requirements of Indian Standards codes of practices in a best workmanlike manner.

8.4.2 List of Standards and Codes

Pipes and Fittings

IS : 1239 (Part 1) Mild steel, tubes, tubulars and other wrought steel fittings :

Part 1 Mild Steel tubes.

IS : 1239 (Part 2) Mild Steel tubes, tubulars and other wrought steel fittings :

Part 2 Mild Steel tubulars and other wrought steel pipe fittings.

IS : 1536 Centrifugally cast (spun) iron pressure pipes for water, gas.

IS : 1537 Vertically cast iron pressure pipes for water, gas.

IS : 1538 Cast Iron fittings for pressure pipes for water, gas and sewage.

IS : 1729 Sand Cast iron spigot and socket soil, waste and ventilating pipes, fittings and accessories.

IS : 1879 Malleable cast iron pipe fittings.

IS : 2643 (Part 1) Dimensions for pipe threads for fasterning purposes : Part 1 Basic profile and dimensions.

IS : 2643 (Part 2) Dimensions for pipe threads for fastening purposes : Part 2 Tolerances.

IS : 2643 (Part 3) Dimensions for pipe threads for fastening purposes : Part 3 Limits of sizes.

IS : 3468 Pipe nuts.

IS : 3589 Seamless or electrically welded steel pipes for water, gas and sewage (168.3 mm to 2032 mm outside diameter).

IS : 3989 Centrifugally cast (sun) iron spigot and socket soil, waste and ventilating pipes, fittings and accessories.

IS : 4346 Specifications for washers for use with fittings for water services.

IS : 4711 Methods for sampling steel pipes, tubes and fittings.

IS : 6392 Steel pipe flanges

IS : 6418 Cast iron and malleable cast iron flanges for general engineering purposes.

IS : 7181 Specification for horizontally cast iron double flanged pipe for water, gas and sewage.

Valves

IS : 778 Specification for copper alloy gage, globe and check valves for water works purposes.

IS : 780 Specification for sluice valves for water works purposes (50 mm to 300 mm size).

IS : 1703 Specification copper alloy float valves (horizontal plunger type)

Puddle Collars

CI D/F Puddle Collars shall be provided wherever CI / DI pipe has to pass through RCC work. Puddle Collars shall be provided of sufficient length and puddle height.

The quality and thickness of puddle collar shall be equivalent to CI DF specials (as per IS: 1538).

Pipe Fittings

Pipe fittings of size 80 NB and below shall be forged conforming to IS-I23 9 Part-I. Fittings above 80 NB shall be DI as per relevant specifications in IS/ BS conforming.

The puddle collars embedded in the wall shall be of DI.

Specifications of Valves

The design, construction materials, manufacture, inspection, performance testing and installation shall comply with all applicable Indian standards and codes.

Dismantling pieces

All valves to be installed in straight lines shall be installed between flanges/nipple with a flexible dismantling piece at one side of the valve, which shall ensure pipeline rigidity. The piece must allow the dismantling of the valve without stress to the joints of the attached pipes. The minimum clearance of the dismantling pieces shall be five (5) cm. The pressure class of the dismantling piece shall be the same as that of the valve. Drawings of the dismantling pieces have to be submitted to the Engineer in Charge for approval.

Flanges

All flanges of pipes, specials and accessories will be according to IS 1538. The contractor has to ensure that flanges of flanged equipment of different type and of different suppliers have the same matching dimensions, number, position and diameter of holes, according to the nominal diameter and the pressure class. No new or additional holes shall be drilled on site. A flange connection should be given if the individual pipe distance is more than 30 meter.

Codes and standards

The design, manufacture, shop testing, erection, testing and commissioning of valves shall conform to the latest revision of the IS codes.

Non-return valves

Non-return valves shall be installed on the delivery side of the pumps, and shall be suitable for installation in a horizontal pipeline. Rapid natural closing to be non-slam by suitable design of spring return mechanism, to ensure that the valve will rapidly fully close the moment forward flow of the water cases i.e. on pump shutdown, external counter weights will not be acceptable.

Sluice Valves - / Gate valves

The Contractor shall supply and install all isolating valves and control valves as indicated on the drawings and as required for the proper and efficient operation and maintenance of the entire systems. All valves supplied shall be suitable for the working pressure and test pressure of the system as specified elsewhere in this specification.

The manual valves shall be provided with hand wheels with extensions as required on the place of installation. Regulating valves shall be of similar materials as that specified for cast iron gate valves. All valves shall be full line size. Furnish all valves and accessory materials necessary in the piping whether or not shown on drawings.

List of Valves & Fittings

a. Materials thickness, where ever not mentioned, shall be sufficient to withstand against the loads including allowance for corrosion, wear & tear.

b. Makes of all fabricated and bought out equipment including major components, shall be as per List of Vendors /makes mentioned in tender doc / DNIT.

CHAPTER - 9

SPECIFICATIONS FOR ELECTRICAL& INSTRUMENTATION WORKS

9.1 General Electrical Requirements and Technical Specifications for Electrical Works

Work Included

The contractor shall provide all the required labour, project equipment and material tools, construction equipment, safety equipment, transportation, test equipment and satisfactorily complete all the electrical work shown on the Schematic Drawings and included in these specifications provided and install wiring for the equipment that will be furnished and installed as per the sections of these specifications.

Quality Assurance

All the electrical equipment and materials including their installations shall conform to the following applicable latest codes, standard & revisions: -

Reference Codes & Standards

IS : 8130 - 1984 Conductors for insulated electric cables and flexible cords.

IEC : 228 Conductors of Insulated Cables. IS: 10810 (Pt 58) Methods of test for cables: Part 58 Oxygen Index test

IS: 10810 (Pt 61) Methods of test for cable: Part 61 Flame retardant test

IS: 10810 (Pt 62) Methods of test for cable: Part 62 Flame retardant test for bunched cables

IEC: 502 Extruded solid dielectric-insulated power cables for rated voltage from 1 KV upto 30 KV.

IS: 1885-(Part32) Electro Technical vocabulary - electric cables (1993)

IS: 3961-(Part4) Recommended current ratings for Polyethylene insulated cables. (1968)

IS: 3975-(1988) Mild steel wire, formed wires and tapes for armouring of cables.

IS: 5831-(1984) Specification for PVC insulation and sheath of electric cables.

IS: 6474-(1984) Specification for Polyethylene insulation and sheath of electric cables.

IS: 7098-(Part II) Cross-linked polyethylene insulated PVC sheathed cable for voltage from 3.3 KV upto 33KV

IS: 7098-(Part I) XLPE Insulated electric cables (heavy duty).

IS: 10418-(1982) Drums for electric cables.

IS:10462(Part1) Fictitious calculation method for determination of dimensions protective (1983) coverings of cables

IEC: 60540&60540A Test methods for insulation & sheaths of electric cables

IEC: 230 (1966) Impulse tests on cables and their accessories

IEC: 60332(3Parts) Tests on electric cables under fire conditions

IEC: 811(5Parts) Test methods for insulating and sheathing materials of electric cables.

IEC: 840(1988) Tests for power cables with extruded insulation for rated voltages

Indian Electrical Rules 1956.

The Electrical Supply Act of 1948.

Fire Insurance Regulations.

Regulations drawn by the Chief Electrical inspector of State.

Regulations drawn by Factory Inspector of State

Indian Standards Institution

Factory Act

Any other Regulation lay down by the other local authority.

General:

a. The cables will be used for connection of power, control and instrumentation circuits of the auxiliary electrical systems.

b. Cables are to be suitable for transmission of signals and measuring values, which require protection against disturbances caused by stray fields.

c. Cables will be laid in ladder type trays, 3 meter above the ground. For interplant connection cables may be directly buried in ground.

d. The insulation and sheath materials shall be resistant to oil, acid and alkali and shall be tough enough to withstand mechanical stresses during handling.

e. For continuous operation at specified rating, maximum conductor temperature shall be limited to permissible value as per relevant standard.

f. Core identification for multicore cables shall be provided by colour coding.

g. The PVC insulated cables shall be capable of withstanding a conductor temperature of 160°C during a short circuit without any damage.

h. For all control/ protection/ instrumentation purposes PVC insulated, unarmoured control cables of minimum 1.5 sq. mm Size with stranded Copper conductors shall be used.

i. All the cables shall pass fire resistance test as per IS:1554 (Part-I) 2.11 The normal current rating of all PVC insulated cables shall be as per IS: 3961.

j. Repaired cables shall not be accepted.

Service Manuals

Seven copies of all Service manuals shall be furnished with the respective equipments & shall contain all necessary data for operation and maintenance of the equipment. A recommended spare parts list shall also be furnished with the manual. A complete set of relevant Drawings shall be folded and inserted in each manual.

Equipment and Materials

Contractor shall provide the equipment and materials that are required to complete all the electrical works outlined in this Section and/ or as may be required for satisfactory operation. Incidental items not included in the tender specifications that can legitimately and reasonably be inferred to belong to the electrical works shall be provided by the contractor at no additional cost to the NITRA. The decision of the NITRA in this matter shall be final. All equipment and material shall be new latest design and standard products of established manufacturers. For uniformity only one manufacturer shall be accepted for each type of product. Contractor shall provide adequate and protective storage for all equipment and materials during the construction work. The contractor is responsible for its safe custody for his materials at site.

Excavation and Backfill

Provide the excavations for electrical equipment foundations and trenches for conduits as specified.

Exercise caution during all excavation work and avoid damage to existing underground pipes / cables.

Cutting Drilling and Welding

The contractor shall provide the required cutting drilling and welding etc. that shall be required for the electrical construction work.

Cutting and drilling 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.

Clean-Up

Upon completion of the electrical work the contractor shall remove all surplus materials rubbish and debris that accumulated during the construction work. The entire area shall be left neat and acceptable to the Engineer-in-charge.

Safety

Contractor shall provide guards gangplanks railing barriers lights caution signs and other equipment of materials that are required for the safety of people who are in the project area.

9.2 ELECTRICAL PANEL

The control panel shall be made up of 2mm sheet steel with 7/9 tank process powder coating for long life. The control panel should contain ACB/MCCB (as per design requirement) of suitable rating contacts relays of reputed make.

The following protections should be provided in the panel board:-

- **Overload protection**
- **Short circuit protection**
- **Earth fault protection**
- **Shunt trip & under voltage protection**

Over temperature protection for motors, single phasing prevents or Seal monitoring relay Automatic level controller, Ammeter of suitable range, voltmeter selector switch, auto manual switch, pump running indication lamp, pump fault indicating lamps, phase indicating lamps.

The automatic liquid level controller should control the pump while the pumps run in auto mode. The electrodes should be fixed in the wet well and the

connections from electrodes should be made to the control panel through the cable duct necessary control wiring should be made so that the pump starts/ stops on auto/remote operation.

Type of starter should be as under:-

Sl. No.	HP Rating	Type of starter
1	Up to 10	DOL
2	10 to 50	Fully automatic Star- Delta/Soft starter

The panels will be made dust and vermin proof by providing proper neoprene gaskets. panel will have compartmental design, where in the incoming and outgoing feeders bus bars etc. will be mounted in separate compartments having its own front door. The main switch of each feeder will be interlocked with its front door so that the door cannot be opened in the closed position of the switch.

Construction of cold-rolled steel with metal gauges and construction methods shall conform to Indian Standards. Panels shall be designed to conform to the requirements of conform to the relevant IS specifications and shall be provided with required hardware such as control cabling, contactors, and spares.

The structure shall be mounted on a MS Channel of required size.

1. Nuts, Bolts, Studs and Washers

Nuts and bolts shall be of the best quality bright steel, machined on the shank and under the water, Studs, bolts and nuts shall be electro-galvanized. Bolts shall be of accurate length so that only one thread shall show through the nut in the fully tightened conditions. Nuts and bolts shall conform to IS: 1363 and IS: 1367.

2. Cabling system Installation

The cables shall be laid in trenches, trays or conduits or buried in ground as specified in the drawing. Cable routing given on the drawings shall be checked at site to avoid interference with structures, piping and ducting. Minor adjustments shall be made to suit the field conditions.

All cables shall be carefully measured and cut to the required length, leaving sufficient length for final connections to the equipment on both sides.

Cables shall be handled carefully during installation to prevent mechanical injury to the cables. Ends of cables leaving trenches shall be coiled and provided with protective cover until the final termination to the equipment is completed.

All wall openings shall be effectively sealed after installation of cables.

3. Earthing system

All the material required for the earthlings system shall be supplied and installed by the contractor. The main grid conductor shall be hot dip G.I. strip of 50 x 6 mm size.

All the material required for making earthen stations, such as electrode, charcoal, salt etc. should be supplied by the contractor. Excavation and refilling for laying of earth strip and for earth pit shall also be in contractor's scope. The main panel shall be connected to main earthing system.

The entire earthen system shall fully comply with Indian electricity act and rules.

Conductor size for connections to various equipments shall be as per the Table given below:

Equipment		**Conductor**
Motors	Up to 11kW	8 SWG GI
MCC / PDB		50 x 6 mm GI flat
Local control station, street light		8 SWG GI wire
Main earth grid		50 x 6 mm GI flat
SLDB		32x 3 mm GI flat
Lighting Panel		25 x 3 mm GI flat
Indoor fixtures		14 SWG GI Wire

All paint, scale etc. shall be removed before earthen connections are made Anchor bolts or fixing bolts shall not be used for earthen connections.

4. Cable glands and lugs

All cable glands shall be made out of brass and shall be of double compression type. All cable lugs shall be of tinned copper, crimping type.

5. Cable trays

Cable carrier system shall comprise of site ladder type cable trays made out of structural steel and painted duly with two coats of red oxide and a final coat of enamel paint. The construction of the cable trays shall be as per the site requirement and generally in line with the drawing enclosed.

6. Civil works

All civil/ structural works, required for electrical installation is included in the contractor's scope. However some of the major items are listed below: -

- Foundations for lighting poles.
- Road Crossings by pipes

- Excavation, cable protection tiles, sand filling, back filling etc. for directly buried cables and earthing conductors.
- Any other minor civil works required such as making openings in wall, floor etc.
- All openings made by the contractor for lying of conduit / cable / earthing strip etc. shall be made good at no extra cost.

9.3 SPECIAL SPECIFICATION FOR ELECTRICAL & INSTRUMENTATION WORKS

Operational Requirement / Interlinking of Electrical Panel and Instrumentation

Panels shall have provision of Changeover Switches for operation of through DG Power.

9.3.1 Effluent Withdrawal Pumps:

- Each Pump for independent operation manual/automatic modes.
- It will start & stop on the basis of Level Switch in the Equalization Tank.
- When water level in Equalization water tank is above the set level then Pump will start. When water level is below the set low level pump will stop

9.3.2 Reaction Tank-1: Agitators and Air Blowers: Independent and Separate control.

9.3.3 Reaction Tank-2: Agitators and Air Blowers: Independent and Separate control.

9.3.4 Air blowers : For independent and Separate control

- It will start & stop with Cyclic Timer.
- Cyclic timer will change duty of blower after defined working hrs.

9.3.5 Sludge Recycling Pump: Each Pump for independent operation MANUAL modes.

9.3.6 Dosing Tank: Tanks Agitators and Air Blowers: Independent and Separate control.

9.3.7 Dosing Pump: To be interlocked with effluent withdrawal pumps for synchronous operation.

9.3.8 Lime Dosing Pump: To be interlocked with effluent withdrawal pumps for synchronous operation.

9.3.9 Filtration Pumps:

- Each Pump for independent operation manual/automatic modes.
- It will start & stop on the basis of Level Switch in the EqualizationTank.
- When water level in storage tank is above the set level then Pump will start.
- When water level is below the set low level pump will stop.

9.3.10 Sludge (screw) Pump: Pump for independent operation MANUAL modes.

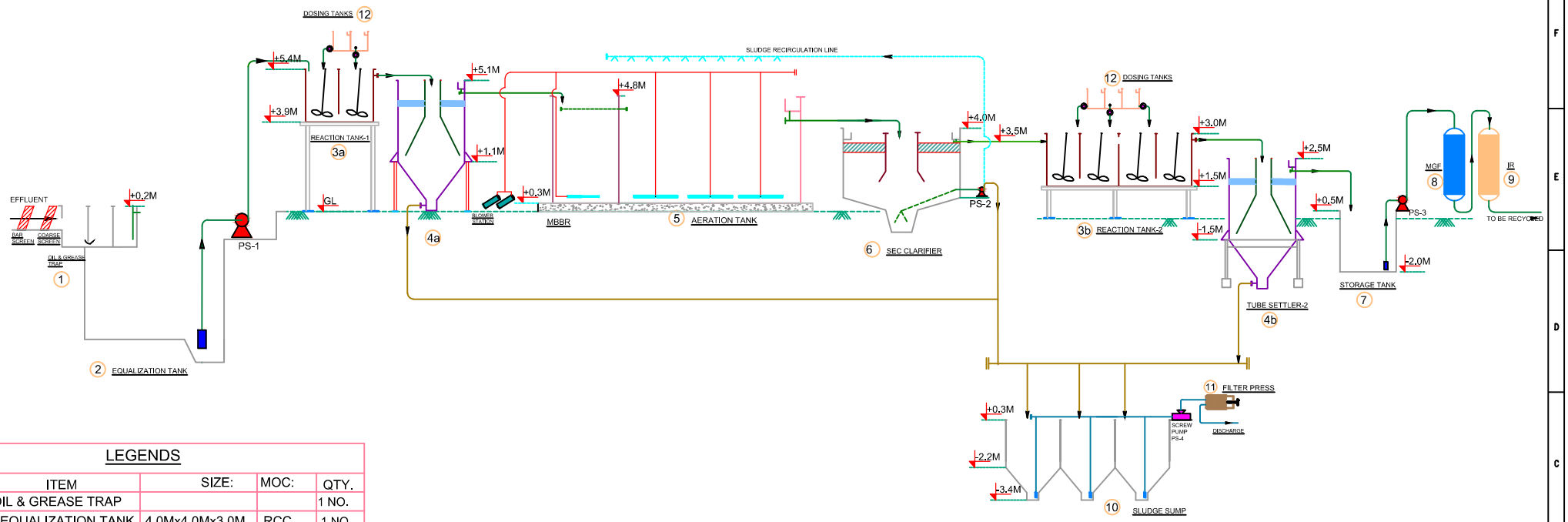
9.4 ELECTRICAL LOAD

Electrical Load details are as given in following table:

S.NO.	ITEM	HP	CONFIGURATION	TOTAL	CUMULATIVE
1.	Effluent Withdrawal Station	3.0	(1+1) =2	6.0	6
2.	Reaction Tank-1	1.0	(1+1)= 2	2.0	8
3.	Reaction Tank-2	1.0	(1+1+1+1)= 4	4.0	12
4.	Blower	5.0	1	5.0	17
		7.5	1	7.5	24.5
5.	Sludge Recycling Pump	2.0	(1+1)=2	4.0	28.5
6.	Dosing Tank	1.0	(1+1)=2	2.0	30.5
7.	Dosing Pump	0.5	(1+1+1+1)=4	2.0	32.5
8.	Lime Dosing Pump	1.0	(1+1) =2	2.0	34.5
9.	Filtration Pump	5.0	(1+1)=2	10.0	44.5
10.	Sludge (Screw) Pump	3.0	1	3.0	47.5
11.	Laboratory /Lighting	7.5	1	7.5	55
TOTAL INSTALLED LOAD			**55 HP ≡ 41 KW**		

ANNEXURES: LIST OF DRAWINGS
Annexure-1: CETP -Hydraulic Flow Diagram
Annexure-2: CETP -P & I Diagram
Annexure-3: CETP- Layout
Annexure-4: CETP- Piping Layout
Annexure-5: CETP- Cabling Layout
Annexure-6: Foundation Drawing For Reaction & Dosing Tank
Annexure-7: Sludge Sump Drawing
Annexure-8: Storage Tank Drawing
Annexure-9: Tube Settler -1-G.A. Drawing
Annexure-10: Tube Settler -1 Foundation Drawing
Annexure-11: Tube Settler -2 -G.A. Drawing
Annexure-12: Tube Settler -2 Foundation Drawing
Annexure-13: Secondary Clarifier - G.A. Drawing
Annexure-14: Secondary Clarifier - Foundation Drawing
Annexure-15: Reaction Tank-1 Drawing
Annexure-16: Reaction Tank-2 Drawing
Annexure-17:MBBR & Aeration Tank & Diffuser Drawing
Annexure-18: Dosing Tank Drawing
Annexure-19: Equalization Tank & Diffuser Drawing (Civil Work Existing)
Annexure-20: Multi Grade Filter Drawing
Annexure-21: Iron Filter Drawing
Annexure-22: Effluent Withdrawal Pump (PS-1) –Piping Drawing
Annexure-23: Sludge Recycling Pump (PS-2) –Piping Drawing
Annexure-24: Filtration Pump (PS-3) –Piping Drawing
Annexure-25: Sludge Pump(PS-4) –Piping Drawing
Annexure-26: Dosing Pump –Piping Drawing
Annexure-27: Air Blower –Piping Drawing

HYDRAULIC FLOW DIAGRAM



LEGENDS

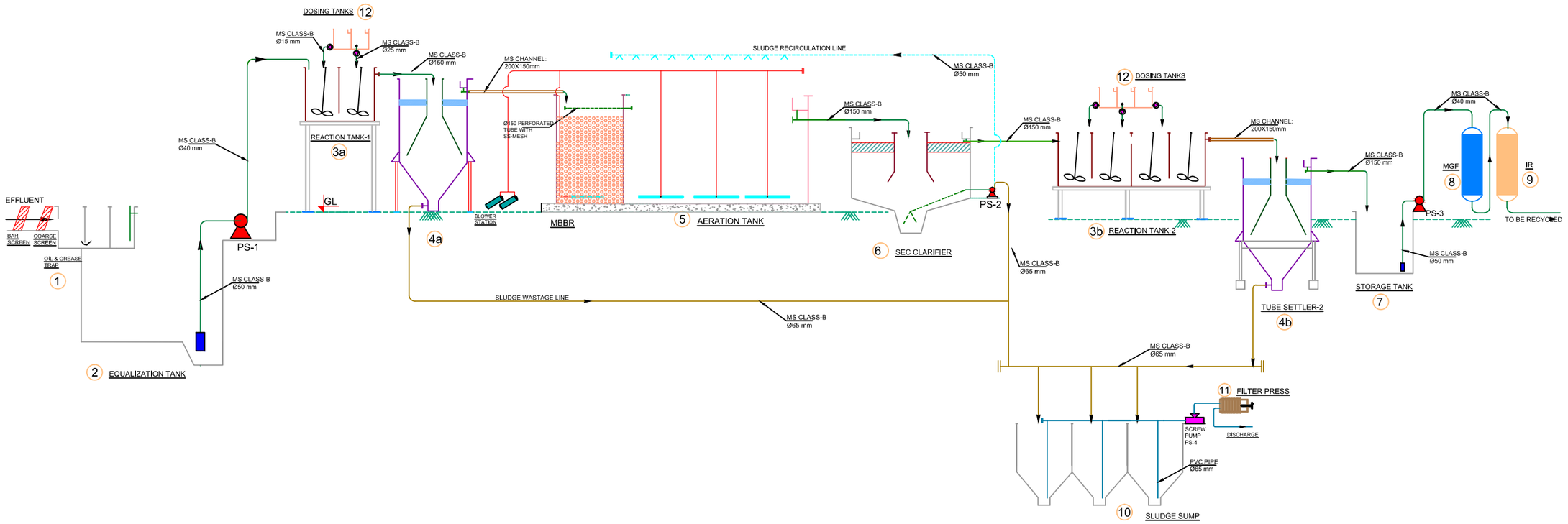
S.NO.	ITEM	SIZE:	MOC:	QTY.
1.	OIL & GREASE TRAP			1 NO.
2a.	EQUALIZATION TANK	4.0Mx4.0Mx3.0M	RCC	1 NO.
2b.	EQUALIZATION TANK	7.0M X6.0M X6M	RCC	1 NO.
3a.	REACTION TANK-1	2.0M X1.0M X1.5M	PP-FRP	2 NO.
3b	REACTION TANK- 2	1.0M X4.0M X1.5M	PP-FRP	
4a,b	TUBE SETTLER	Ø4.0M X4.0M HT	PP-FRP	2 NO.
5.	MBBR CUM AERATION TANK	7M X3.0M X4.5M	MS-EPOXY	1 NO.
6	SEC CLARIFIER	Ø4.5M X4.0M HT	PP-FRP	1 NO.
7.	STORAGE TANK	3M X2.0M X3M	RCC	1 NO.
8.	MULTIGRADE FILTER	Ø1.0M X2.2M HT	MS	1 NO.
9.	IRON FILTER	Ø1.2M X2.2M HT	MS	1 NO.
10.	SLUDGE SUMP	3MX3MX3.5M	RCC	3 NO.
11.	FILTER PRESS	600X600mm		1 NO.
12.	DOSING TANK	2 MX1.0X1.0M	PP	1 NO.
13.	PANEL ROOM	5 MX4MX5.5M	BRICK MASONARY	1 NO.

PUMPS

ITEM	PARTICULAR
PS 1	EFFLUENT WITHDRAWAL STATION
PS 2	SLUDGE RECYCLING STATION
PS 3	EFFLUENT TRANSFER STATION
PS 4	SCREW PUMPING STATION

QUANTITY : 01 NO.		
PROJECT:	CETP AJRAKHPUR, BHUJ, GUJARAT	
	IMPLEMENTING AGENCY -NITRA, GHAZIABAD	
DRAWING	NO:- 01	
DATE:-	08.02.2017	TITLE:- HYDRAULIC FLOW DIAGRAM (CETP)
REV:-	00	
ALL DIMENSIONS ARE IN M.M.		

P & I D



LEGENDS

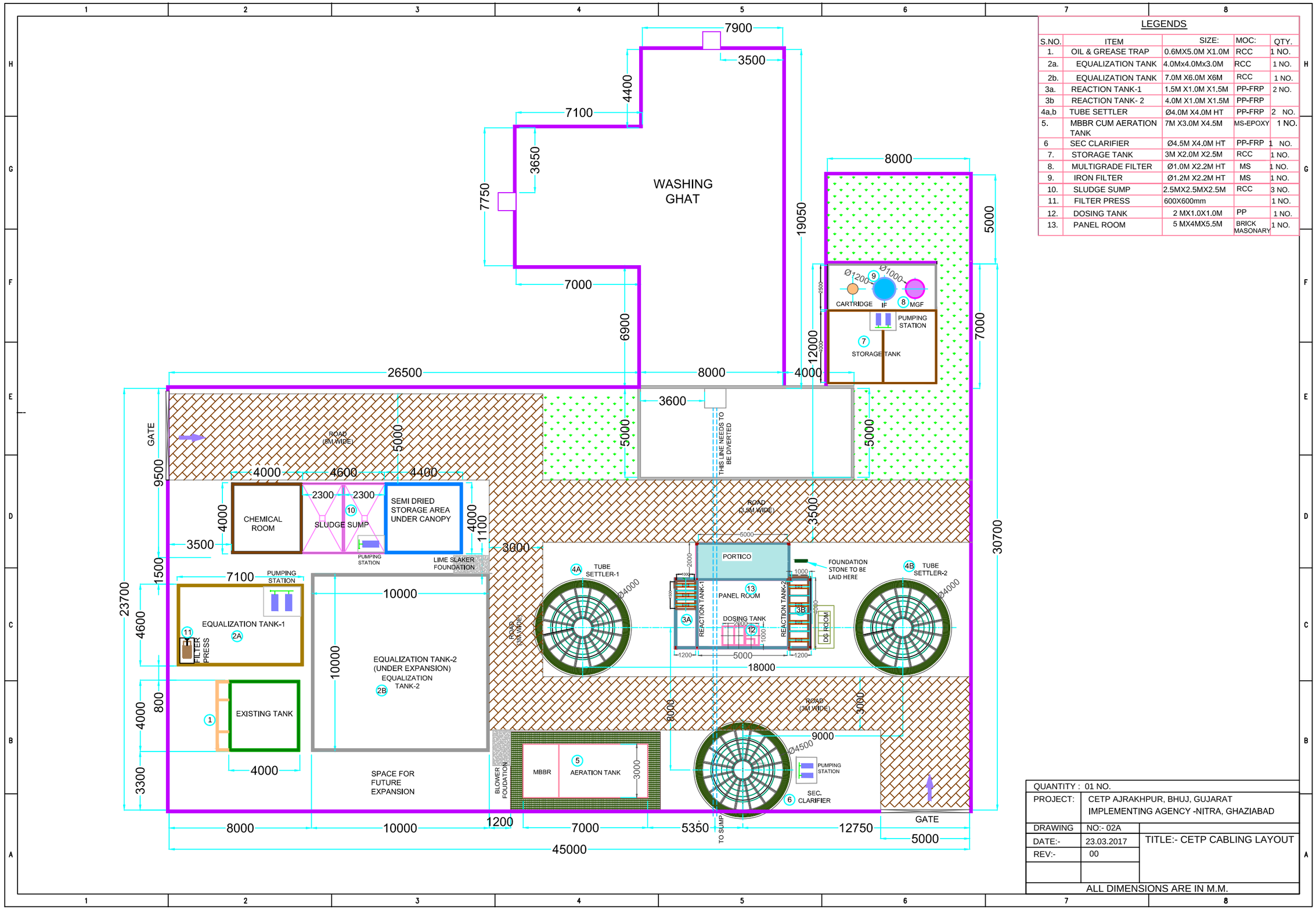
S.NO.	ITEM	SIZE:	MOC:	QTY.
1.	OIL & GREASE TRAP			1 NO.
2a.	EQUALIZATION TANK	4.0Mx4.0Mx3.0M	RCC	1 NO.
2b.	EQUALIZATION TANK	7.0M X6.0M X6M	RCC	1 NO.
3a.	REACTION TANK-1	2.0M X1.0M X1.5M	PP-FRP	2 NO.
3b	REACTION TANK- 2	1.0M X4.0M X1.5M	PP-FRP	
4a,b	TUBE SETTLER	Ø4.0M X4.0M HT	PP-FRP	2 NO.
5.	MBBR CUM AERATION TANK	7M X3.0M X4.5M	MS-EPOXY	1 NO.
6	SEC CLARIFIER	Ø4.5M X4.0M HT	PP-FRP	1 NO.
7.	STORAGE TANK	3M X2.0M X3M	RCC	1 NO.
8.	MULTIGRADE FILTER	Ø1.0M X2.2M HT	MS	1 NO.
9.	IRON FILTER	Ø1.2M X2.2M HT	MS	1 NO.
10.	SLUDGE SUMP	3MX3MX3.5M	RCC	3 NO.
11.	FILTER PRESS	600X600mm		1 NO.
12.	DOSING TANK	2 MX1.0X1.0M	PP	1 NO.
13.	PANEL ROOM	5 MX4MX5.5M	BRICK MASONARY	1 NO.

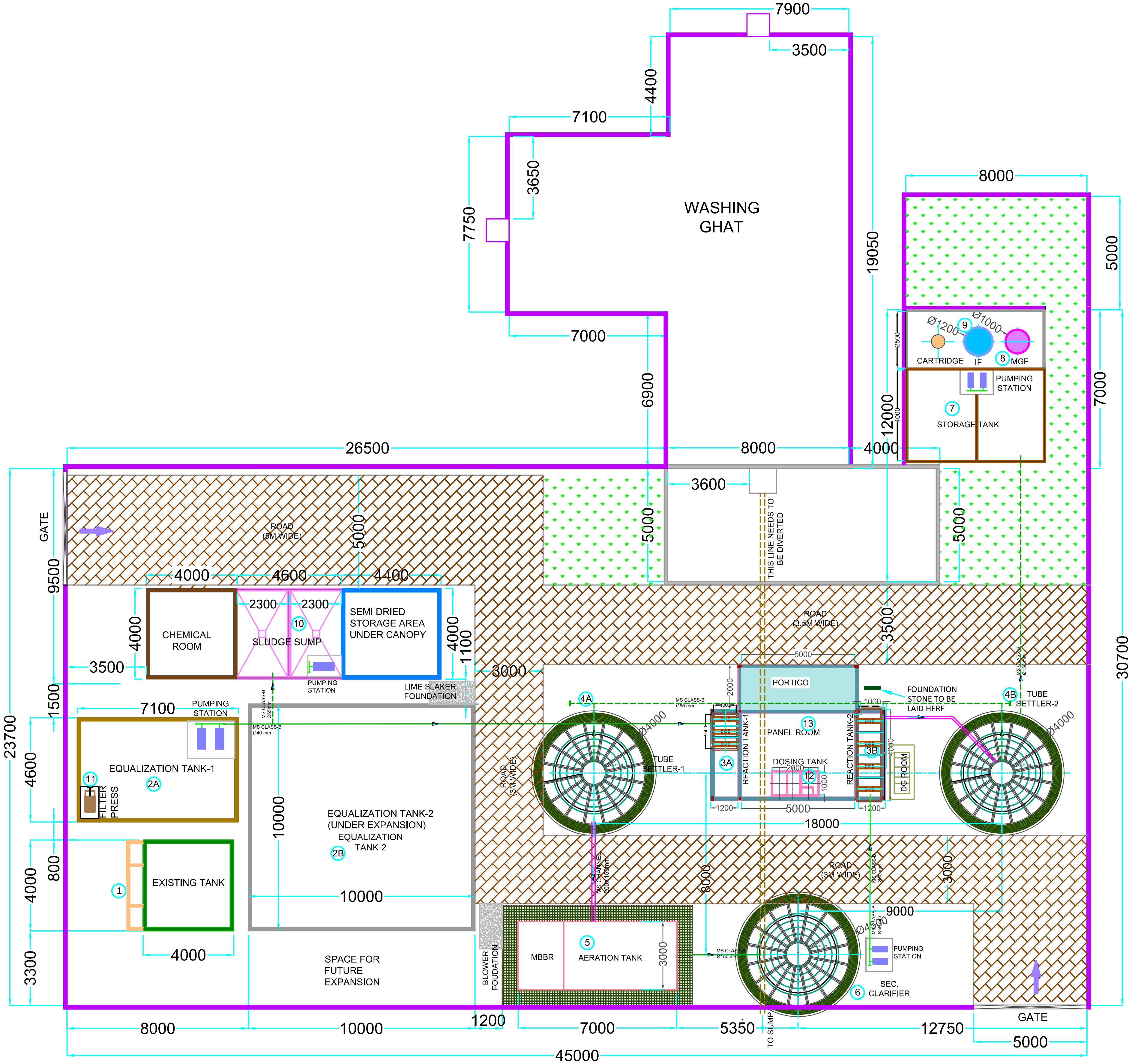
PUMPS

ITEM	PARTICULAR	
PS 1	EFFLUENT WITHDRAWAL STATION	
PS 2	SLUDGE RECYCLING STATION	
PS 3	EFFLUENT TRANSFER STATION	
PS 4	SCREW PUMPING STATION	

QUANTITY : 01 NO.		
PROJECT:	CETP AJRAKHPUR, BHUJ, GUJARAT	
	IMPLEMENTING AGENCY -NITRA, GHAZIABAD	
DRAWING	NO:- 01B	
DATE:-	07.03.2017	TITLE:- P & I D
REV:-	00	

ALL DIMENSIONS ARE IN M.M.


WASHING GHAT
7900
3500
4400
7100
3650
7750
7000
6900
19050
8000
5000
7000
12000
Ø1200
Ø1000
9
CARTRIDGE IF
8 MGF
PUMPING STATION
7
STORAGE TANK
26500
8000
4000
3600
5000
5000
GATE
9500
ROAD (6M WIDE)
4000
4600
4400
2300
2300
10
SEMI DRIED STORAGE AREA UNDER CANOPY
CHEMICAL ROOM
SLUDGE SUMP
4000
4000
1100
3500
PUMPING STATION
LIME SLAKER FOUNDATION
3000
ROAD (3.5M WIDE)
3500
30700
1500
7100
PUMPING STATION
10000
23700
4600
EQUALIZATION TANK-1
2A
11
FILTER PRESS
EQUALIZATION TANK-2 (UNDER EXPANSION)
EQUALIZATION TANK-2
2B
10000
800
4000
1
EXISTING TANK
3300
4000
SPACE FOR FUTURE EXPANSION
BLOWER FOUDATION
MBBR
5
AERATION TANK
3000
4A TUBE SETTLER-1
Ø4000
PORTICO
5000
2000
FOUNDATION STONE TO BE LAID HERE
4B TUBE SETTLER-2
Ø4000
REACTION TANK-1
PANEL ROOM
13
REACTION TANK-2
3A
DOSING TANK
12
3B
DG ROOM
1200
5000
1200
18000
ROAD (5M WIDE)
8000
ROAD (3M WIDE)
3000
9000
Ø4500
PUMPING STATION
6 SEC. CLARIFIER
TO SUMP
8000
10000
1200
7000
5350
12750
GATE
5000
45000
LEGENDS
S.NO. | ITEM | SIZE: | MOC: | QTY.
1. | OIL & GREASE TRAP | 0.6MX5.0M X1.0M | RCC | 1 NO.
2a. | EQUALIZATION TANK | 4.0Mx4.0Mx3.0M | RCC | 1 NO.
2b. | EQUALIZATION TANK | 7.0M X6.0M X6M | RCC | 1 NO.
3a. | REACTION TANK-1 | 1.5M X1.0M X1.5M | PP-FRP | 2 NO.
3b | REACTION TANK- 2 | 4.0M X1.0M X1.5M | PP-FRP |
4a,b | TUBE SETTLER | Ø4.0M X4.0M HT | PP-FRP | 2 NO.
5. | MBBR CUM AERATION TANK | 7M X3.0M X4.5M | MS-EPOXY | 1 NO.
6 | SEC CLARIFIER | Ø4.5M X4.0M HT | PP-FRP | 1 NO.
7. | STORAGE TANK | 3M X2.0M X2.5M | RCC | 1 NO.
8. | MULTIGRADE FILTER | Ø1.0M X2.2M HT | MS | 1 NO.
9. | IRON FILTER | Ø1.2M X2.2M HT | MS | 1 NO.
10. | SLUDGE SUMP | 2.5MX2.5MX2.5M | RCC | 3 NO.
11. | FILTER PRESS | 600X600mm | | 1 NO.
12. | DOSING TANK | 2 MX1.0X1.0M | PP | 1 NO.
13. | PANEL ROOM | 5 MX4MX5.5M | BRICK MASONARY | 1 NO.
THIS LINE NEEDS TO BE DIVERTED
QUANTITY : 01 NO.
PROJECT: CETP AJRAKHPUR, BHUJ, GUJARAT
IMPLEMENTING AGENCY -NITRA, GHAZIABAD
DRAWING NO:- 02A
DATE:- 23.03.2017
REV:- 00
TITLE:- CETP CABLING LAYOUT
ALL DIMENSIONS ARE IN M.M.



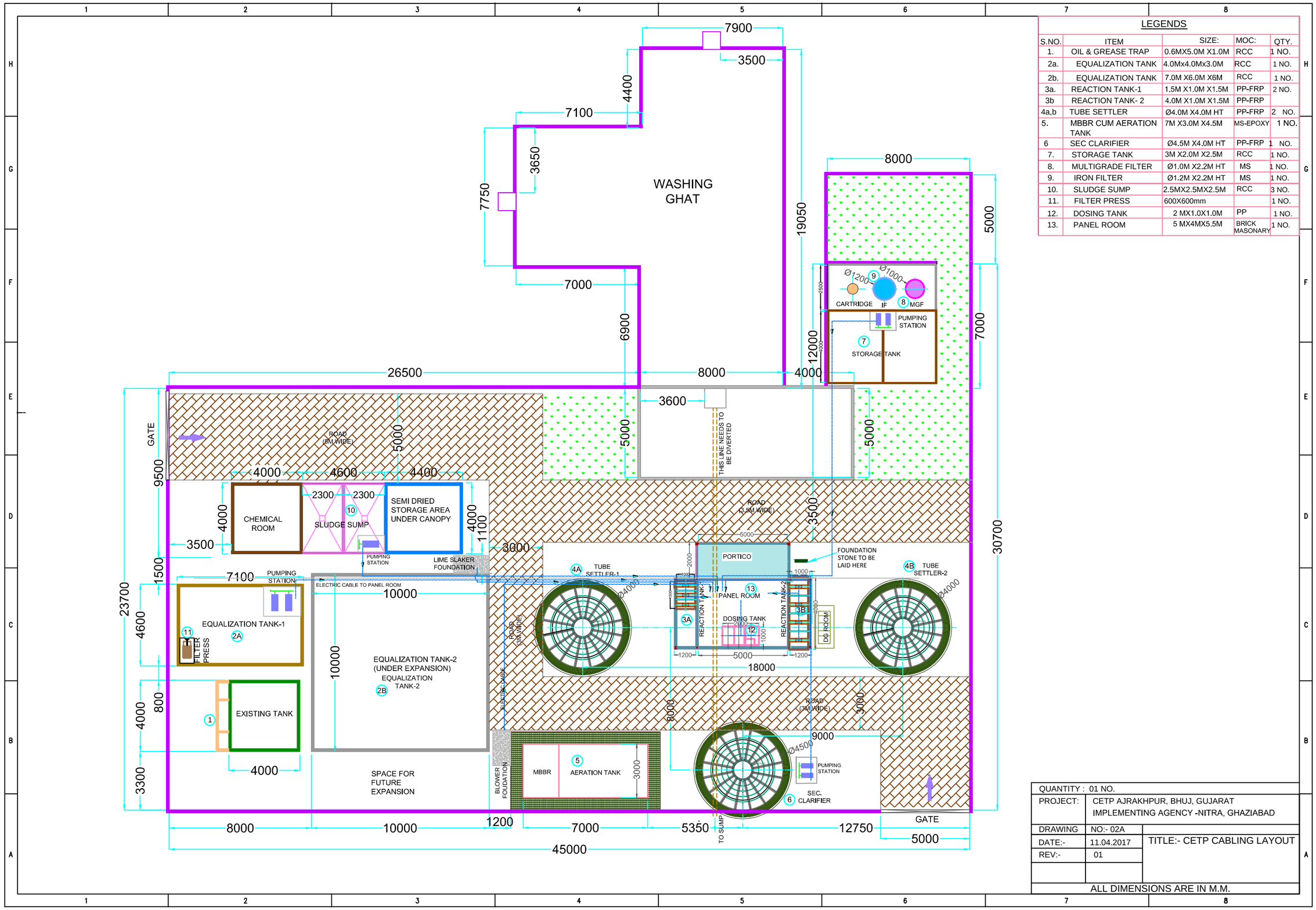
LEGENDS

S.NO.	ITEM	SIZE:	MOC:	QTY.
1.	OIL & GREASE TRAP	0.6MX5.0M X1.0M	RCC	1 NO.
2a.	EQUALIZATION TANK	4.0Mx4.0Mx3.0M	RCC	1 NO.
2b.	EQUALIZATION TANK	7.0M X6.0M X6M	RCC	1 NO.
3a.	REACTION TANK-1	1.5M X1.0M X1.5M	PP-FRP	2 NO.
3b	REACTION TANK- 2	4.0M X1.0M X1.5M	PP-FRP	
4a,b	TUBE SETTLER	Ø4.0M X4.0M HT	PP-FRP	2 NO.
5.	MBBR CUM AERATION TANK	7M X3.0M X4.5M	MS-EPOXY	1 NO.
6	SEC CLARIFIER	Ø4.5M X4.0M HT	PP-FRP	1 NO.
7.	STORAGE TANK	3M X2.0M X2.5M	RCC	1 NO.
8.	MULTIGRADE FILTER	Ø1.0M X2.2M HT	MS	1 NO.
9.	IRON FILTER	Ø1.2M X2.2M HT	MS	1 NO.
10.	SLUDGE SUMP	2.5MX2.5MX2.5M	RCC	3 NO.
11.	FILTER PRESS	600X600mm		1 NO.
12.	DOSING TANK	2 MX1.0X1.0M	PP	1 NO.
13.	PANEL ROOM	5 MX4MX5.5M	BRICK MASONARY	1 NO.

QUANTITY :	01 NO.
PROJECT:	CETP AJRAKHPUR, BHUJ, GUJARAT IMPLEMENTING AGENCY -NITRA, GHAZIABAD
DRAWING	NO:- 02A
DATE:-	11.04.2017
REV:-	00

TITLE:- CETP PIPING LAYOUT

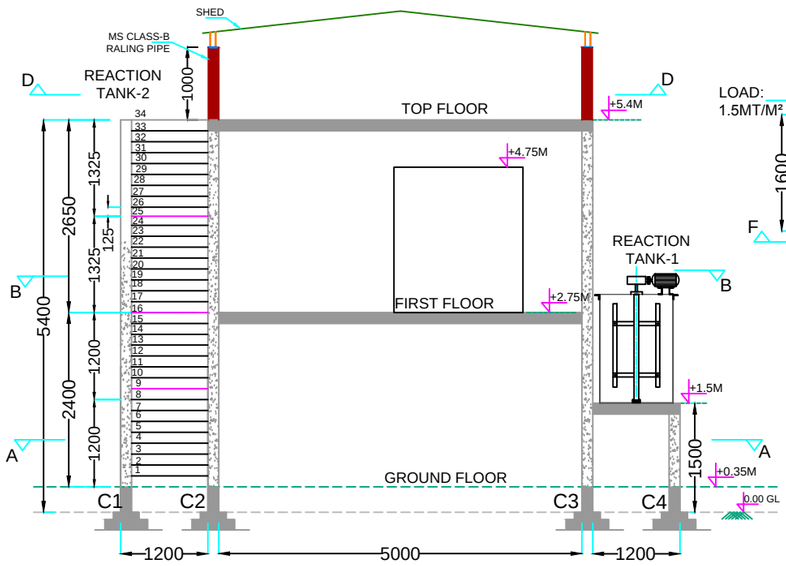
ALL DIMENSIONS ARE IN M.M.



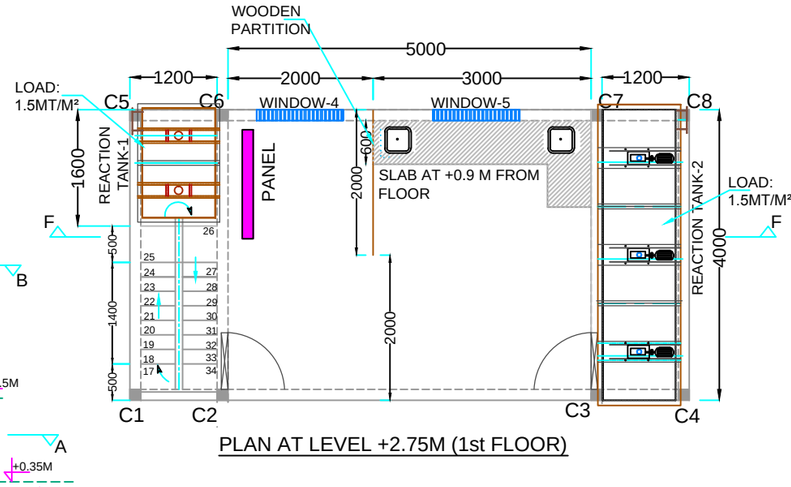
LEGENDS

S.NO.	ITEM	SIZE:	MOC:	QTY.
1.	OIL & GREASE TRAP	0.6MX5.0M X1.0M	RCC	1 NO.
2a.	EQUALIZATION TANK	4.0Mx4.0Mx3.0M	RCC	1 NO.
2b.	EQUALIZATION TANK	7.0M X6.0M X6M	RCC	1 NO.
3a.	REACTION TANK-1	1,5M X1.0M X1.5M	PP-FRP	2 NO.
3b	REACTION TANK- 2	4.0M X1.0M X1.5M	PP-FRP	
4a,b	TUBE SETTLER	Ø4.0M X4.0M HT	PP-FRP	2 NO.
5.	MBBR CUM AERATION TANK	7M X3.0M X4.5M	MS-EPOXY	1 NO.
6	SEC CLARIFIER	Ø4.5M X4.0M HT	PP-FRP	1 NO.
7.	STORAGE TANK	3M X2.0M X2.5M	RCC	1 NO.
8.	MULTIGRADE FILTER	Ø1.0M X2.2M HT	MS	1 NO.
9.	IRON FILTER	Ø1.2M X2.2M HT	MS	1 NO.
10.	SLUDGE SUMP	2.5MX2.5MX2.5M	RCC	3 NO.
11.	FILTER PRESS	600X600mm		1 NO.
12.	DOSING TANK	2 MX1.0X1.0M	PP	1 NO.
13.	PANEL ROOM	5 MX4MX5.5M	BRICK MASONARY	1 NO.

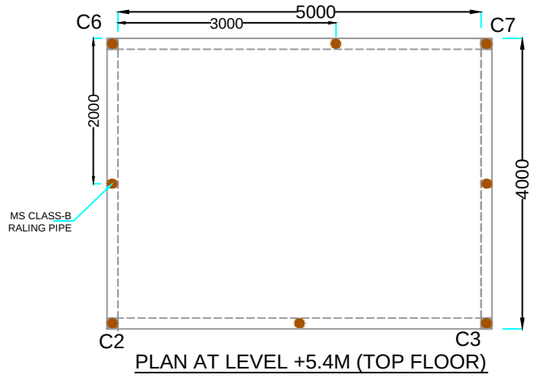
QUANTITY : 01 NO.		
PROJECT:	CETP AJRAKHPUR, BHUJ, GUJARAT IMPLEMENTING AGENCY -NITRA, GHAZIABAD	
DRAWING	NO:- 02A	
DATE:-	11.04.2017	TITLE:- CETP CABLING LAYOUT
REV:-	01	
ALL DIMENSIONS ARE IN M.M.		



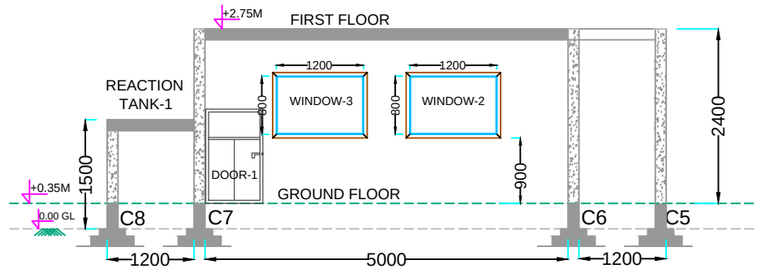
ELEVATION

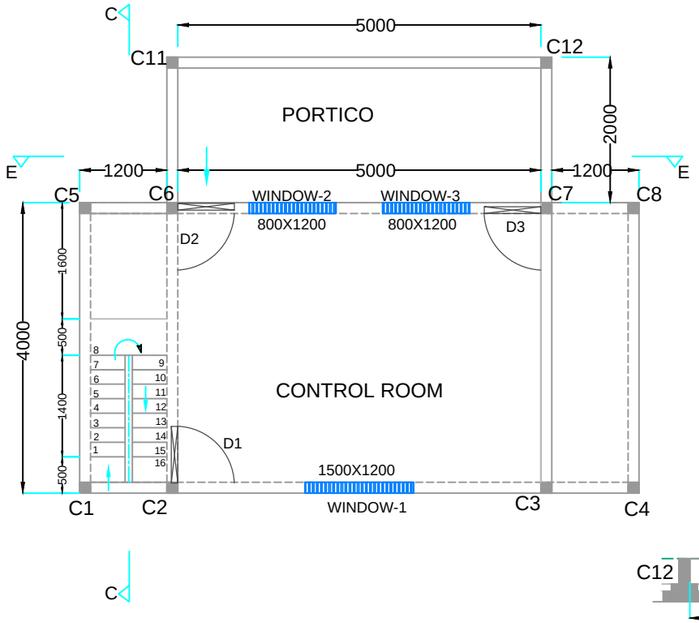


PLAN AT LEVEL +2.75M (1st FLOOR)



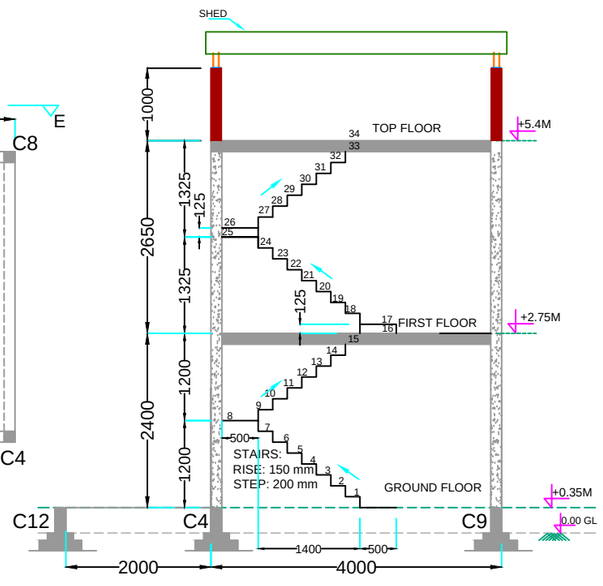
PLAN AT LEVEL +5.4M (TOP FLOOR)



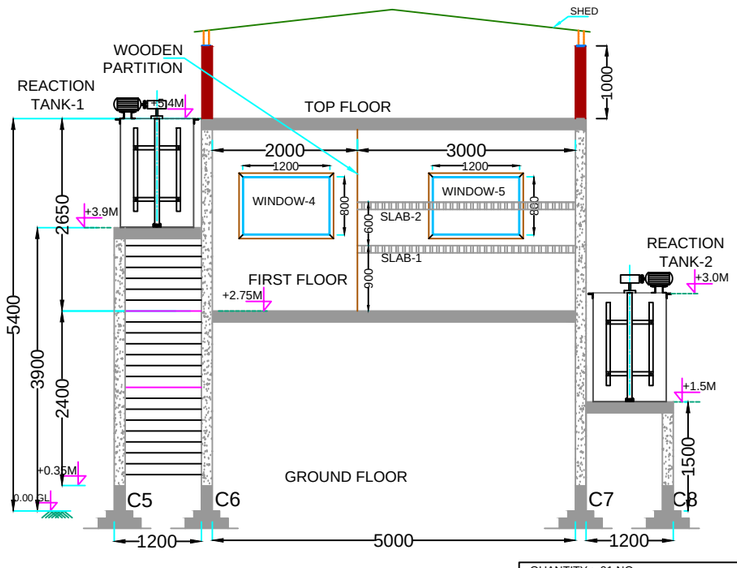


PLAN AT LEVEL +0.35M (GROUND FLOOR)

SECTION A-A

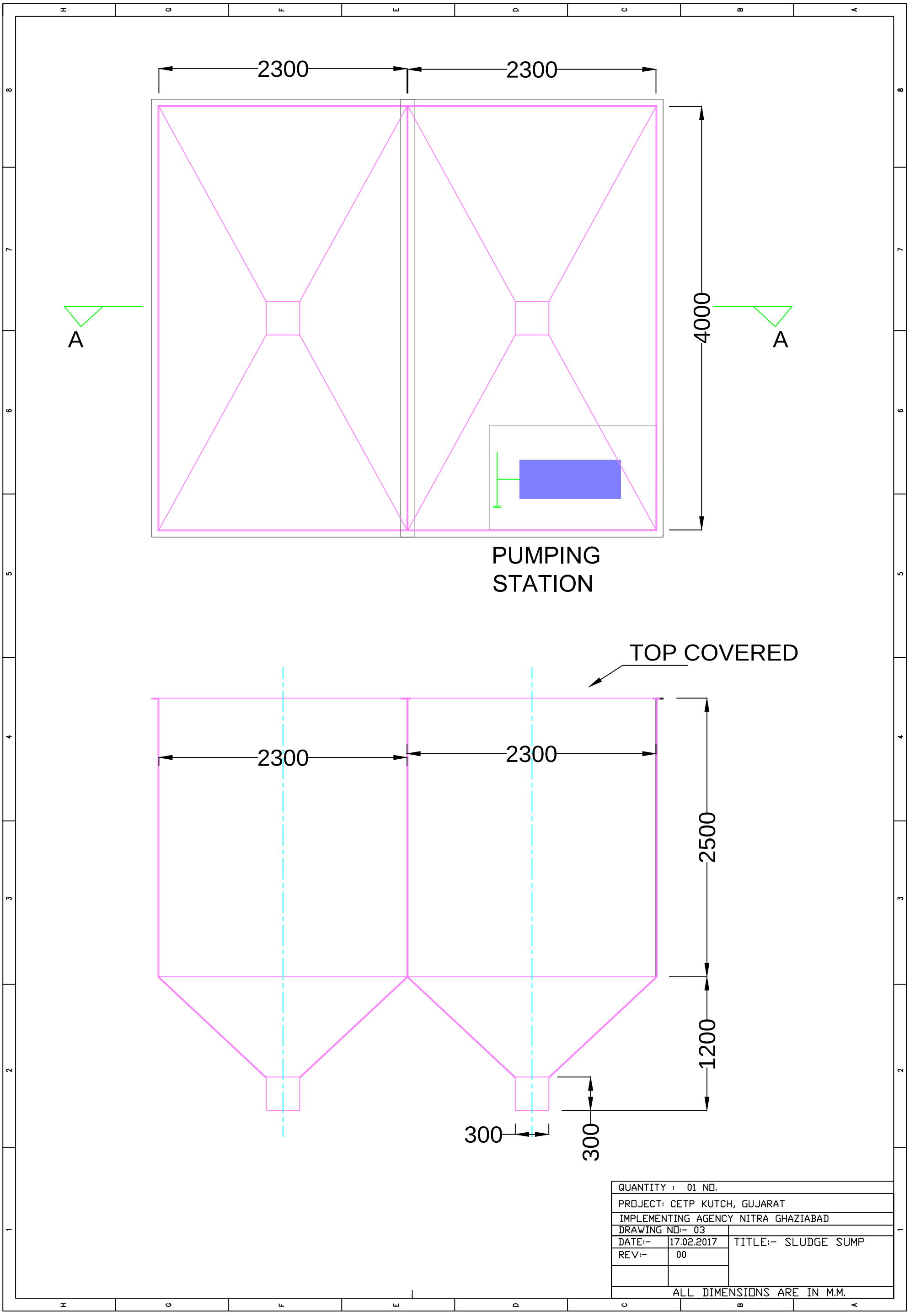


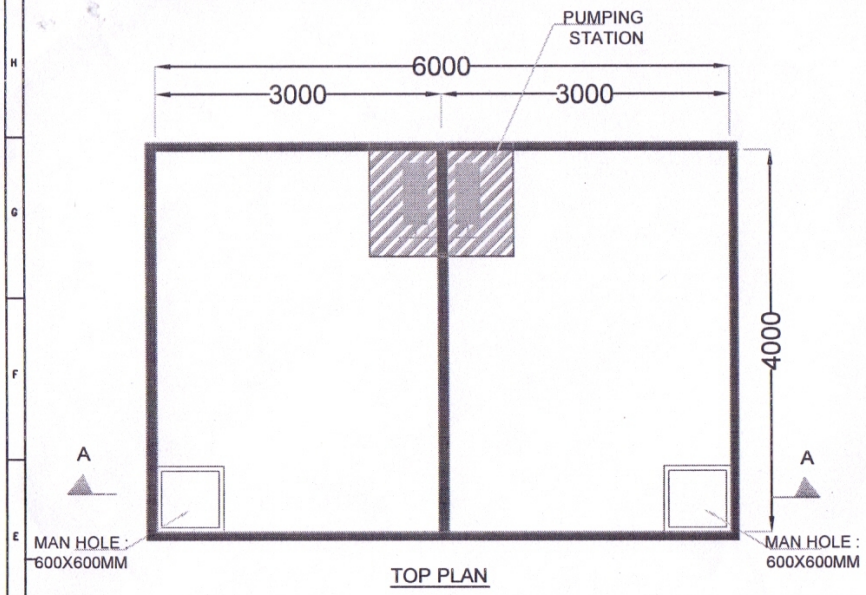
SECTION C-C



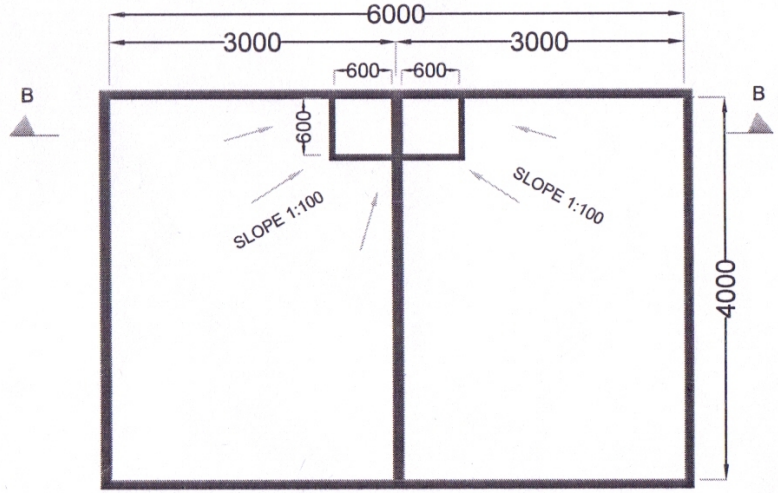
SECTION F-F

QUANTITY : 01 NO.		
CONSULTANT:- NITRA		
PROJECT: CETP KUTCH, GUJARAT IMPLEMENTING AGENCY NITRA GHAZIABAD		
DRAWING NO:- 03		
DATE:-	11.04.2017	TITLE:- FOUNDATION FOR REACTION & DOSING TANK
REV:-	01	
ALL DIMENSIONS ARE IN M.M.		

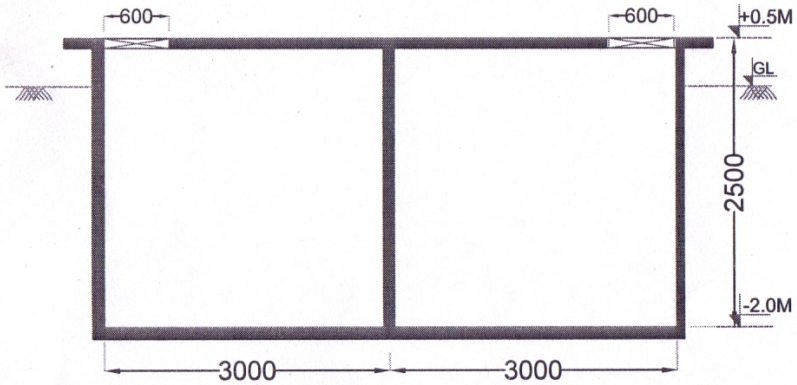

2300
2300
4000
A
A
PUMPING
STATION
TOP COVERED
2300
2300
2500
1200
300
300
QUANTITY : 01 NO.
PROJECT: CETP KUTCH, GUJARAT
IMPLEMENTING AGENCY NITRA GHAZIABAD
DRAWING NO:- 03
DATE:- 17.02.2017
REV:- 00
TITLE:- SLUDGE SUMP
ALL DIMENSIONS ARE IN M.M.



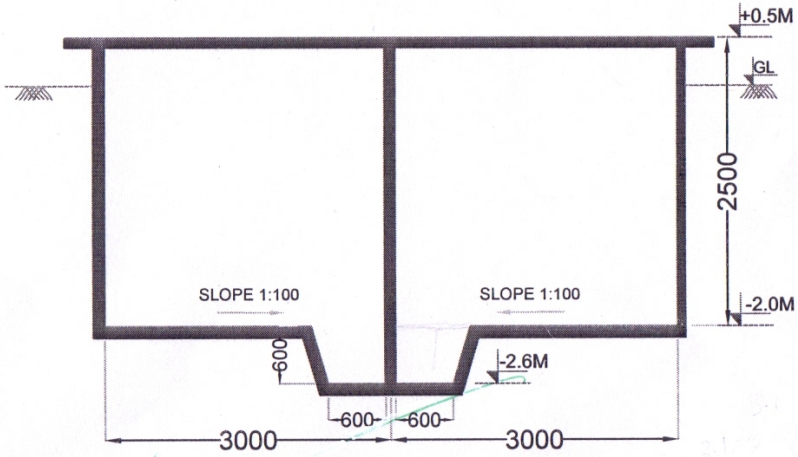
TOP PLAN



BOTTOM PLAN

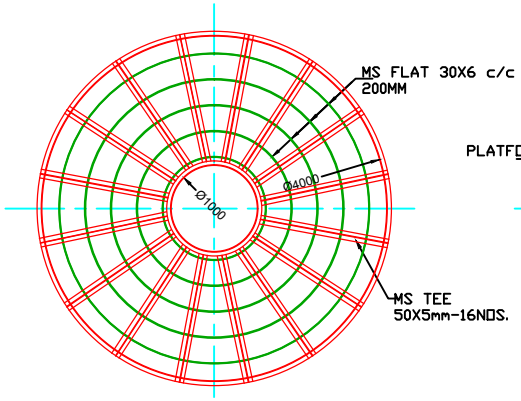


SECTION A-A

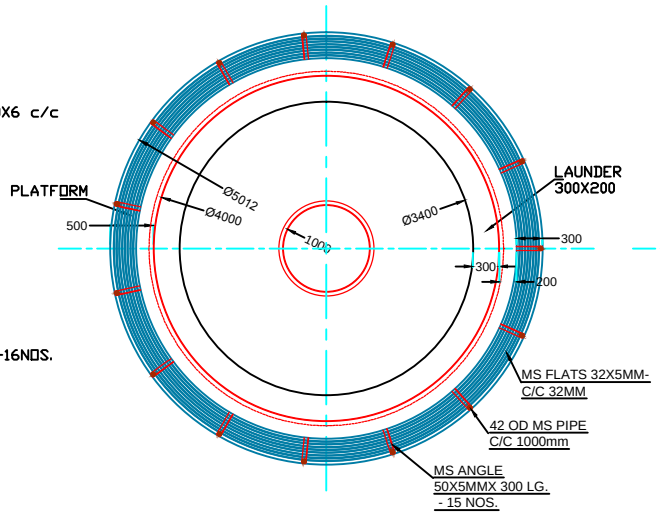


SECTION B-B

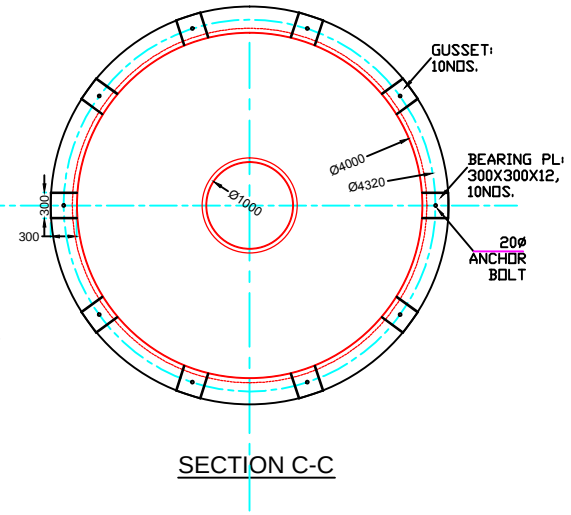
QUANTITY : 01 NO.		
PROJECT: CETP KUTCH, GUJARAT		
IMPLEMENTING AGENCY NITRA GHAZIABAD		
DRAWING NO: – 04		
DATE: –	17.02.2017	TITLE: – STORAGE TANK
REV: –	00	
ALL DIMENSIONS ARE IN M.M.		



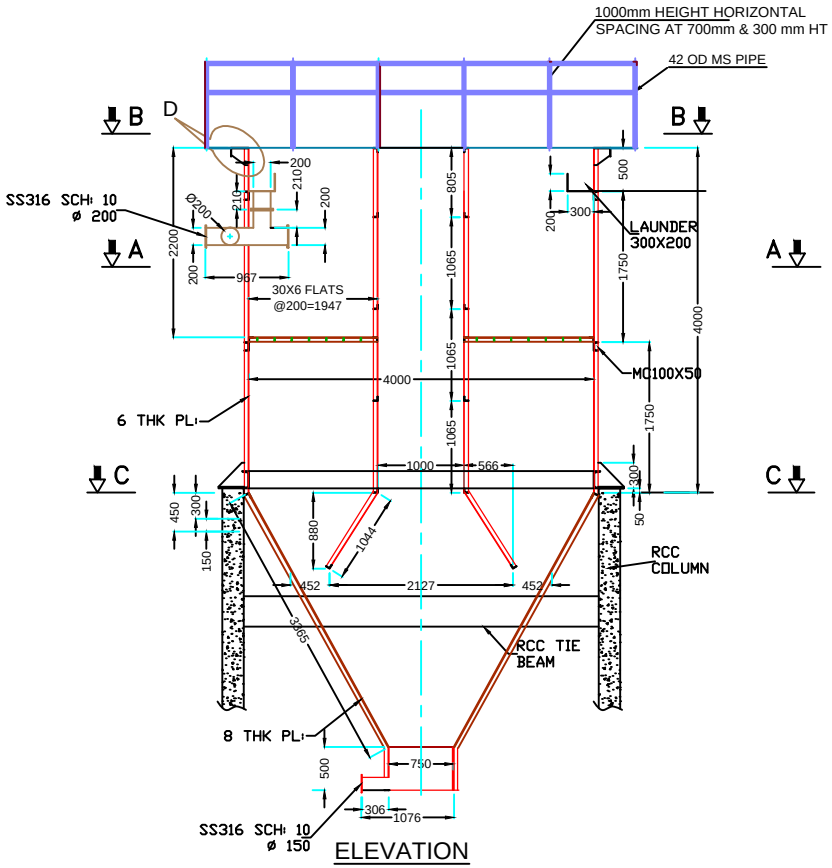
SECTION A-A



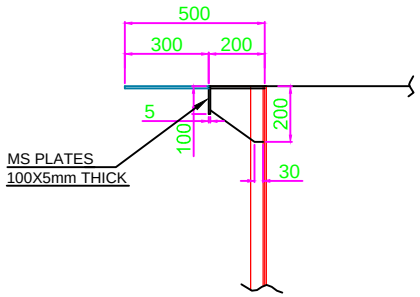
SECTION B-B



SECTION C-C

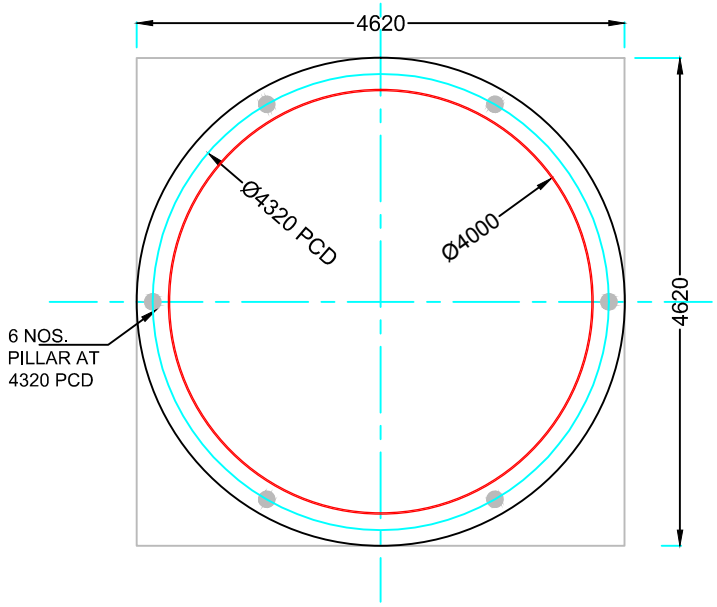


ELEVATION

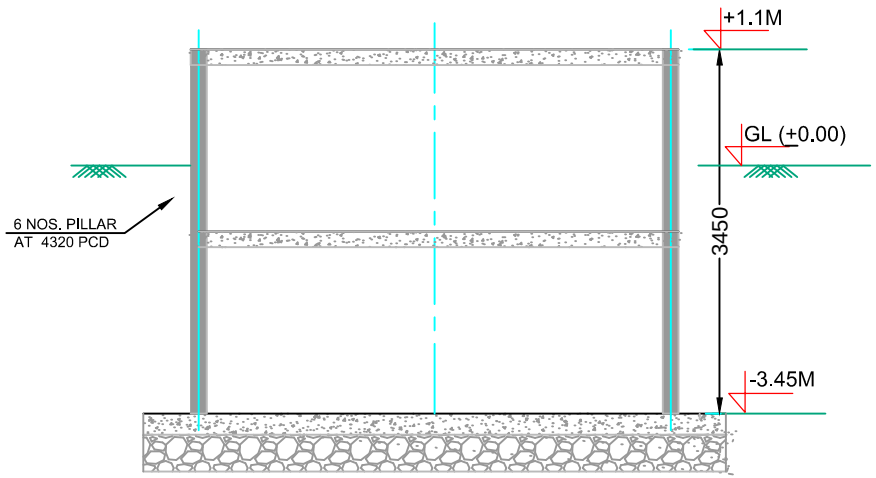


DETAIL AT 'D'

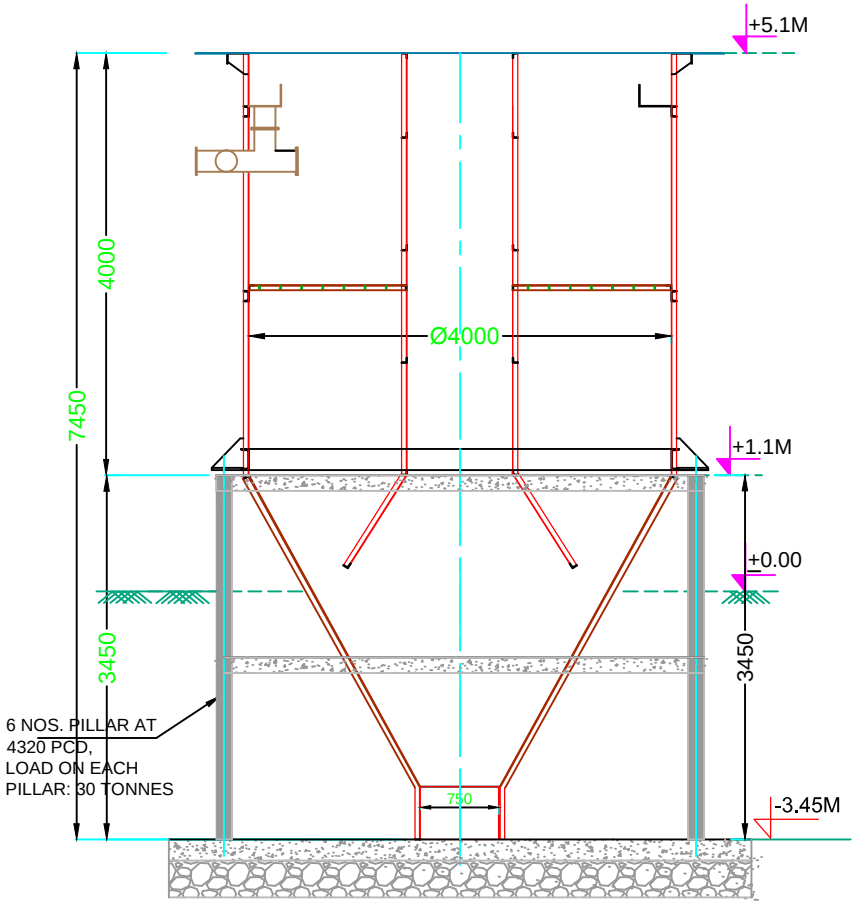
QUANTITY : 01 NO.	
PROJECT: CETP KUTCH, GUJARAT	
IMPLEMENTING AGENCY NITRA GHAZIABAD	
DRAWING NO:- 05	
DATE:- 18.02.2017	TITLE:-TUBE SETTLER-1
REV:- 00	
ALL DIMENSIONS ARE IN M.M.	



TOP PLAN

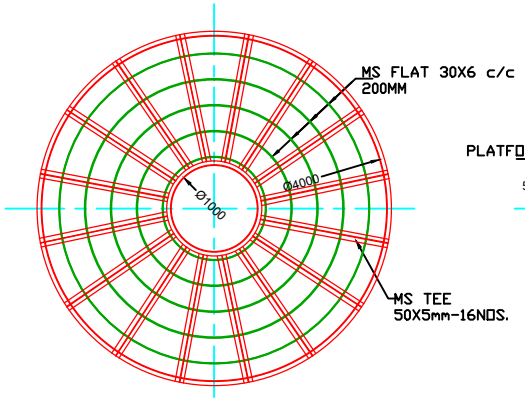


FOUNDATION FOR TUBE SETTLER- 1

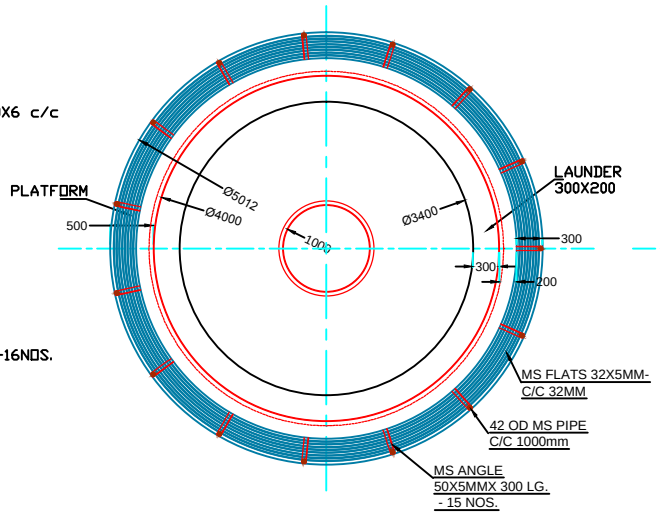


FOUNDATION FOR TUBE SETTLER- 1

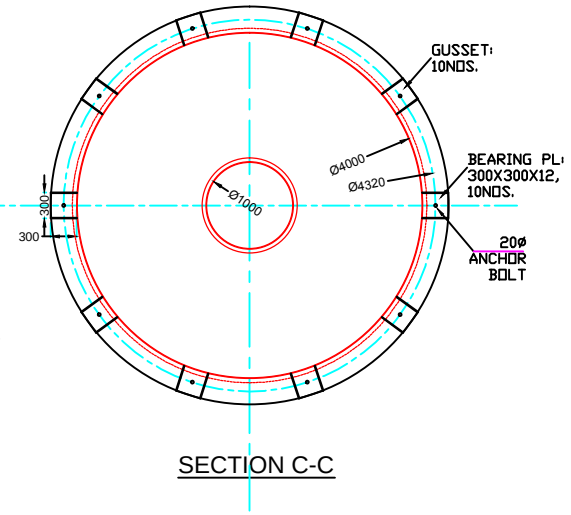
QUANTITY : 01 NO.		
PROJECT: CETP KUTCH, GUJARAT		
IMPLEMENTING AGENCY NITRA GHAZIABAD		
DRAWING NO:- 05A		
DATE:-	18.02.2017	TITLE:-TUBE SETTLER-1
REV:-	00	
ALL DIMENSIONS ARE IN M.M.		



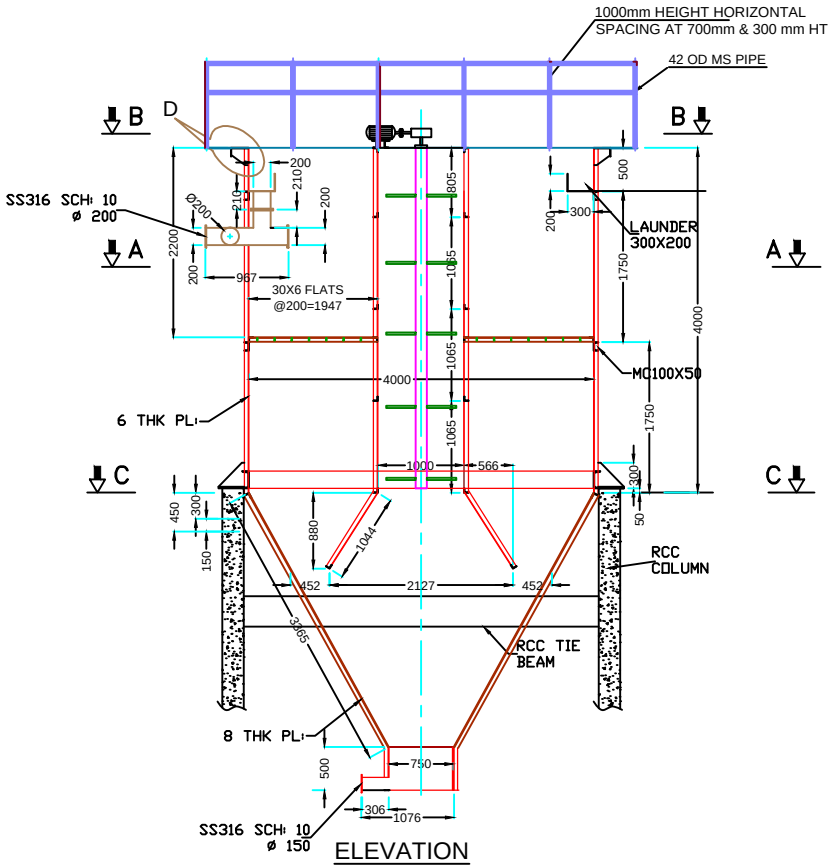
SECTION A-A



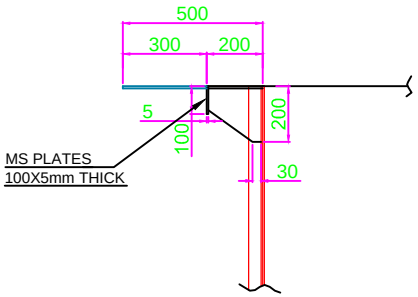
SECTION B-B



SECTION C-C

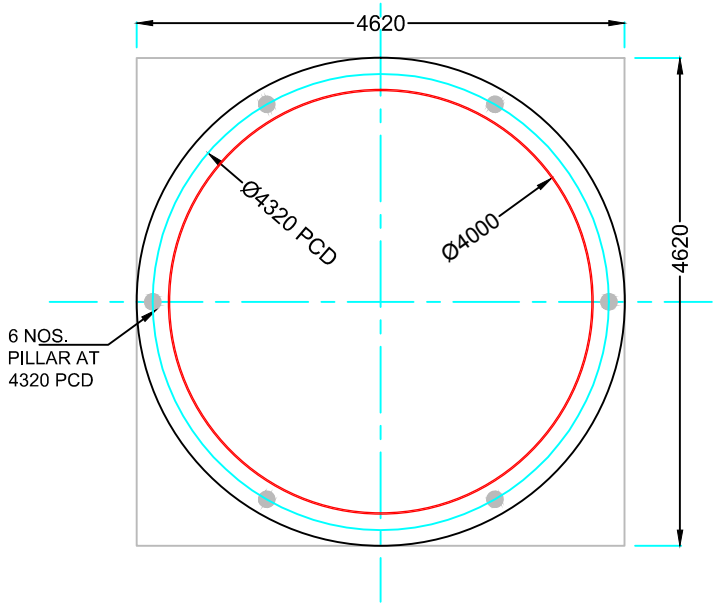


ELEVATION

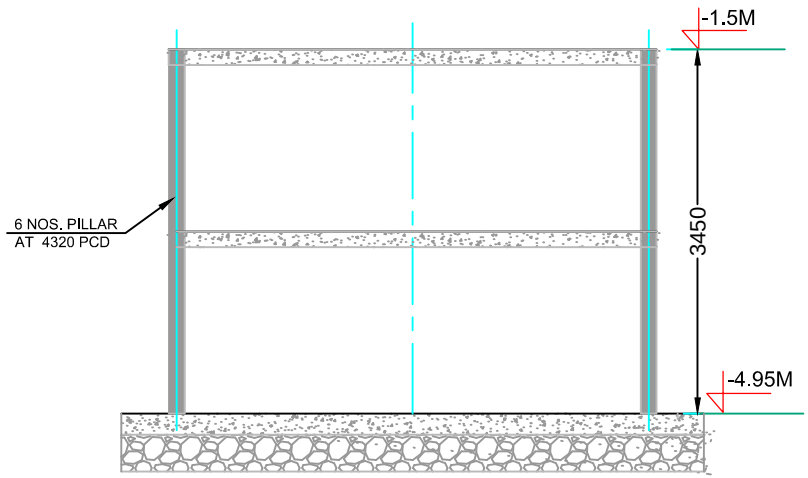


DETAIL AT 'D'

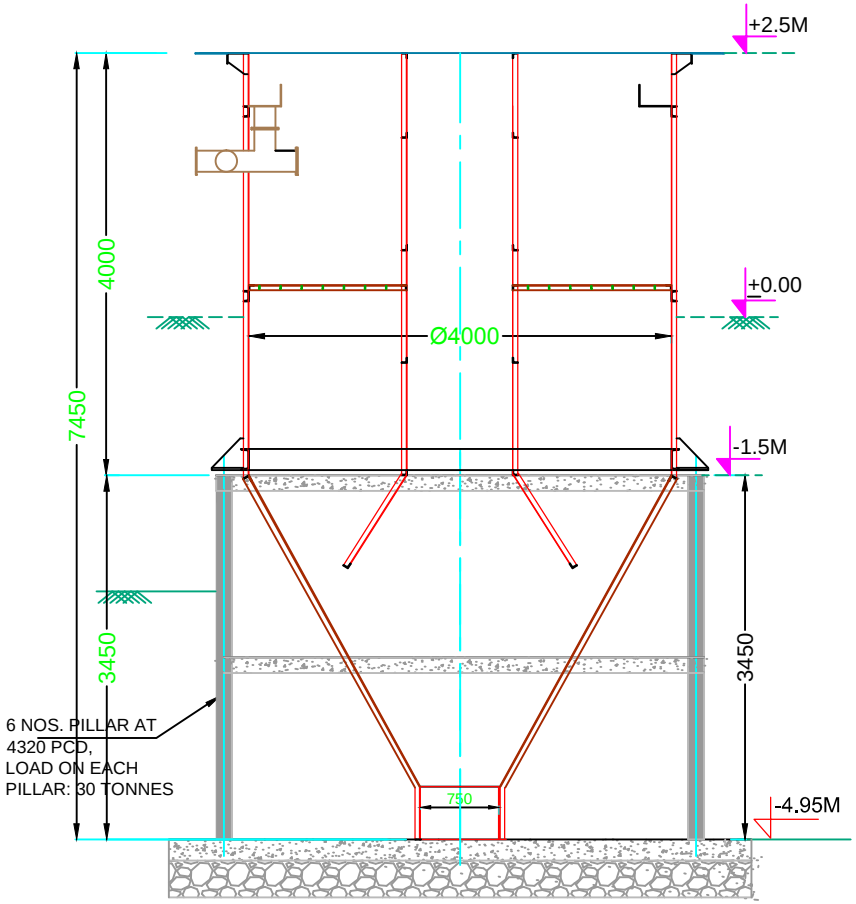
QUANTITY : 01 NO.	
PROJECT: CETP KUTCH, GUJARAT	
IMPLEMENTING AGENCY NITRA GHAZIABAD	
DRAWING NO:- 06	
DATE:- 18.02.2017	TITLE:-TUBE SETTLER-2
REV:- 00	
ALL DIMENSIONS ARE IN M.M.	



TOP PLAN

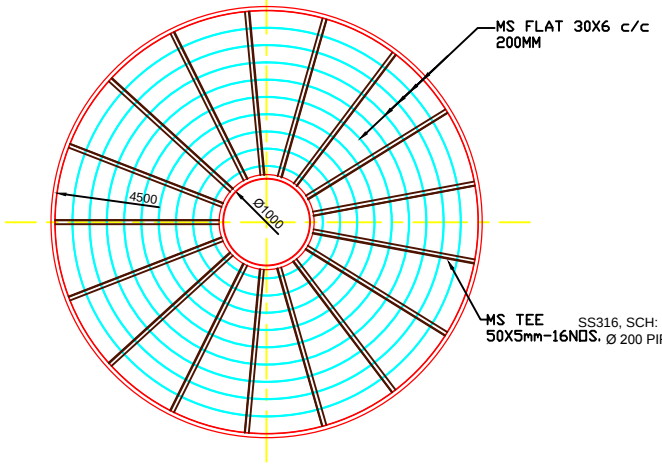


FOUNDATION FOR TUBE SETTLER- 2

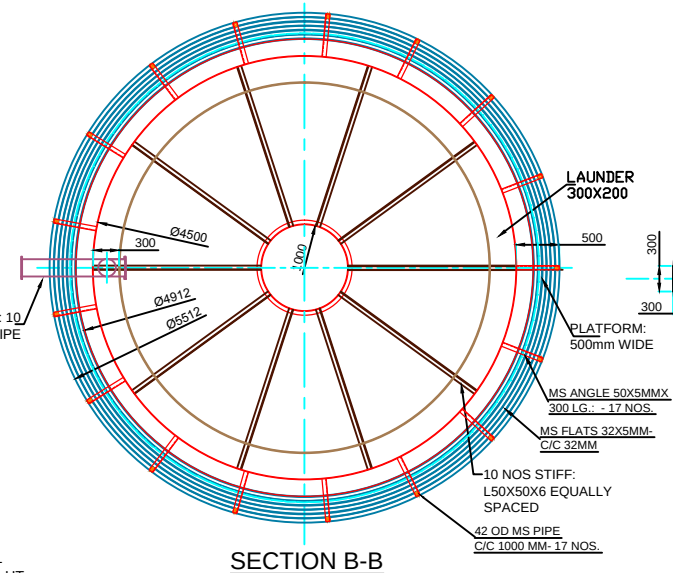


FOUNDATION FOR TUBE SETTLER- 2

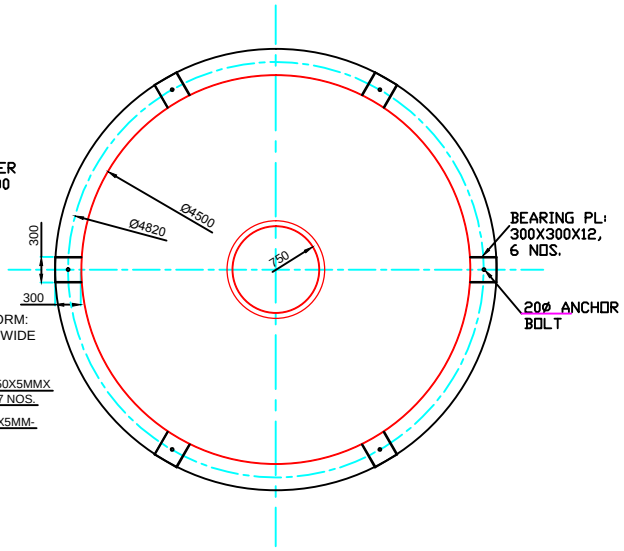
QUANTITY : 01 NO.		
PROJECT: CETP KUTCH, GUJARAT		
IMPLEMENTING AGENCY NITRA GHAZIABAD		
DRAWING NO:- 06A		
DATE:-	18.02.2017	TITLE:-TUBE SETTLER-2
REV:-	00	
ALL DIMENSIONS ARE IN M.M.		



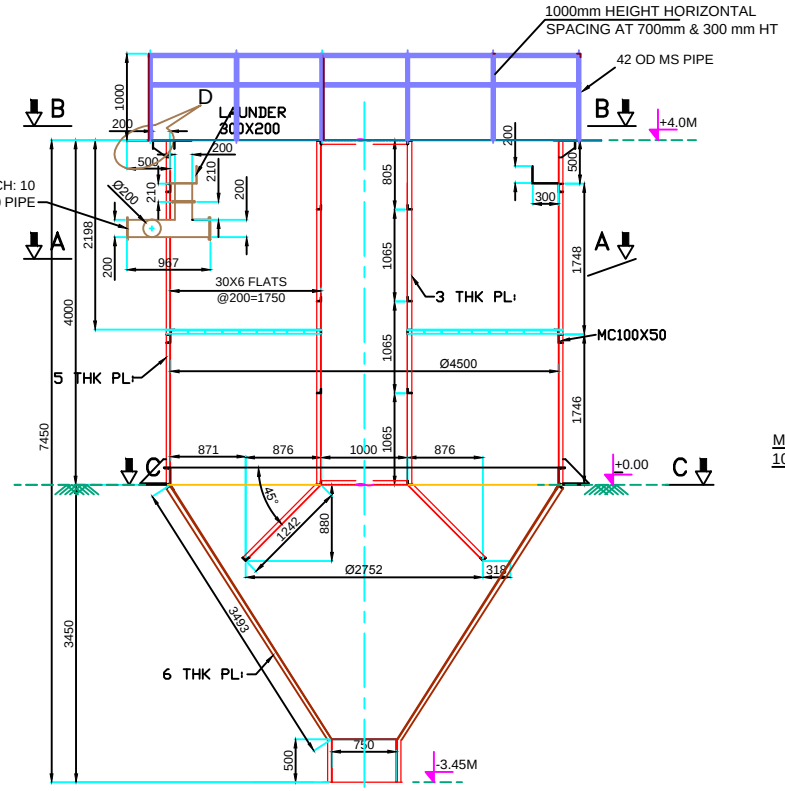
SECTION A-A



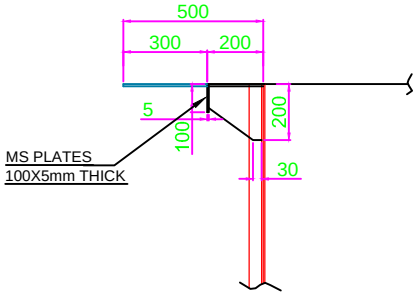
SECTION B-B



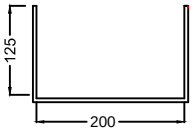
SECTION C-C



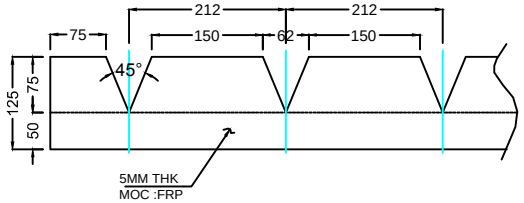
ELEVATION



DETAIL AT 'D'

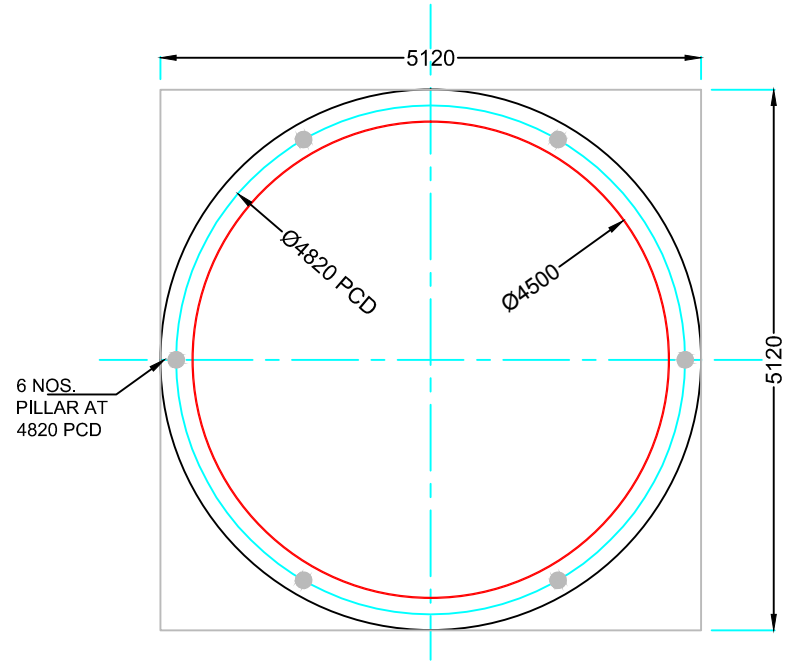


SIDE VIEW

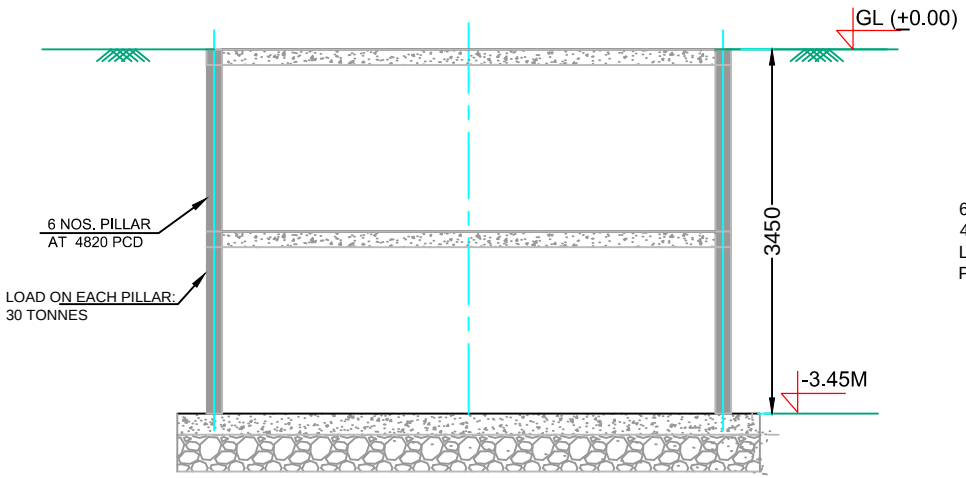


V NOTCH DETAIL
TUBE SETTLER

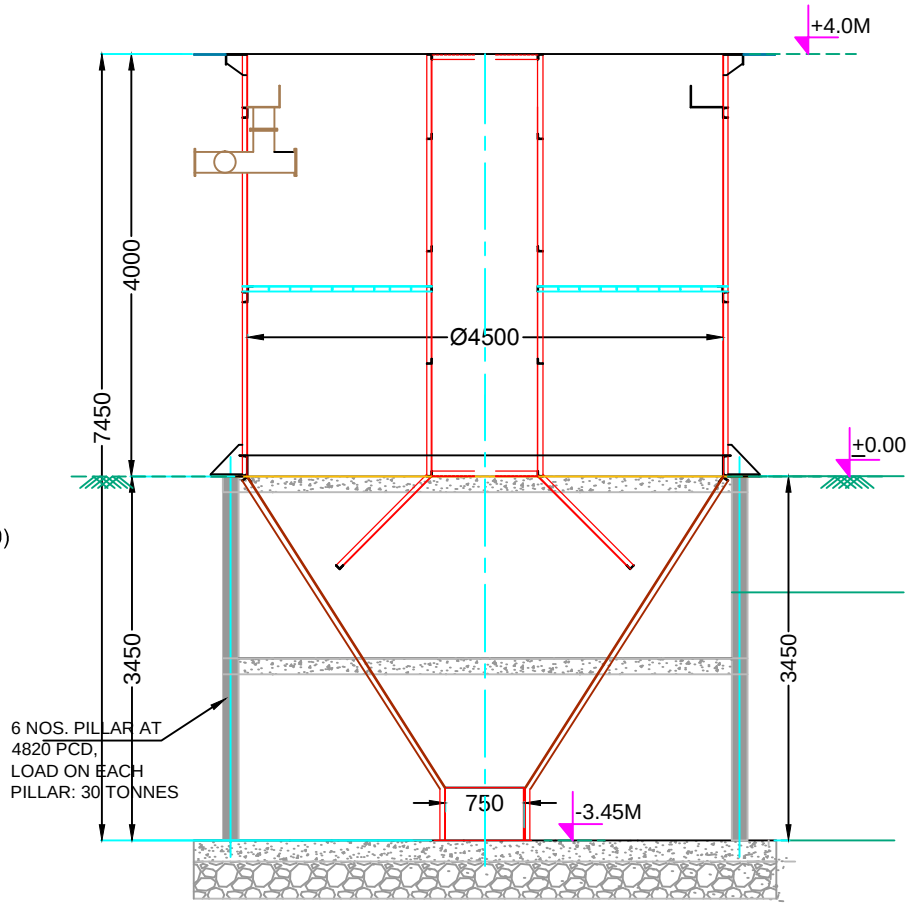
QUANTITY : 01 NO.		
PROJECT: CETP KUTCH, GUJARAT		
IMPLEMENTING AGENCY NITRA GHAZIABAD		
DRAWING NO:- 07		
DATE:-	18.02.2017	TITLE:-SEC CLARIFIER
REV:-	00	
ALL DIMENSIONS ARE IN M.M.		



TOP PLAN

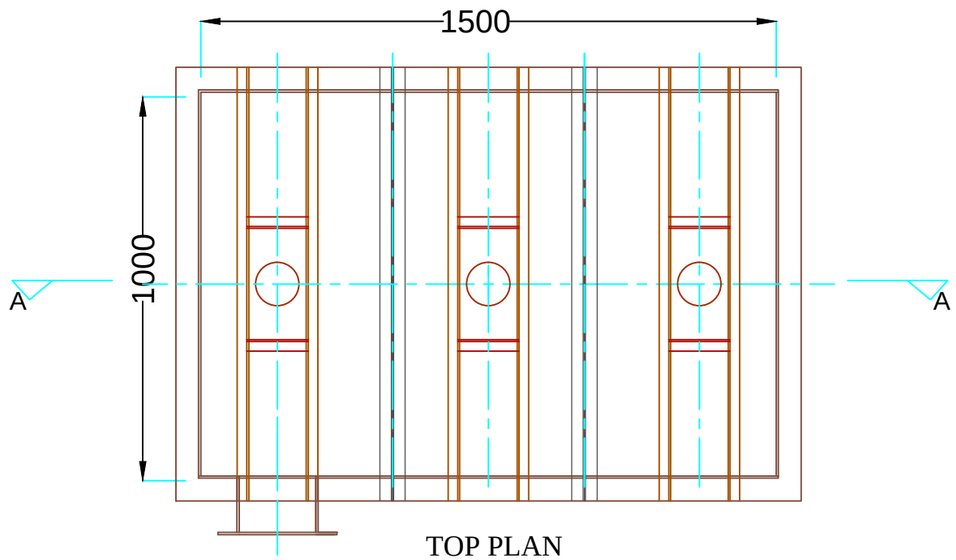


FOUNDATION FOR TUBE SETTLER- 1

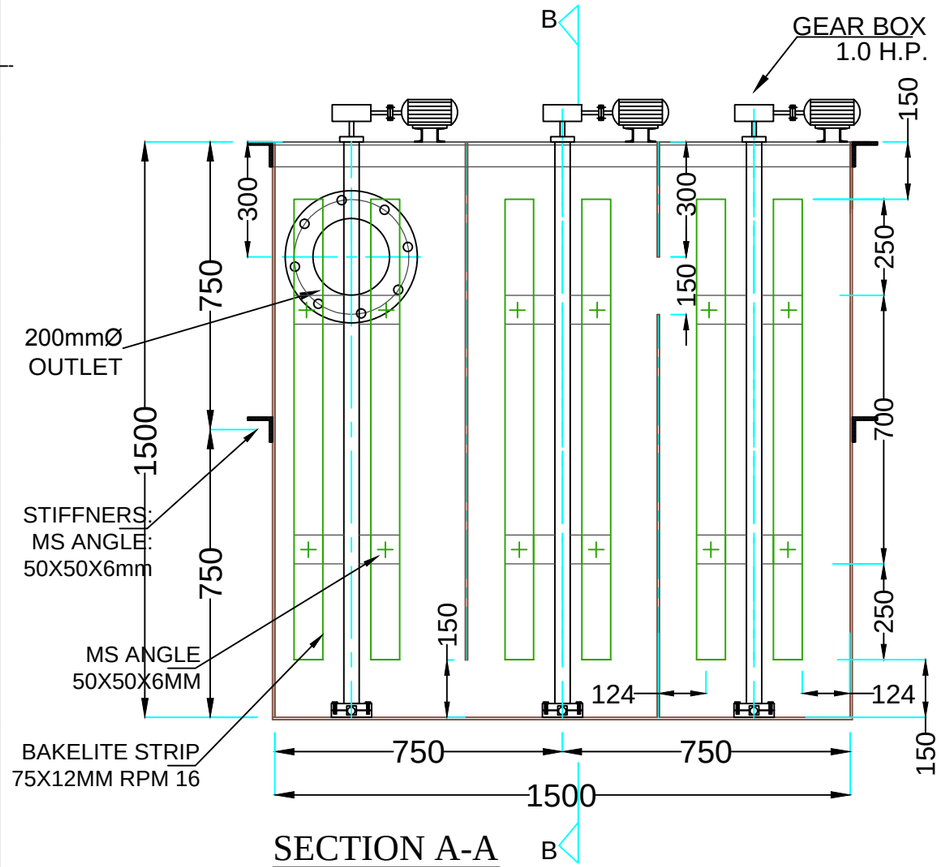


FOUNDATION FOR TUBE SETTLER- 1

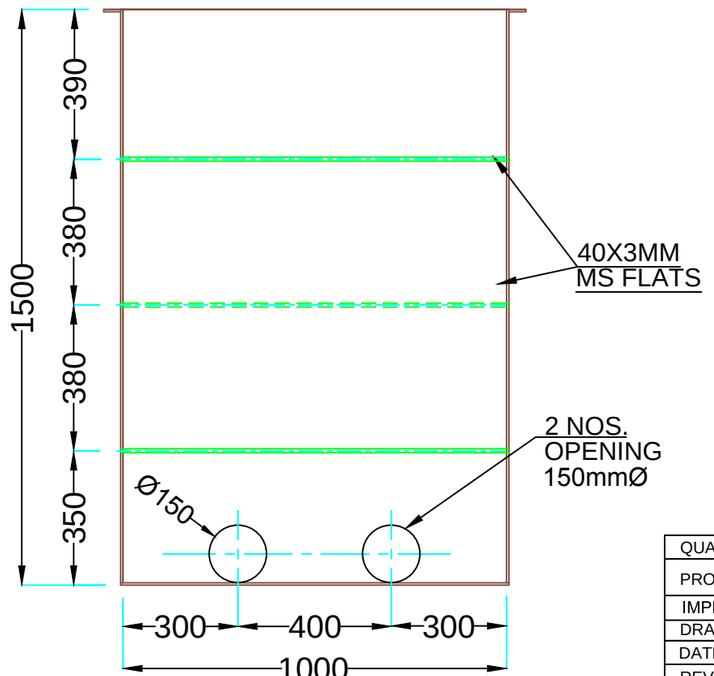
QUANTITY : 01 NO.		
PROJECT: CETP KUTCH, GUJARAT		
IMPLEMENTING AGENCY NITRA GHAZIABAD		
DRAWING NO:- 07A		
DATE:-	18.02.2017	TITLE:-SEC CLARIFIER
REV:-	00	
ALL DIMENSIONS ARE IN M.M.		



TOP PLAN



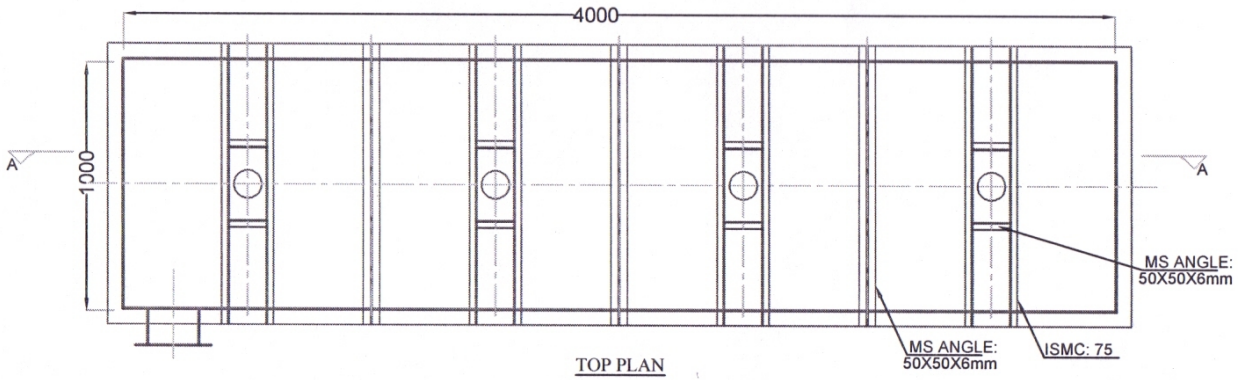
SECTION A-A



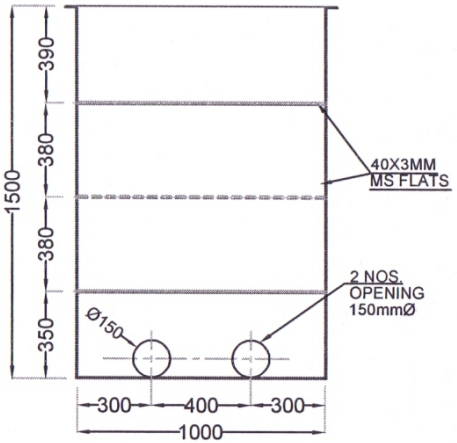
SECTION B-B

QUANTITY : 01 NO.		
PROJECT: CETP KUTCH, GUJARAT		
IMPLEMENTING AGENCY NITRA GHAZIABAD		
DRAWING NO:- 08		
DATE:-	11.04.2017	TITLE:-REACTION TANK-1
REV:-	01	

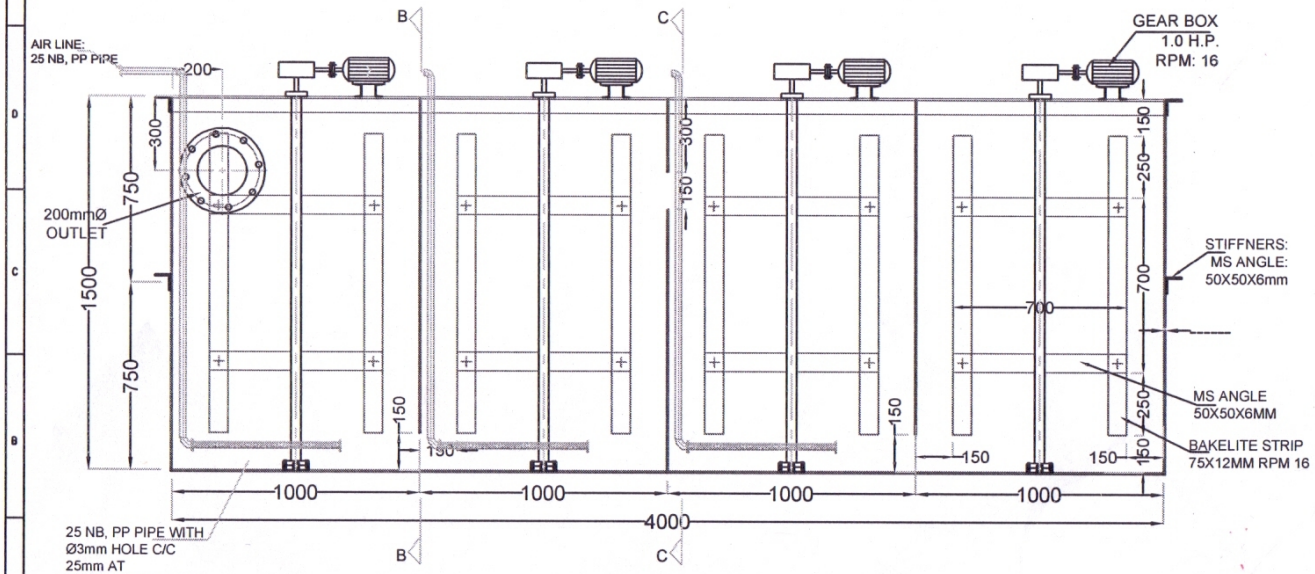
ALL DIMENSIONS ARE IN M.M.



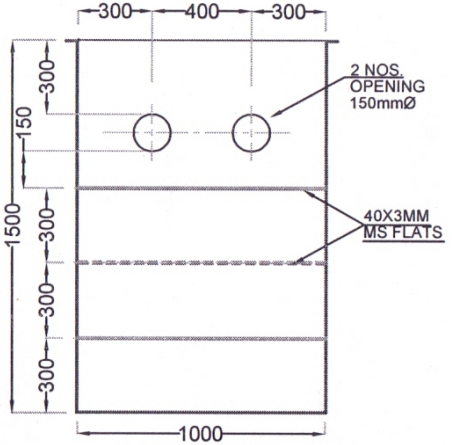
TOP PLAN



SECTION B-B

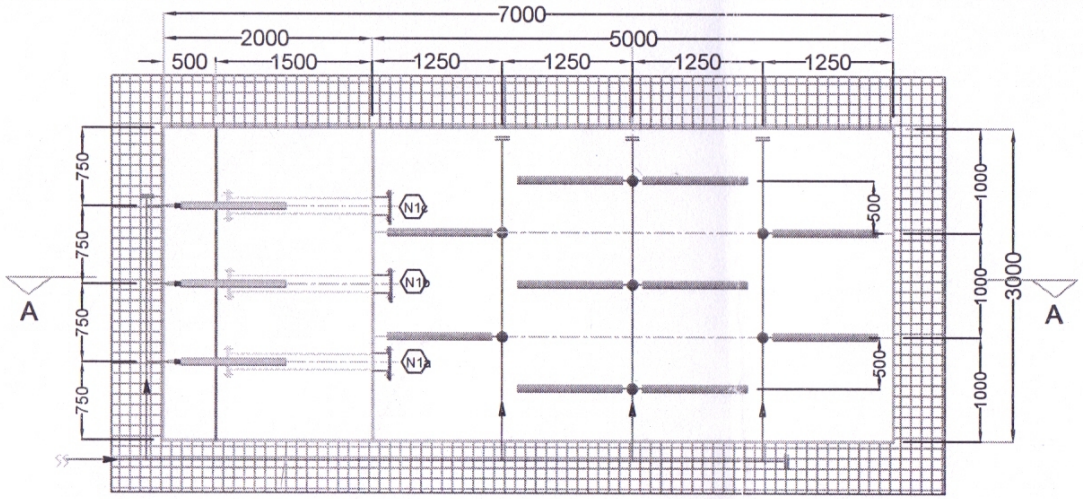


SECTION A-A

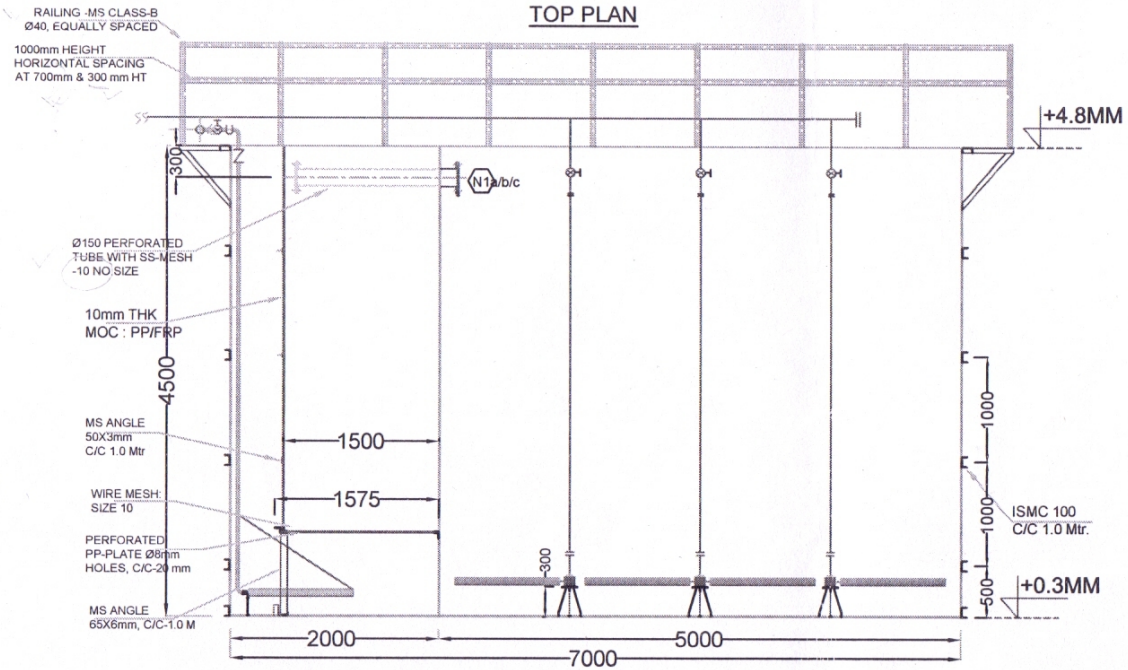


SECTION C-C

QUANTITY : 01 NO.		
PROJECT: CETP KUTCH, GUJARAT		
IMPLEMENTING AGENCY NITRA GHAZIABAD		
DRAWING NO:- 09		
DATE:-	21.02.2017	TITLE:-REACTION TANK-2
REV:-	00	
ALL DIMENSIONS ARE IN M.M.		

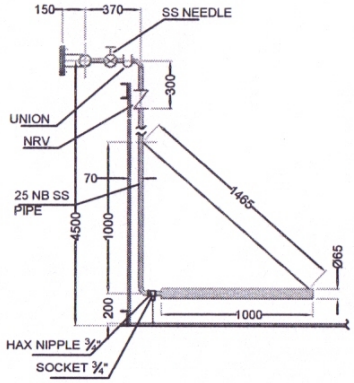


TOP PLAN

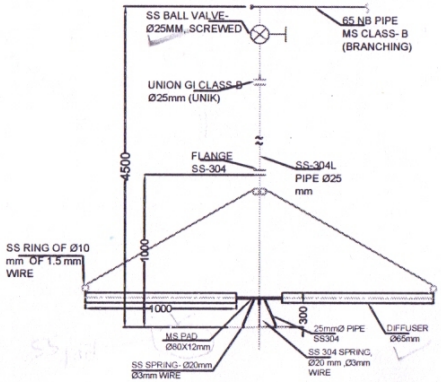


MBBR AERATION TANK

SECTION A-A

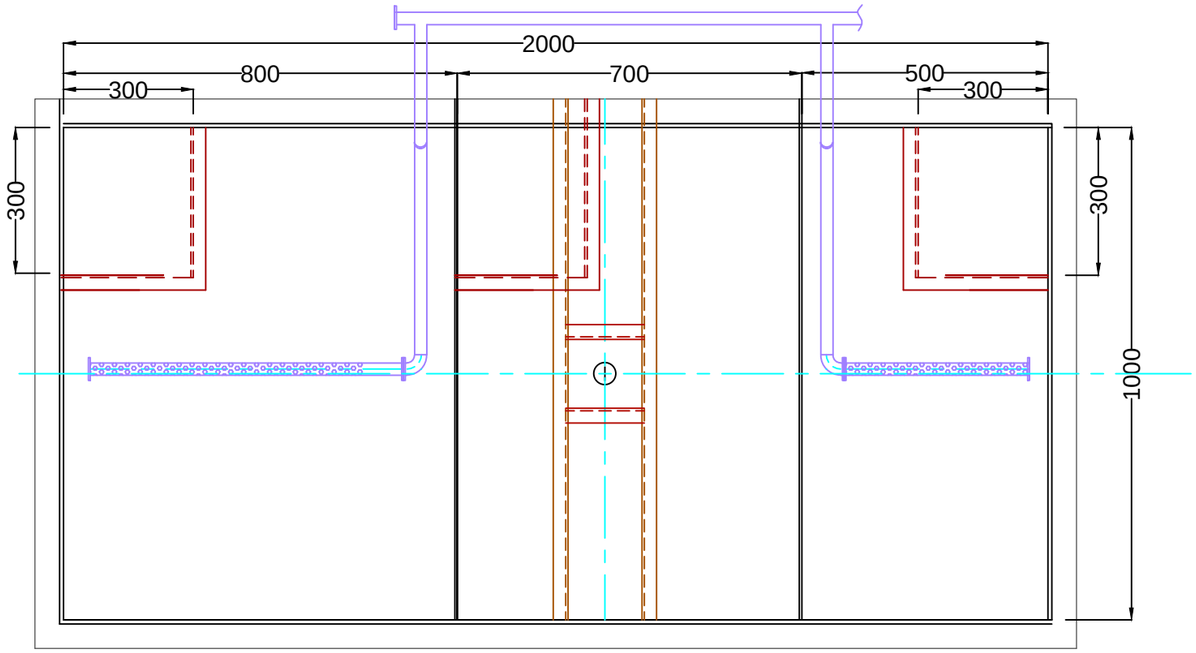


MBBR DIFFUSER FITTING DETAIL

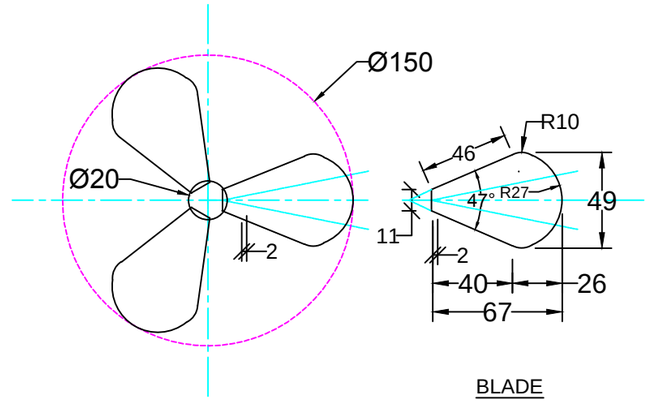


AERATION TANK DIFFUSER DROP FITTINGS

QUANTITY : 01 NO.		
PROJECT:- CETP KUTCH, GUJARAT		
IMPLEMENTING AGENCY NITRA GHAZIABAD		
DRAWING NO:- 10		
DATE:-	18.02.2017	TITLE:- AERATION TANK & MBBR
REV:-	00	
ALL DIMENSIONS ARE IN M.M.		

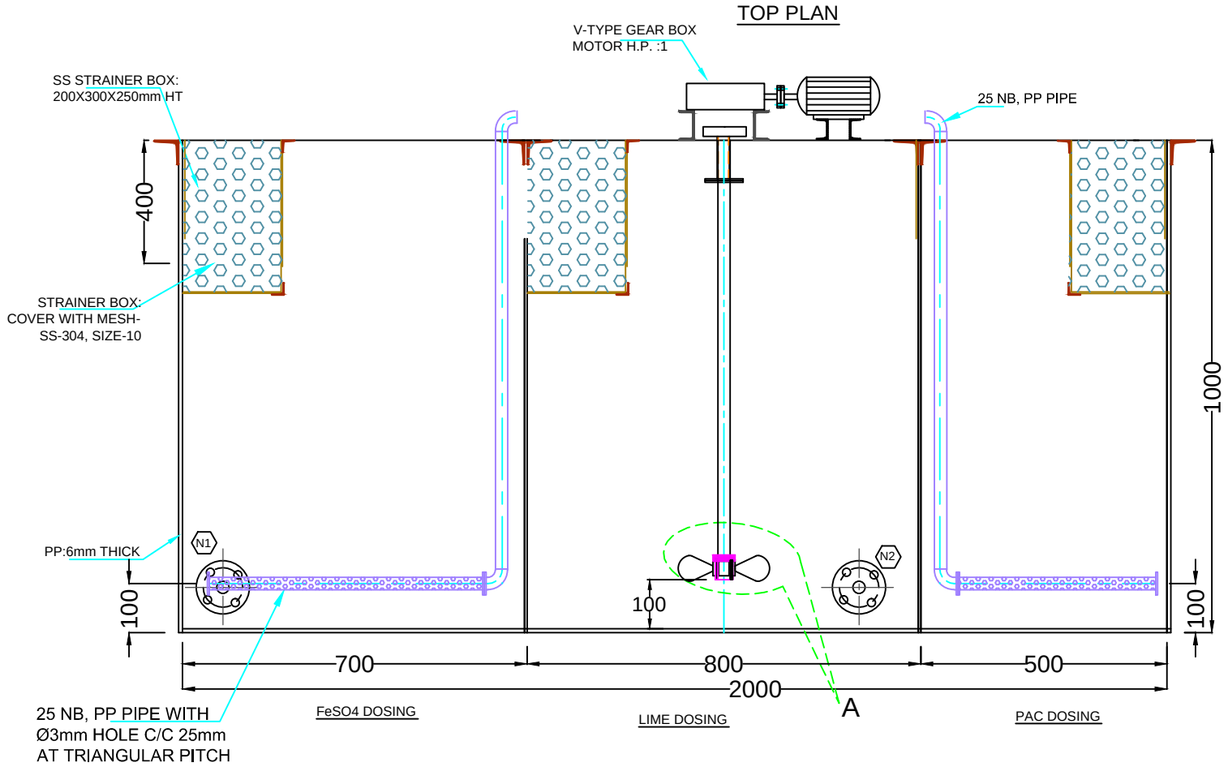


TOP PLAN

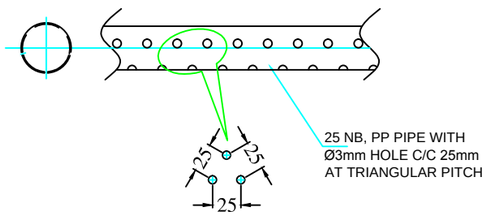


BLADE

DETAIL AT - A
IMPELLOR

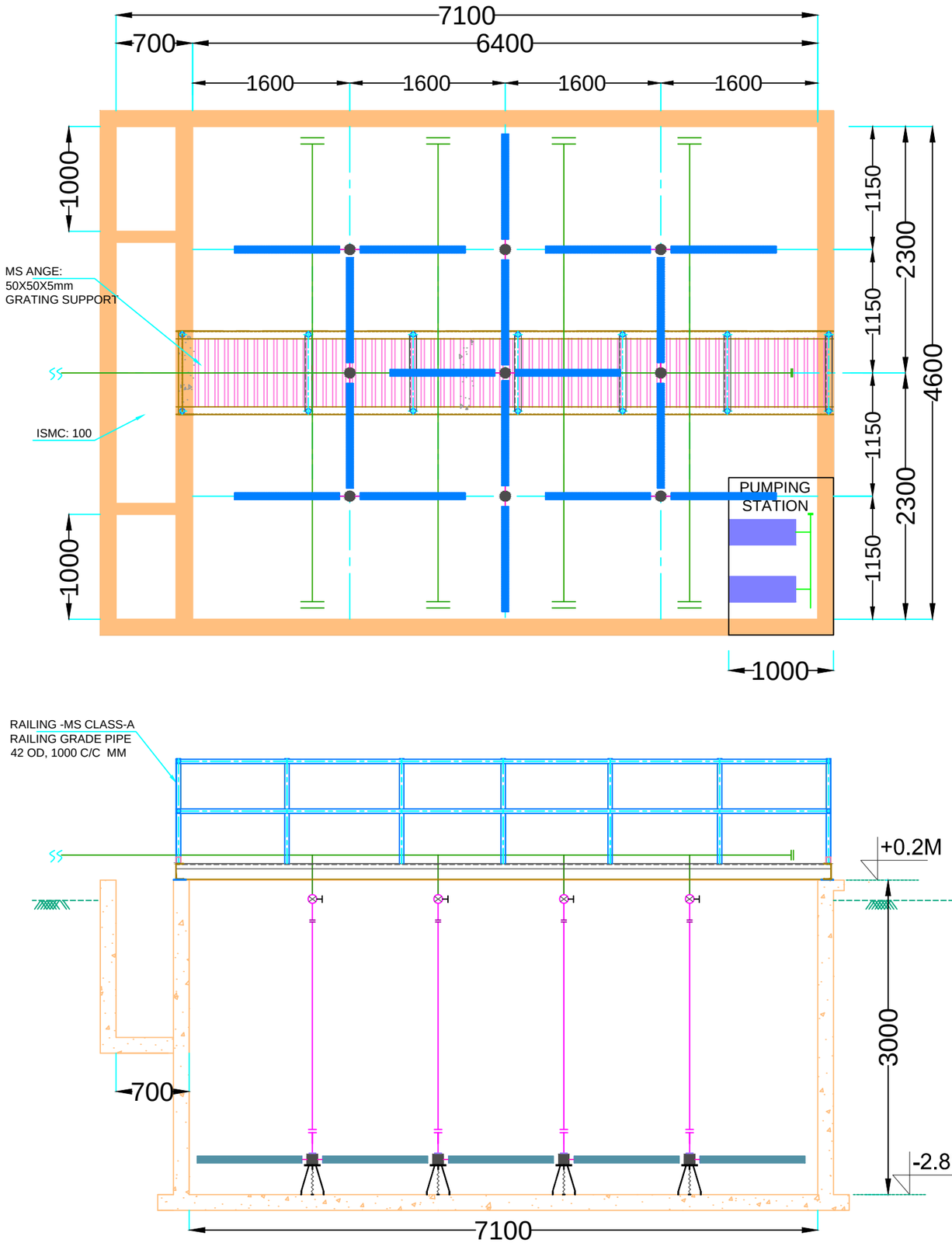


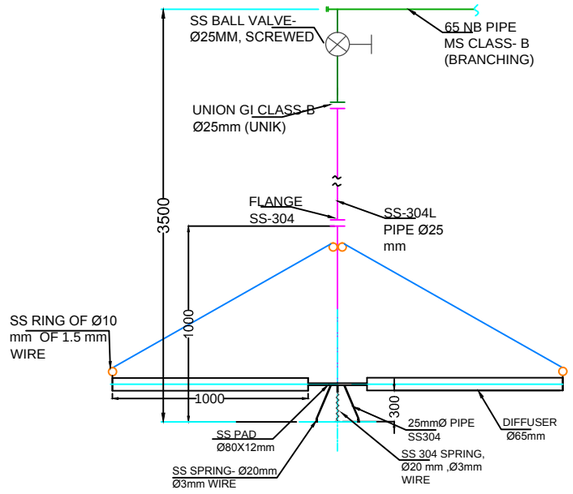
DOSING TANK



PERFORATION DETAIL

QUANTITY : 02 NO.		
PROJECT: CETP KUTCH, GUJARAT		
IMPLEMENTING AGENCY NITRA GHAZIABAD		
DRAWING NO:- 09		
DATE:-	11.04.2017	TITLE:-DOSING TANK
REV:-	01	
ALL DIMENSIONS ARE IN M.M.		

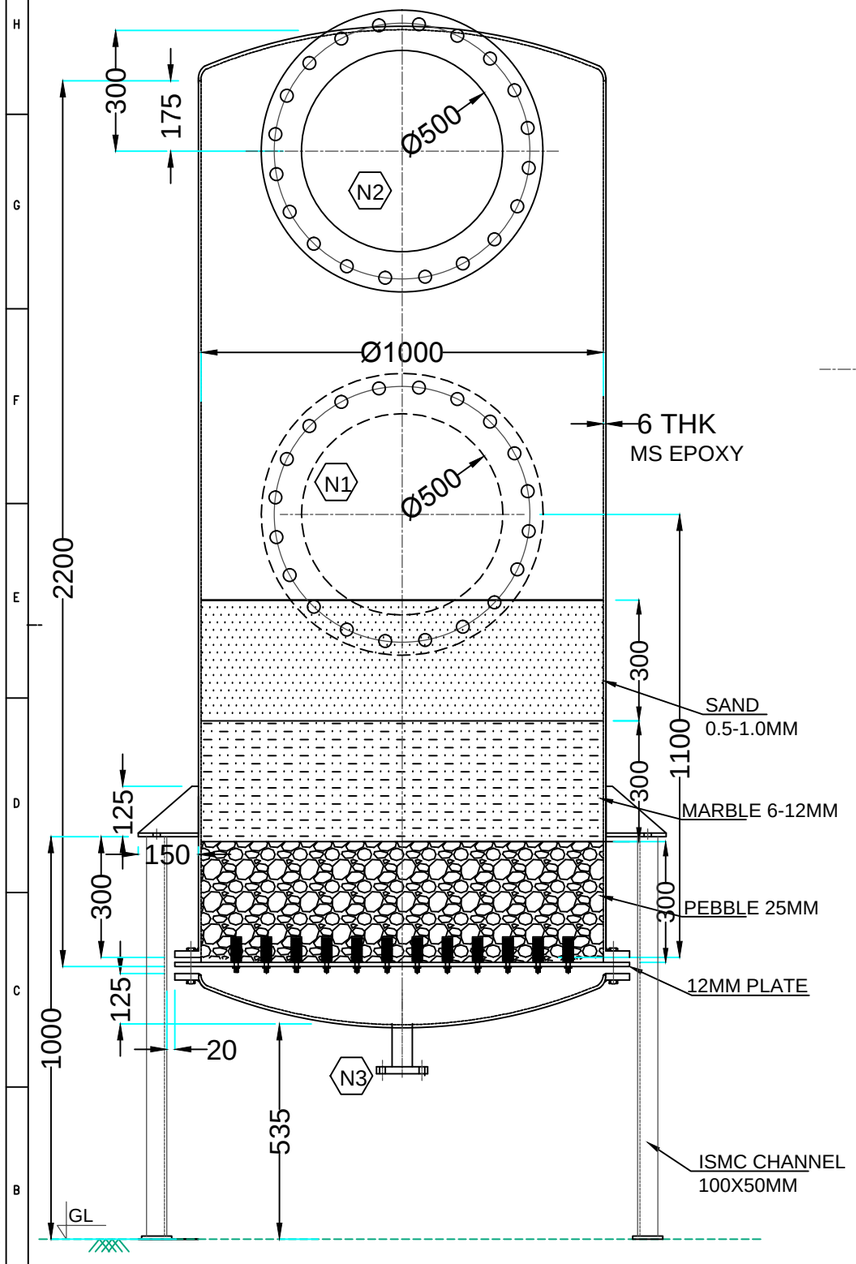




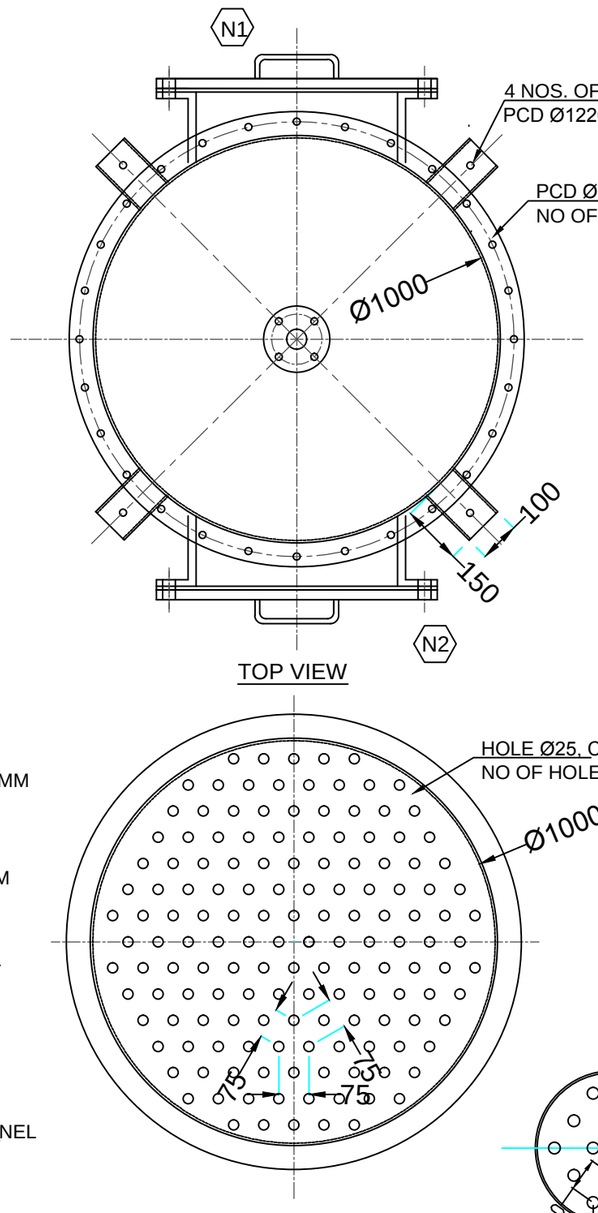
AERATION TANK DIFFUSER DROP FITTINGS

QUANTITY : 01 NO.		
PROJECT: CETP KUTCH, GUJARAT		
IMPLEMENTING AGENCY NITRA GHAZIABAD		
DRAWING NO:- 10		
DATE:-	11.04.2017	TITLE:-
REV:-	01	EQUALIZATION TANK
ALL DIMENSIONS ARE IN M.M.		

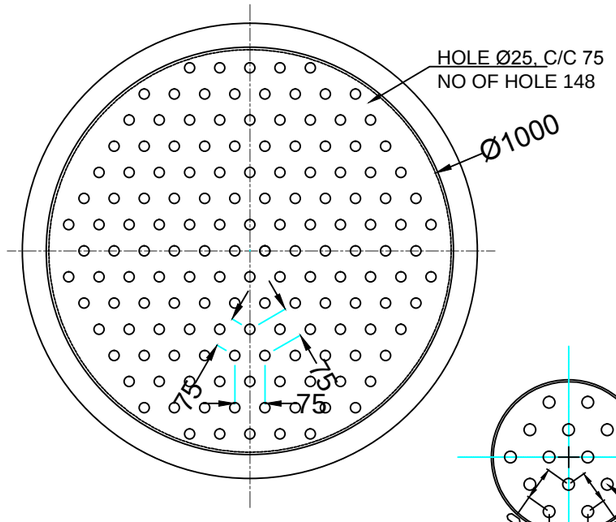
NOZZLES DETAIL									
POS.	SERVICE	PROJ.	SIZE NB	DIA.				NO.OF HOLE	REM.
				O.D.	P.C.D.	BOLT HOLE	FLANGE THICK.		
N1	MANHOLE	125	500	698	635	20	12	20	1 NO.
N2	MANHOLE	125	500	698	635	20	12	20	1 NO.
N3	DRAIN	125	65	178	140	18	12	04	1 NO.



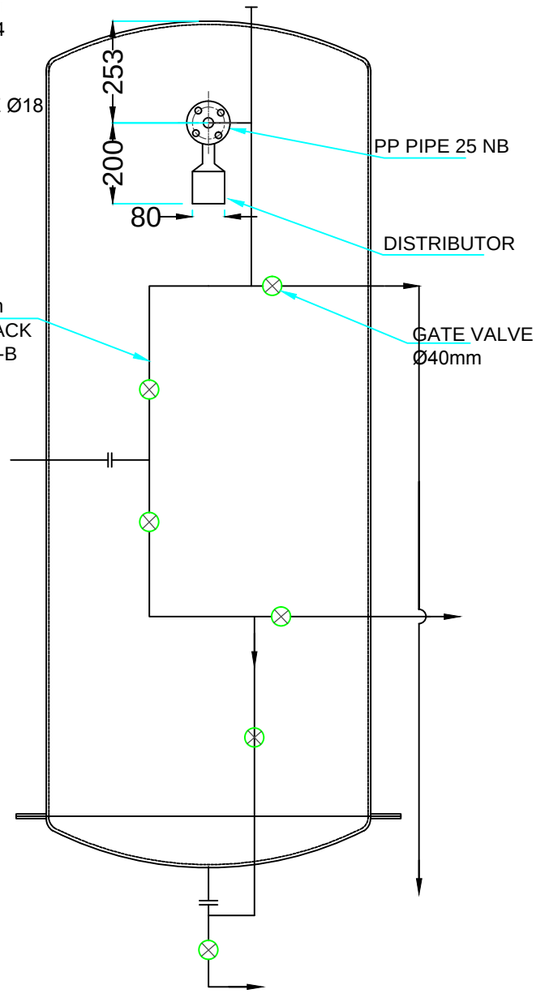
ELEVATION



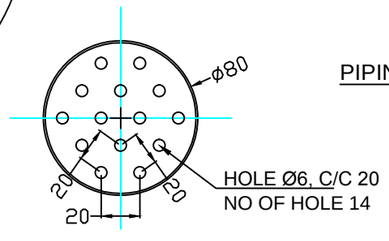
TOP VIEW



STRAINER DETAIL



PIPING DETAIL



DISTRIBUTOR PLATE
80MM THICK (SS-304)
DETAIL

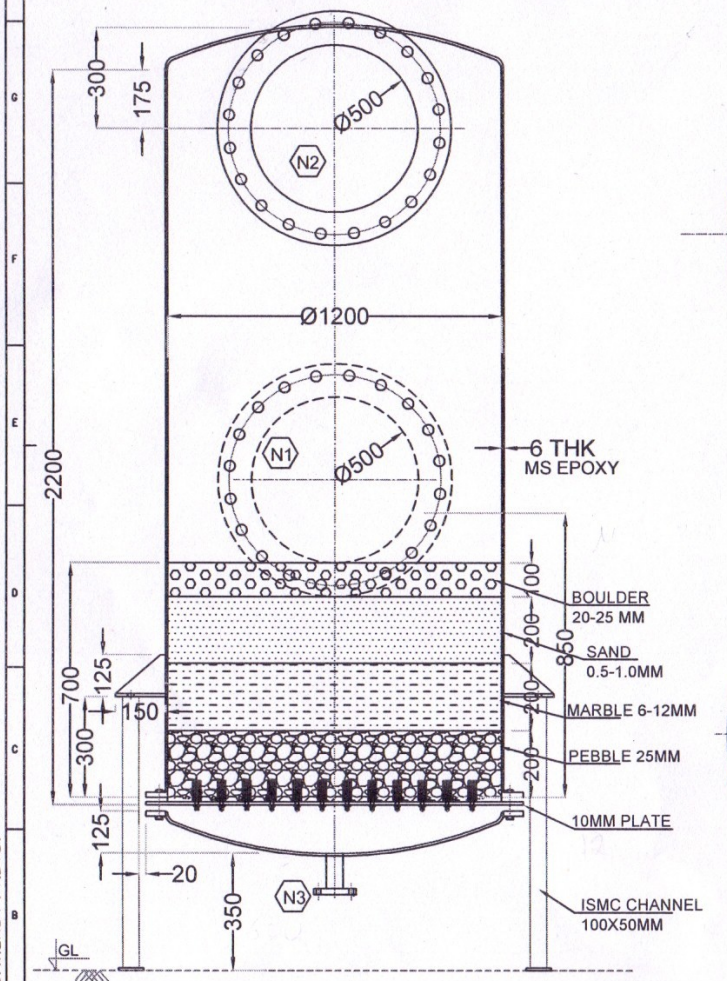
QUANTITY : 01 NO.		
PROJECT: CETP KUTCH, GUJARAT		
IMPLEMENTING AGENCY NITRA GHAZIABAD		
DRAWING NO:- 11		
DATE:-	11.04.2017	TITLE:-
REV:-	01	MGF

ALL DIMENSIONS ARE IN M.M.

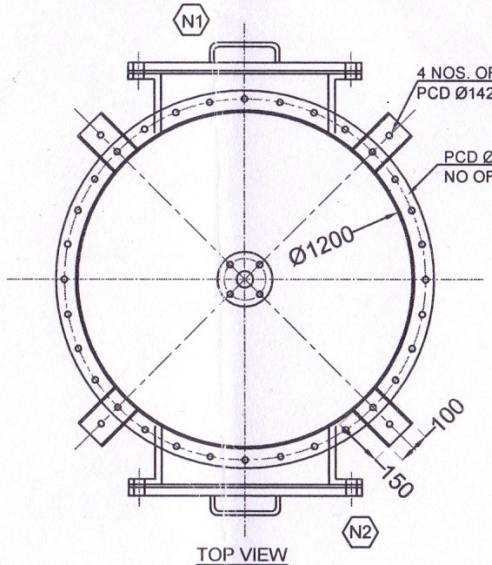
GHAZIABAD POLYMERS PVT.LTD.

GHAZIABAD POLYMERS PVT.LTD.

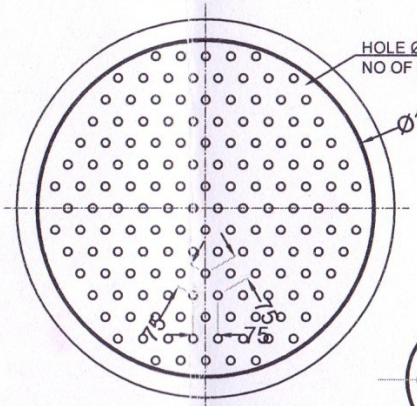
NOZZLES DETAIL									
POS.	SERVICE	PROJ.	SIZE NB	DIA. O.D.	DIA. P.C.D.	DIA. BOLT HOLE	DIA. FLANGE THICK.	NO.OF HOLE	REM.
N1	MANHOLE	125	500	698	635	20	12	20	1 NO.
N2	MANHOLE	125	500	698	635	20	12	20	1 NO.
N3	DRAIN	125	25	108	80	14	12	04	1 NO.



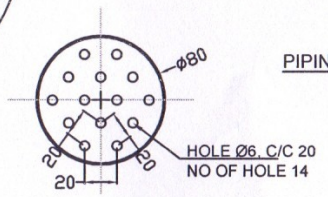
ELEVATION



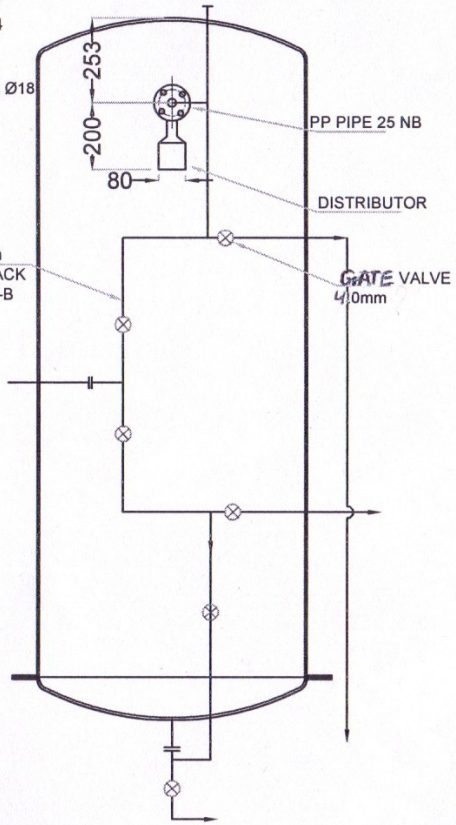
TOP VIEW



STRAINER DETAIL

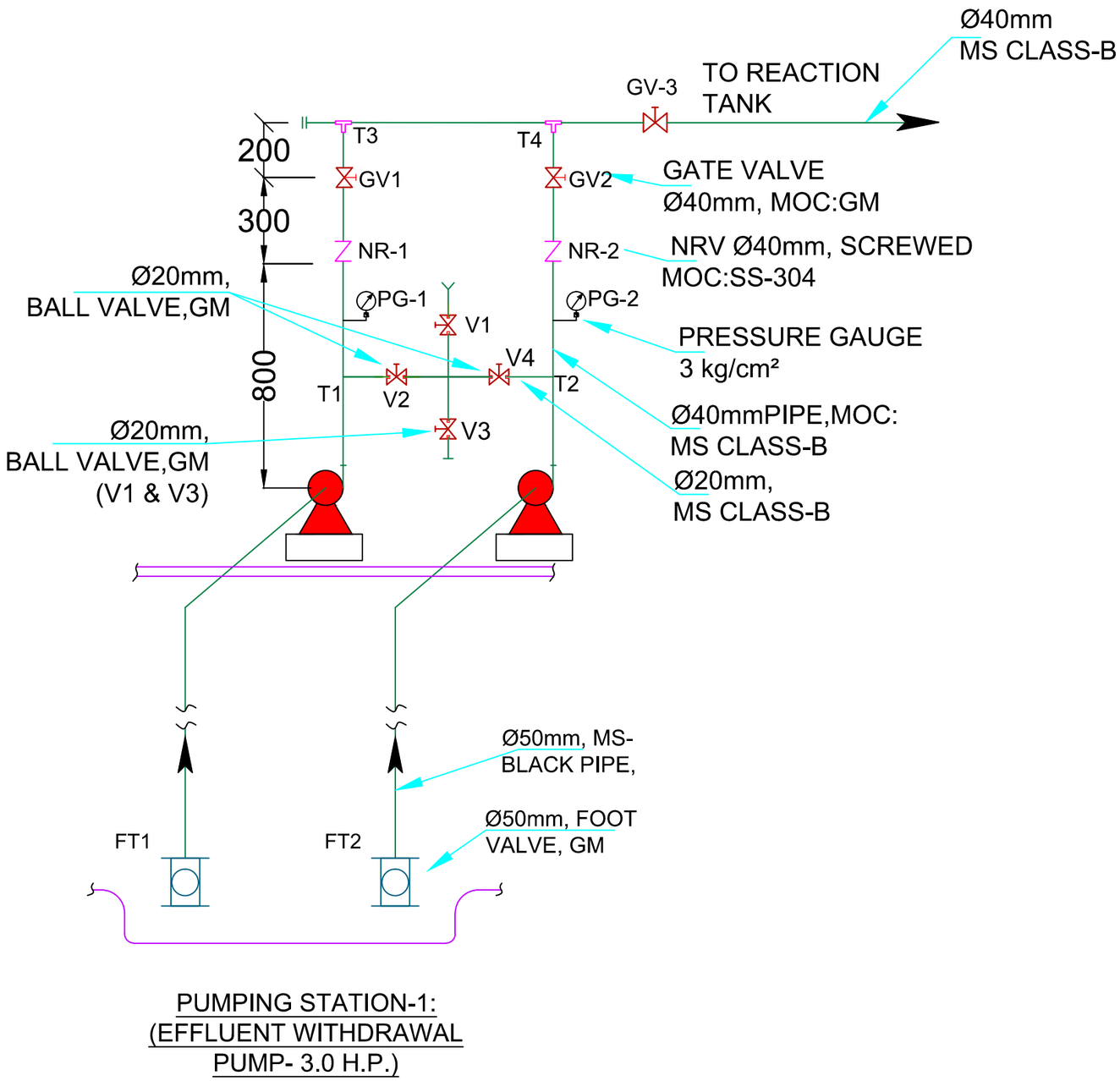


DISTRIBUTOR PLATE
80MM THICK (SS-304)
DETAIL

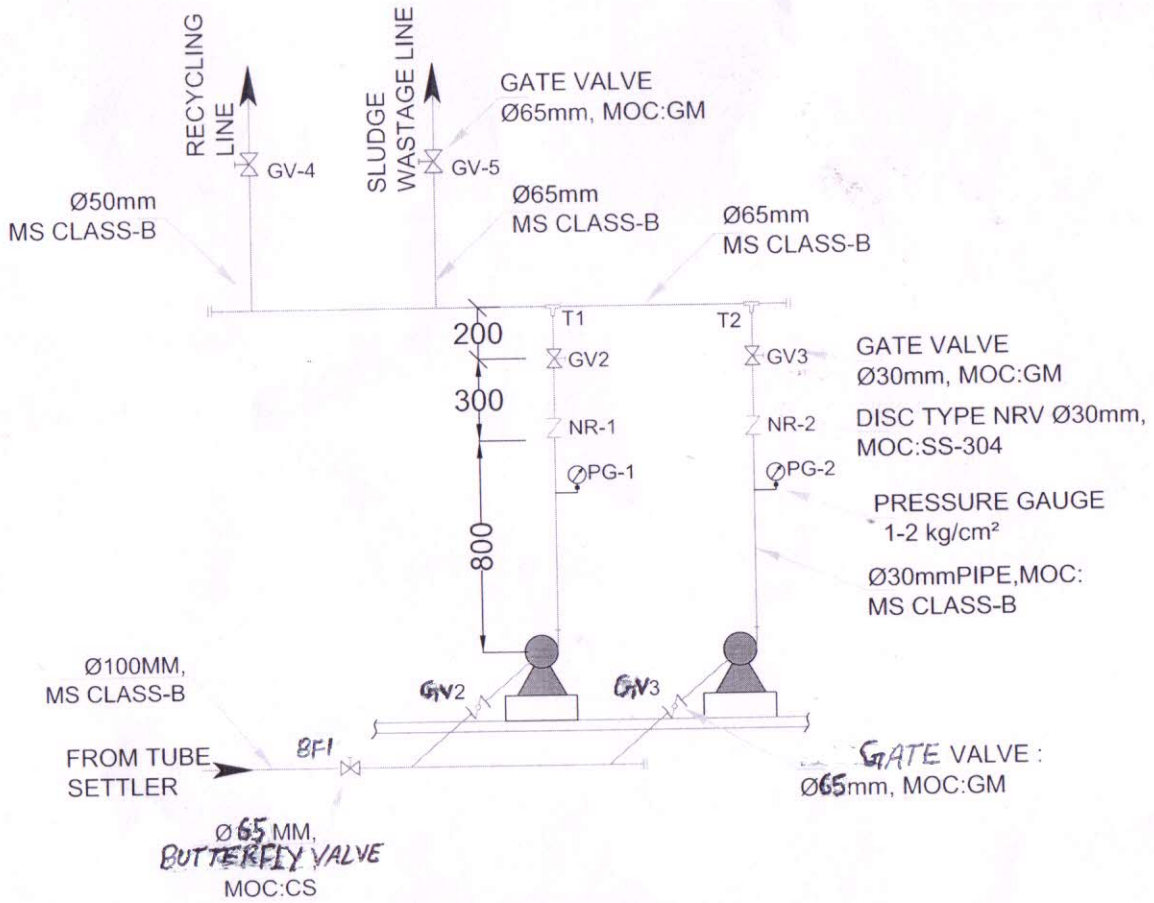


PIPING DETAIL

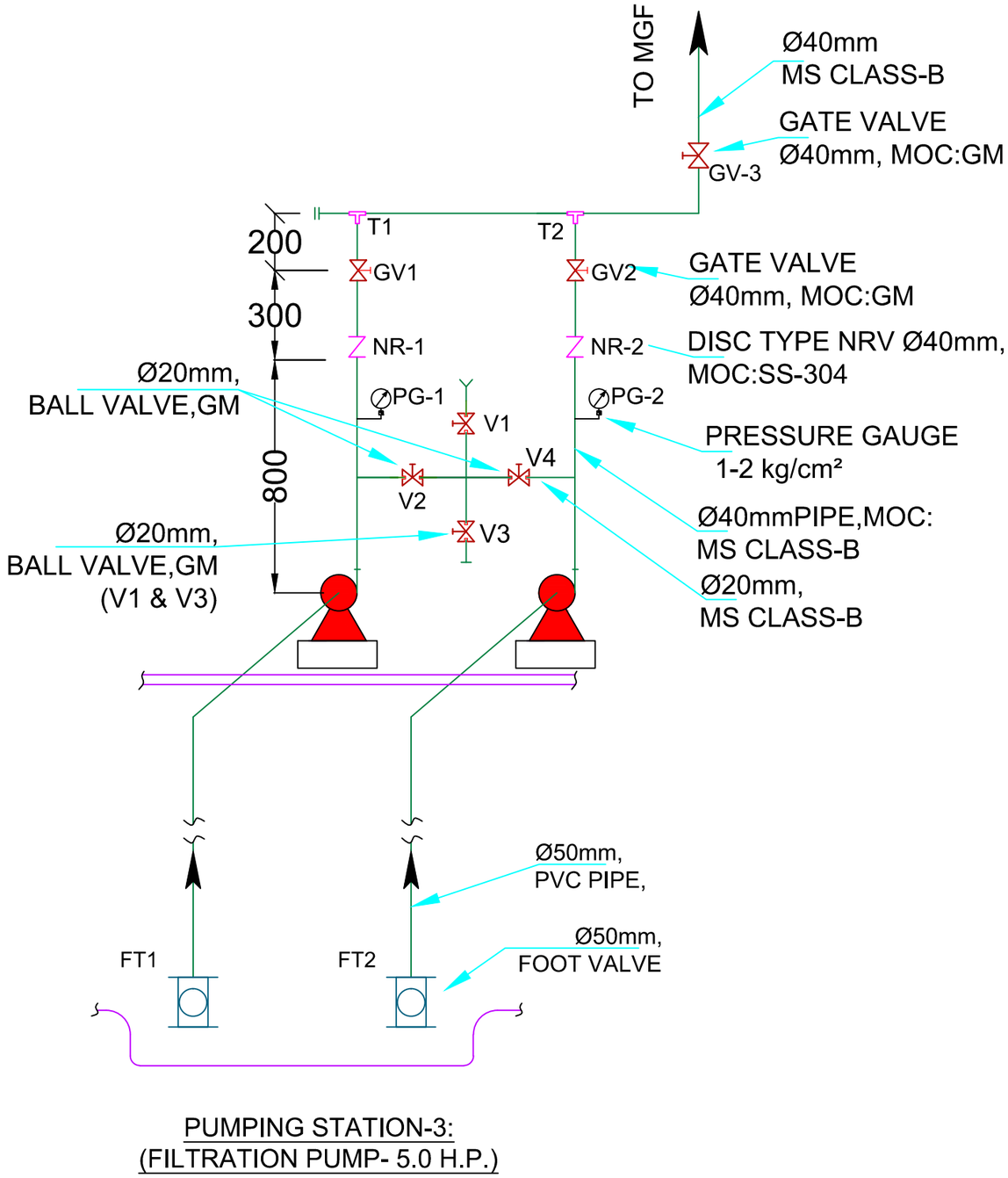
QUANTITY : 01 NO.	
PROJECT: CETP KUTCH, GUJARAT	
IMPLEMENTING AGENCY NITRA GHAZIABAD	
DRAWING NO:- 12	
DATE:- 23.02.2017	TITLE:- IRON FILTER
REV:- 00	
ALL DIMENSIONS ARE IN M.M.	



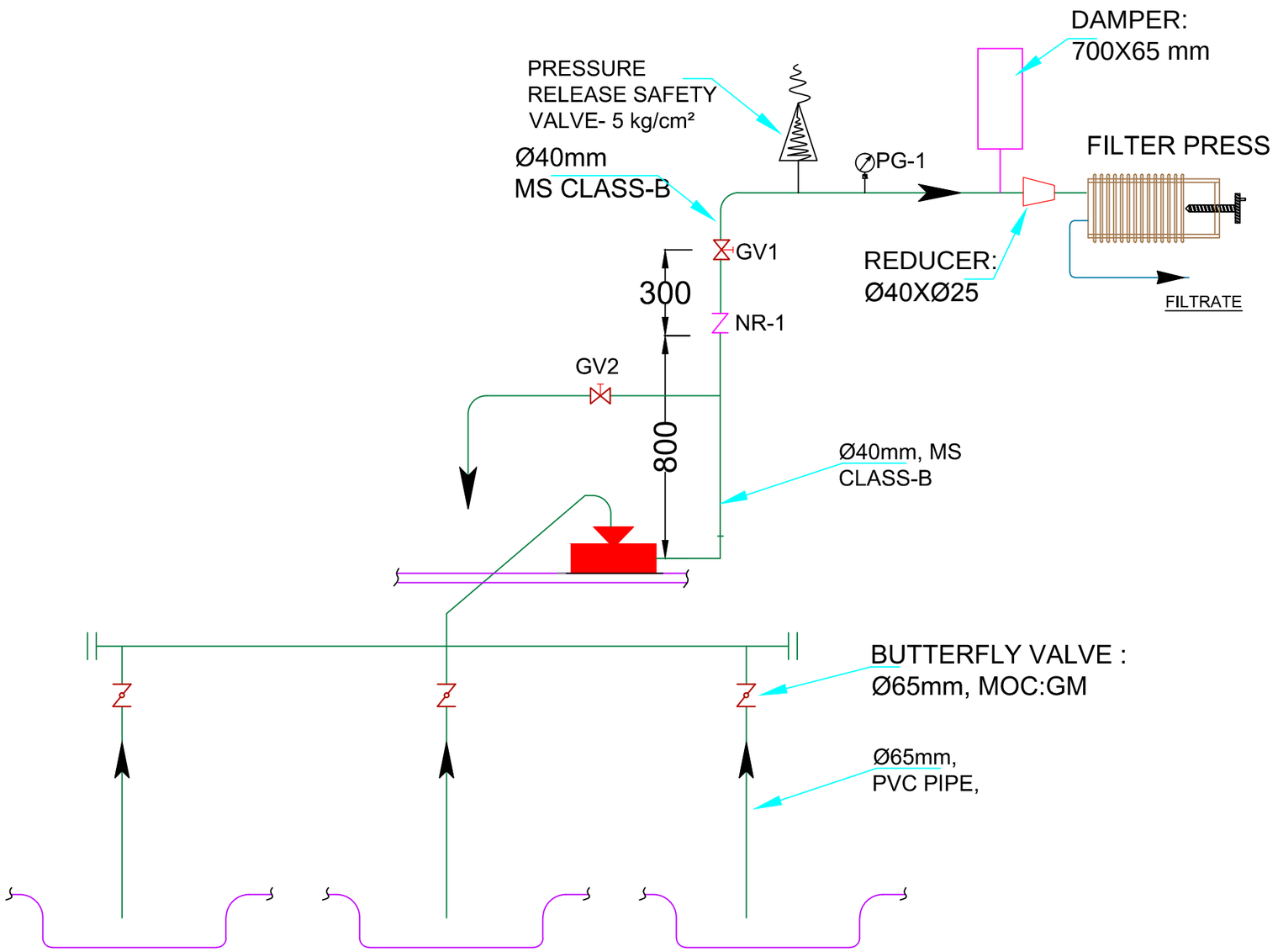
PUMPING STATION-1:
(EFFLUENT WITHDRAWAL
PUMP- 3.0 H.P.)



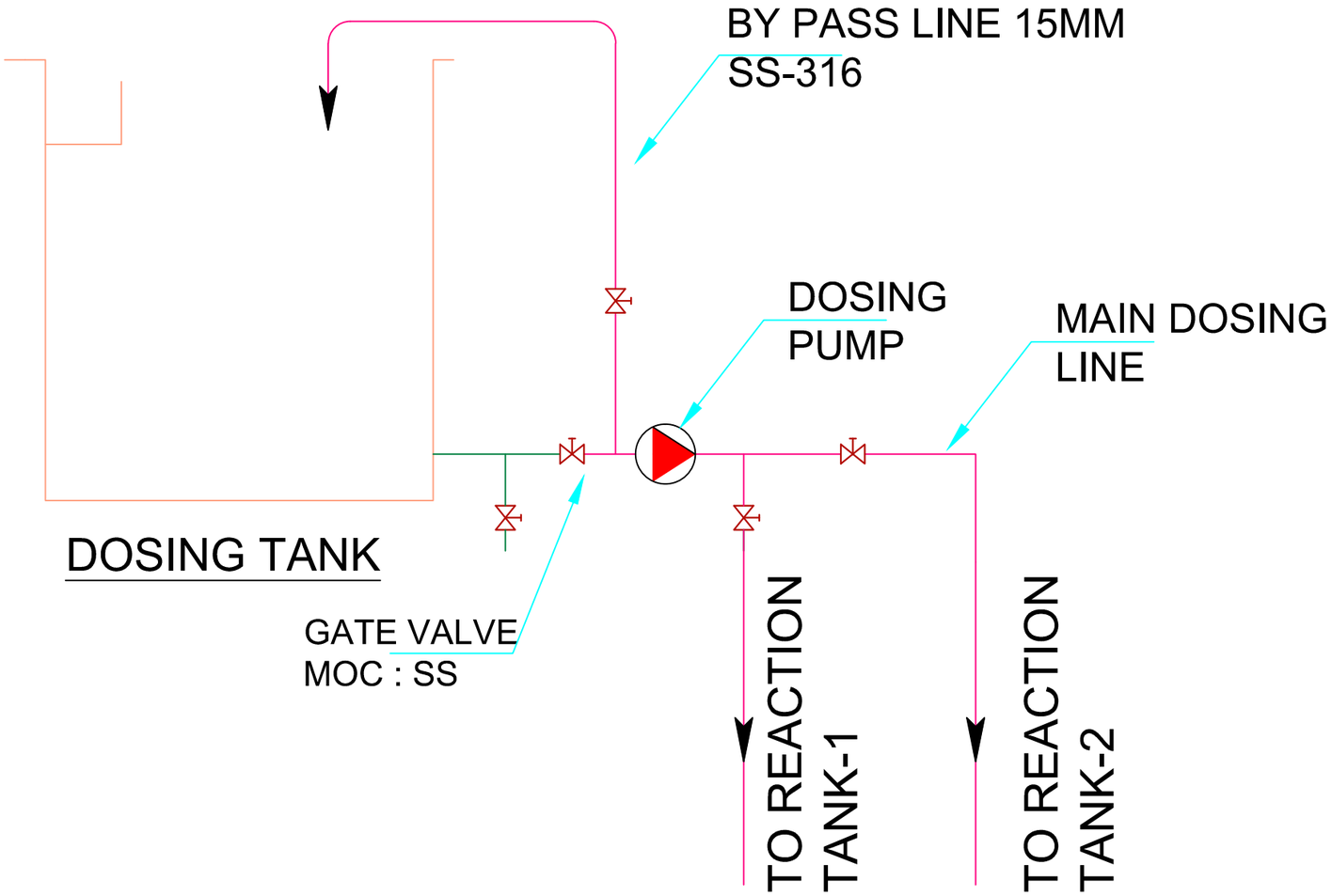
PUMPING STATION-2:
(SLUDGE RECYCLING PUMP-
2.0 H.P.)



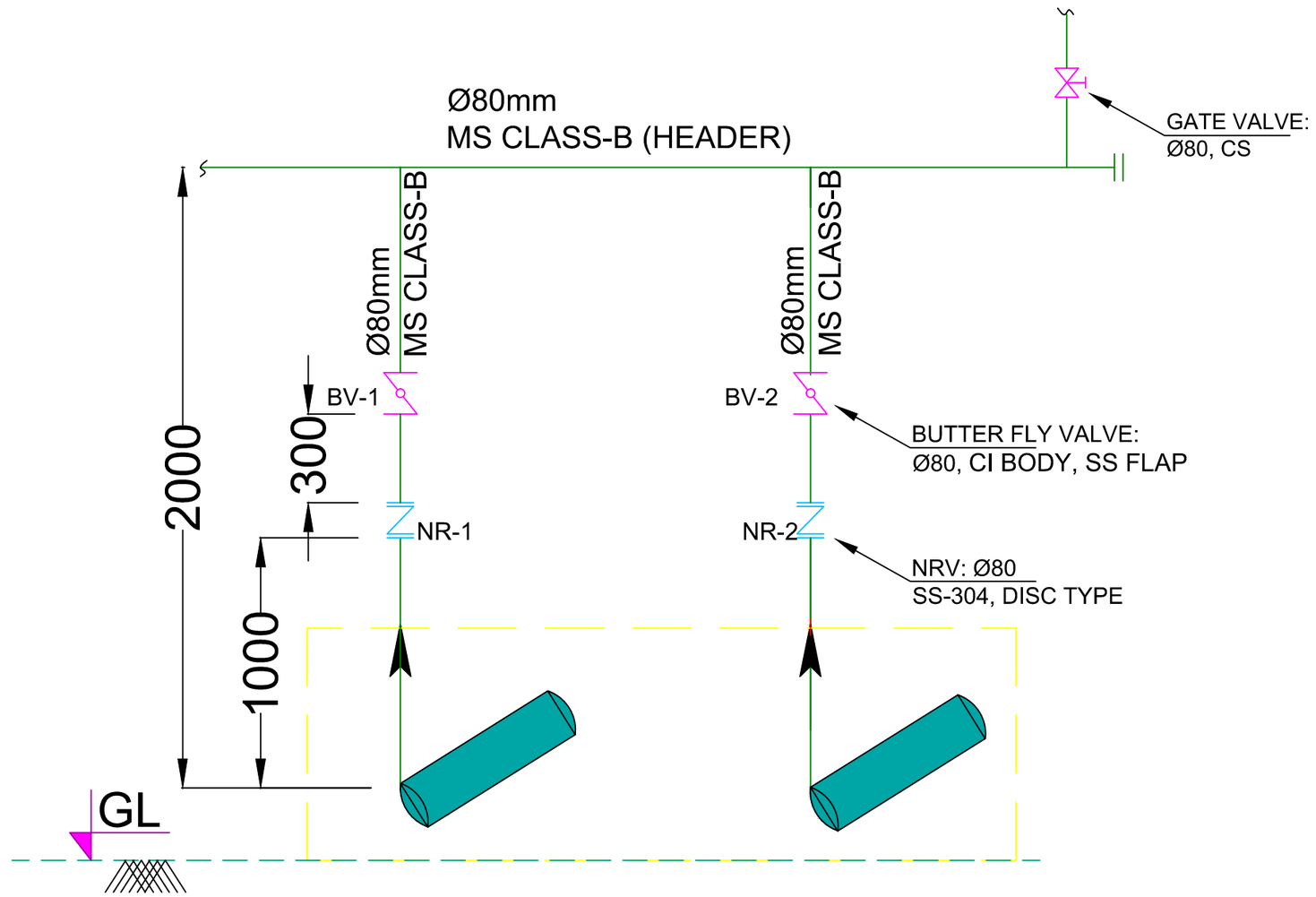
PUMPING STATION-3:
(FILTRATION PUMP- 5.0 H.P.)



PUMPING STATION-4:
(SLUDGE PUMP- 3.0 H.P.)



FOR LIME DIA: 30 mm
OTHER DIA : 15 mm



BLOWER STATION
(5.0 H.P.)

VOLUME – II

FINANCIAL BID

Project Title : Setting up 150 KLD- Common Effluent Treatment Plant (CETP) at Block Printing Cluster in Ajrakhpur, Bhuj (Gujarat)

Tender No. Nitra/Pur/PT-3/2017-18

To,
The Chairman
Purchase Committee (for CETP)
NITRA
Sector-23, Raj Nagar
Ghaziabad

Dear Sir,

Our rate for the above mentioned work/project (as defined in the scope of work in Technical bid document, Volume-I) is as under:

In figures: Rs.....

In words :Rupees.....

The above rates are inclusive of prices of materials & services proposed to supply under the contract, all taxes, duties, packing and forwarding charges, levies of state or central governments, all costs like travel, lodging and boarding, local travel expenses etc. Details of the above referred cost are mentioned in table - D to table – AA of the Volume –II of the tender document.

The above quote is not inclusive of optional items which are submitted separately as per table-AB

Signature of Bidder / Contractor

Seal of the firm of Bidder / Contractor

TABLE- D: LIST OF EQUIPMENT & ACCESSORIES

Sl. No.	ITEMS	PARTICULARS	QTY.	UNIT RATE (In Rs.)	COST (In Rs.)
1.	**BAR SCREEN**	➢ 60 deg. inclined to horizon ➢ Made of PP flats of 6mm x 30 mm. ➢ Spacing internal 20 mm center to center of the bars. ➢ Size: 500 mm x 700 mm ➢ SS-304 frame using angle 30mm x 30mm x 3mm with lifting device ➢ Epoxy-tar coated ➢ With MS holding casing	01 No.		
2.	**COARSE SCREEN**	➢ 60 deg. inclined to horizon ➢ Made of PP flats of 6mm x 30 mm. ➢ Spacing internal 20 mm center to center of the bars. ➢ Covered with 10 size SS 304 mesh folding type ➢ Size: 500 mm x 700 mm ➢ SS-304 frame using angle 30mm x 30mm x 3mm with lifting device ➢ Epoxy-tar coated With MS holding casing	01 No.		
3.	**REACTION TANK-1**	➢ Size 1.8M x 1.0M x 1.5 M ➢ MOC: PP-FRP ➢ Thickness:12mm ➢ With three compartments ➢ MS stiffener made of 50mm x 50mm x6 mm MS Angles at a distance of 1.0 mt with C/C 1m spacing ➢ Fitted with coarse bubble diffusers made of PP pipe of 20 mm dia ➢ All three chambers fitted with paddle mixers with 16 rpm and two chambers equipped with bubble air diffusers as per drawing ➢ V-type premier make gear box of 1.0 H.P. each ➢ TEFC motor with IP 55 protection 960 RPM ➢ Bottom PTFE bush bearing support (as per drawing) ➢ Crompton/ABB make motor ➢ Motor must be FRP covered	01 No.		
4.	**DOSING TANKS**	➢ AGITATOR CUM DOSING TANKS ➢ Size: 2.0m x 1.0 m x 1.0 m ➢ With two partition wall ➢ MOC: PP-FRP ➢ Thickness: 12 mm	02 Nos.		

Sl. No.	ITEMS	PARTICULARS	QTY.	UNIT RATE (In Rs.)	COST (In Rs.)
		➢ Three-blade turbine type size: ∅150mm ➢ Agitator shaft: 20 mm dia. ➢ MOC: SS- 316 ➢ TEFC motor ➢ Motor H.P. : 1.0 ➢ IP-55 protection ➢ Worm reduction gear 16:1 ➢ Final RPM: 120 ➢ Tank should be provided with Strainer basket of 300 (L) X 300(W) X 400 (H) made of SS-304 mesh (15) fitted into MS Frame ➢ Over-flow pipe 30 mm. Dia. ➢ Under-flow discharge pipe with Gate valve provision 20 mm. Dia 1 nos., 12 mm. Dia. – 1 no. ➢ Under-flow discharge pipes			
5.	**TUBE SETTLER**	➢ Dimension ø 4.0 m x 4.0 m height ➢ Hopper bottom with at least slope 1:1 minimum ➢ MOC : MS-Zinc metallized epoxy coat ➢ With spiral feed impingers made of FRP-Dia. 1.0 M x 3.0 M Height. ➢ With ISMC -100 MS channel ring support around periphery with c/c- 1.0 M ➢ Peripheral walkway of 500 mm width & 900 mm Height using 30 mm x 6 mm MS Flats c/c-30 mm with MS Angle spacing radially c/c-500 mm ➢ Railing of 40 mm MS Class reject pipes c/c-1.0 M with horizontal fencing at 300 mm & 1.0 M Height. ➢ Monkey Ladder as per standards (width-500mm, rise-300mm) ➢ Radial support at desired height using MS Tee-50mm x 50mm x 50mm, 6mm thick with MS 30mm x 6mm flats at spacing 150 mm C/C ➢ V-Notch weir plate made of FRP- 8mm sheet to be fixed over throughout the circumference of the over flow launder with notch size 45 degree C/C 200 mm. ➢ Sludge withdrawal SS 316 nipple of 100 mm dia , 300 mm length, flanged Table-F, sch.-20 ➢ With side sampling points of ø15mm, 4 Nos. with SS 316 ball valve as per drawings	02 No.		

Sl. No.	ITEMS	PARTICULARS	QTY.	UNIT RATE (In Rs.)	COST (In Rs.)
6.	**MBBR CUM AERATION TANK**	➢ Size: 7.0M x 3.0M x 4.5 M ➢ MOC: MS-Epoxy ➢ Surface finish: Sand Blasted epoxy coated ➢ Wall thickness: 6 mm ➢ Bottom thickness: 8 mm ➢ Peripheral & middle walkway of 700 mm width & 1000 mm Height using 30 mm x 6 mm MS Flats c/c-30 mm with MS Angle spacing radially c/c-500 mm ➢ Railing of 40 mm MS Class reject pipes c/c-1.0 M with horizontal fencing at 300 mm & 1.0 M Height. ➢ With monkey Ladder as per standards ➢ Air Diffuser grid with fittings: ➢ Size: ∅65 x 1000 mm ➢ Diffuser MOC: Silicon membrane in PVC casing ➢ SOTE: 4.0 Mt with hydraulic Depth ≃ minimum 20% ➢ Type: fine bubble diffuser ➢ Air flow rate: 6-8 CMH ➢ Fittings of air diffuser grid ➢ Drops: ∅25mm Pipe: (10+2) Sets ➢ MOC: SS-304L, Sch 10 ➢ Removable type overhanging drops ➢ With bottom spring loaded ➢ SS-304 tripod. ➢ SS- Pipe ∅25mm for tripod support ➢ SS pad - ∅80mm x 12 mm thick ➢ SS spring: ∅3mm, SS-304 ➢ SS Wire: ∅1.5mm ➢ Size: 7M x 3 M x 4.5 M ➢ With Partition plate at (2 M + 5M) ➢ SS- Screen – perforated ➢ Treated effluent recycling ➢ MBBR media density: 102 gms/c ➢ With specific surface area: 400 M^2 /M^3 ➢ Media Volume: 8 M^3	01 No.		
7.	**SEC CLARIFIER**	➢ Dimension: ø 4.5 m x 4.0 m height as per drawing ➢ Side Thickness: 6 mm ➢ Bottom Thickness: 8 mm ➢ Hopper bottom with slope 1:1 minimum ➢ MOC: MS-Epoxy after sand blasting ➢ With spiral feed impingers made of FRP-Dia. 1.0 M x 3.0 M Height. ➢ With ISMC -150 MS channel ring support around periphery with c/c- 1.0 M ➢ Peripheral walkway of 500 mm width &	01 No.		

Sl. No.	ITEMS	PARTICULARS	QTY.	UNIT RATE (In Rs.)	COST (In Rs.)
		900 mm Height using 30 mm x 6 mm MS Flats c/c-30 mm with MS Angle spacing radially c/c-500 mm ➢ Railing of 40 mm MS Class reject pipes c/c-1.0 M with horizontal fencing at 300 mm & 1.0 M Height. ➢ Monkey Ladder as per standards ➢ With MS radical support at the desired height using 50mm x 50mm x 6 mm MS Angles duly sand blasted and epoxy coated with MS 30x6 flats at spacing 150 mm C/C. ➢ V-Notch weir plate made of FRP- 8mm sheet to be fixed over throughout the circumference of the over flow launder with notch size 45 degree C/C 200 mm. ➢ Sludge withdrawal SS 316 nipple of 150 mm dia, 300 mm length, flanged Table-F ➢ With side sampling points of ø15mm, 4 Nos. with SS 316 ball valve			
8.	**REACTION TANK-2**	➢ Size 4.0M x 1.0M x 1.5 M ➢ MOC: PP-FRP ➢ Thickness: 12mm ➢ With four compartments ➢ MS stiffener made of 50mm x 50mm x 6mm MS Angles at a distance of 1.0 mt with C/C 1m spacing ➢ Fitted with coarse bubble diffusers made of PP pipe of 20 mm dia for first ➢ All four chambers fitted with paddle mixers with 16 rpm and chambers equipped with bubble air diffusers ➢ V-type premier make gear box of 1.0 H.P. each ➢ TEFC motor with IP 55 protection 960 RPM ➢ Bottom PTFE bush bearing support (as per drawing) ➢ Crompton/ABB make motor ➢ Motor must be FRP covered	01 No.		

Sl. No.	ITEMS	PARTICULARS	QTY.	UNIT RATE (In Rs.)	COST (In Rs.)
9.	**MULTIGRADE FILTER (MGF)**	➢ Dimension: Ø 1.0 x 2.2 M ➢ MOC: MS-Epoxy ➢ Sand blasted, Epoxy coated ➢ Side wall thickness 6mm ➢ Bottom thickness 8 mm ➢ 600 mm Manhole flanged type at the bottom ➢ Micro strainer on the bottom plate of thickness 12 mm ➢ Micro strainer dia 30 mm on triangular pitch of 60 mm ➢ Feeding manhole on top side another one above plate of 500mm dia with unbreakable glass ➢ Side bottom manhole of 500 mm dia at the opposite side. ➢ Feed distributor of SS pipe of dia 40 mm on the top ➢ Pot strainer at the disposal line of 300 mm dia ➢ Frontal pipe line of 40 mm dia ➢ Gate valves of six nos ➢ Three leg support system of 100 MS Class- B pipe of 600 mm length. ➢ Media- • Boulder 20-25mm upto 300 mm height • Marble 6-12mm upto 300 mm height • Sand 0.5-1.0mm upto 300 mm height	01 No.		
10.	**IRON FILTER (IR)**	➢ Dimension: Ø 1.2 x 2.2 M ➢ MOC : MS-Epoxy ➢ Sand blasted, Epoxy coated ➢ Side wall thickness 6mm ➢ Bottom thickness 8 mm ➢ 600 mm Manhole flanged type at the bottom ➢ Micro strainer on the bottom plate of thickness 12 mm ➢ Micro strainer dia 30 mm on triangular pitch of 60 mm ➢ Feeding manhole on top side of 500mm dia with unbreakable glass ➢ Side bottom manhole of 500 mm dia at the opposite side. ➢ Feed distributor of SS pipe of dia 40 mm on the top ➢ Pot strainer at the disposal line of 300 mm dia ➢ Frontal pipe line of 40 mm dia	01 No.		

Sl. No.	ITEMS	PARTICULARS	QTY.	UNIT RATE (In Rs.)	COST (In Rs.)
		➢ Butter fly valves of six nos ➢ Three leg support system of 100 MS Class- B pipe of 600 mm length. ➢ Filling media 300 lits Manganese Sand ➢ Media- • Boulder 20-25mm upto 200 mm height • Marble 6-12mm upto 150 mm height • Sand 0.5-1.0mm upto 100 mm height • Manganese Sand up to 250 mm height			
11.	**SLUDGE STORAGE TANK**	➢ Size: 2.0M x 2.5M x 3.0 M ➢ MOC: MS-Epoxy ➢ Surface finish: Sand Blasted epoxy coated ➢ Wall thickness: 6 mm ➢ Bottom thickness: 8 mm	02 No.		
12.	**FILTER PRESS**	➢ Plate and frame type ➢ Peripheral entry ➢ Delivery into closed circuit ➢ Thickness of frame: 40 mm. ➢ Size: 600 mm x 600 mm ➢ Number of plates: 24 ➢ Number of frames: 23 ➢ Filter press has to be tray fitted ➢ With ratchet gear facility ➢ Make: pp ➢ Make: Welcome**/**Universal/W2P/Equivalent ➢ Working pressure: 6 kg./ cm2 ➢ Design progress: 10 kg/cm^2 ➢ With cotton/polyester Woven filter cloth ➢ Manual mode ➢ Two sets of cotton/polyester filter cloth of reputed make	01 No.		
	SUB TOTAL				

TABLE- E: LIST OF PUMPS & BLOWER

Sl. No.	ITEMS	PARTICULARS	QTY.	UNIT RATE (In Rs.)	COST (In Rs.)
1.	**EFFLUENT WITHDRAWAL PUMP**	➢ Type: Centrifugal, non-clog ➢ MOC: CI body, ➢ SS- impeller ➢ Flow rate: 15 m^3 /hr ➢ Head: 15 MWC ➢ Suction lift-4.0 MWC ➢ NPSH-5.0 MWC ➢ Split type ➢ Preferably self-priming ➢ H.P.: 3.0 ➢ RPM: 2900 ➢ TEFC: motor ➢ Motor Earthing with 8 SWG GI ➢ With base frame ➢ Make: Jhonson ➢ Motor must be FRP covered	(1w+1s) = 2 Nos.		
2.	**DOSING PUMPS**	➢ Type: Plunger ➢ Material to be handled: ➢ Body: PP ➢ Flow rate: ➢ Head: 30 MWC ➢ TEFC Motor with IP -55 protection, Crompton make ➢ Motor Earthing with 8 SWG GI ➢ HP: 0.5 ➢ Suction: fully flooded ➢ Split type ➢ Flow variable by adjusting stroke length ➢ Make: Asia LMI/Milton Roy	04 Nos.		
3.	**LIME DOSING PUMP**	➢ Type : Centrifugal ➢ MOC : SS-316 ➢ Flow rate : 1000-1500 LPH ➢ Head : 20 MWC ➢ Split type ➢ Motor H.P. : 1.0 ➢ Motor Earthing with 8 SWG GI ➢ Make : Johnson	02 No.		
4.	**SLUDGE RECYCLING PUMP**	➢ Type: Centrifugal, non-clog type ➢ Flow rate: 7.5 M^3/Hr ➢ Head: 12 MWC ➢ MOC: CI body, ➢ Bronze – Impellor ➢ RPM: 1440 ➢ Split type ➢ H.P.: 2.0 ➢ Motor Earthing with 8 SWG GI ➢ Flexible coupling ➢ Suction: - 4 MWC	02 Nos.		

Sl. No.	ITEMS	PARTICULARS	QTY.	UNIT RATE (In Rs.)	COST (In Rs.)
		➢ Make: Jhonson ➢ Motor must be FRP covered			
5.	**FILTRATION PUMP**	➢ Type centrifugal pumps. ➢ Self-priming ➢ Capacity: 15 M^3 /Hr ➢ Head: 25 m. of water column ➢ MOC. CI body, SS Shaft & Impeller ➢ Maximum motor H.P. 5.0 ➢ TEFC motor ➢ RPM: 2990 ➢ Motor Earthing with 8 SWG GI ➢ Flexible Coupling ➢ Base plate ➢ Foundation bolt ➢ Make: Johnson ➢ Motor must be FRP covered	(1w+1s)=2 Nos.		
6.	**SLUDGE (SCREW) PUMP**	➢ Type: Screw pump ➢ Material to be handled: 10% Sludge slurry ➢ Split type ➢ Flow rate: 5000 Ltr / hr. ➢ Head:70 MWC ➢ Shaft impeller: SS 316 ➢ Body :CI ➢ TEFC Motor with IP -55 protection, Crompton make ➢ RPM : 960 ➢ Motor Earthing with 8 SWG GI ➢ NPSH :+4.0 MWC ➢ Final RPM:175-200 ➢ Speed Reduction by gear box ➢ Suction: - 4.5 MWC ➢ HP: 3.0 ➢ Make: Roto ➢ Motor must be FRP covered	01 No.		
7.	**BLOWER**	➢ Type: Twin lobe type ➢ MOC: CI Body ➢ Air cooled ➢ Flow rate: 200M^3/hr ➢ Head: 5000 MWC ➢ RPM: < 1400 ➢ HP: 5.0/ 7.5 ➢ TEFC Motor ➢ Motor Earthing with 8 SWG GI ➢ Make – ABB/Chrompton ➢ Acoustic load handling system ➢ Anti-vibration pads, DB level below 80 ➢ With speed reduction gear box & pulley ➢ With base frame ➢ With safety valve for press release	02 Nos.		

Sl. No.	ITEMS	PARTICULARS	QTY.	UNIT RATE (In Rs.)	COST (In Rs.)
		➢ Make: TMVT/ Kays ➢ Motor must be FRP covered			
	SUB TOTAL				

TABLE- F: EFFLUENT WITHDRAWAL STATION (PS 1)

Sl. No.	ITEMS	PARTICULARS	QTY.	UNIT RATE (in Rs.)	COST (in Rs.)
1.	**FOOT VALVE**	➢ MOC - G.M. ➢ Type – Screwed ➢ Dia. – 50mm ➢ Make –Kirloskar/Gajanand	**2**		
2.	**NRV**	➢ MOC – C.I. ➢ Type –Flap- SS316 ➢ Dia. – 40mm ➢ Make –CNR/Jayhiwa/Castle	**2**		
3.	**GATE VALVE**	➢ MOC - G.M. ➢ Type – Screwed ➢ Dia. – 40mm ➢ Make - Shenco	**3**		
4.	**BALL VALVE**	➢ MOC - G.M. ➢ Type – three piece ➢ Dia. – 20mm ➢ Make – Shenco	**4**		
5.	**PRESSURE GAUGE WITH FITTINGS**	➢ MOC – SS316 ➢ Type – Bourdon ➢ Ranges – 0-3 kg/cm^2 ➢ Dial – 100 mm ➢ Make – H.Guru/Fiebig	**2**		
6.	**PIPE -SUCTION**	➢ MOC – MS-Black ➢ Type – Class-B ➢ Pressure Rating -10kg/cm^2 ➢ Dia. – 50mm ➢ Make –Tata/Jindal	**12 Mtr.**		
7.	**PIPE-BY PASS LINE**	➢ MOC – MS-Black ➢ Type – Class-B ➢ Pressure Rating -10kg/cm^2 ➢ Dia. – 20mm ➢ Make –Tata/Jindal	**2 Mtr.**		
8.	**PIPE-DISCHARGE**	➢ MOC – MS-Black ➢ Type – Class-B ➢ Pressure Rating -10kg/cm^2 ➢ Dia. – 40mm ➢ Make –Tata/Jindal	**38 Mtr.**		
9.	**FITTINGS – SUCTION**				
a.	**MATCHING FLANGE**	➢ MOC – MS-Black ➢ Type – Table -E ➢ Dia. – As per pump inlet dia. ➢ Make – Standard Make	**2**		
b.	**ELBOW**	➢ MOC – MS-Black ➢ Type – Class-B ➢ Pressure Rating -10kg/cm^2 ➢ Dia. – 50mm ➢ Make – Standard Make	**2**		
10.	**FITTINGS – DISCHARGE**				

Sl. No.	ITEMS	PARTICULARS	QTY.	UNIT RATE (in Rs.)	COST (in Rs.)
a.	**MATCHING FLANGE**	➢ MOC – MS-Black ➢ Type – Table -E ➢ Dia. – As per pump outlet dia. ➢ Make – Standard Make	**2**		
b.	**FLANGE**	➢ MOC – MS-Black ➢ Type – Table -E ➢ Dia. – 40mm ➢ Make – Standard Make	**5**		
c.	**BLIND FLANGE**	➢ MOC – MS-Black ➢ Type – Table -E ➢ Dia. – 40mm ➢ Make – Standard Make	**1**		
d.	**TEE**	➢ MOC – MS-Black ➢ Type – Class-B ➢ Pressure Rating -10kg/cm² ➢ Dia. – 40mm ➢ Make – Standard Make	**2**		
e.	**ELBOW**	➢ MOC – MS-Black ➢ Type – Class-B ➢ Pressure Rating -10kg/cm² ➢ Dia. – 40mm ➢ Make – Standard Make	**6**		
f.	**REDUCING TEE**	➢ MOC – MS-Black ➢ Type – Class-B ➢ Pressure Rating -10kg/cm² ➢ Dia. – 40 x 20 x 40 mm ➢ Make – Standard Make	**2**		
g.	**CROSS**	➢ MOC – MS-Black ➢ Type – Class-B ➢ Pressure Rating -10kg/cm² ➢ Dia. – 20 mm ➢ Make – Standard Make ➢	**1**		
11.	**LIST OF NIPPLE**				
a.	**NIPPLE**	➢ MOC – MS-Black ➢ Type – Class-B ➢ Pressure Rating -10kg/cm² ➢ Size – 50 x 100 mm ➢ Make – Standard Make	**2**		
b.	**NIPPLE**	➢ MOC – MS-Black ➢ Type – Class-B ➢ Pressure Rating -10kg/cm² ➢ Size – 40 x 100 mm ➢ Make - B&M /VS	**2**		
c.	**NIPPLE**	➢ MOC – MS-Black ➢ Type – Class-B ➢ Pressure Rating -10kg/cm² ➢ Size – 20 x 100 mm ➢ Make- Standard Make	**8**		
	SUB TOTAL				

TABLE- G: SLUDGE RECYCLING STATION (PS-2)

Sl. No.	ITEMS	PARTICULARS	QTY.	UNIT RATE (In Rs.)	COST (In Rs.)
1.	**BUTTERFLY VALVE**	➢ MOC - G.M. ➢ Type – Screwed ➢ Dia. – 65 mm ➢ Make - Shenco	**1**		
2.	**GATE VALVE**	➢ MOC - G.M. ➢ Type – Screwed ➢ Dia. – 65 mm ➢ Make - Shenco	**2**		
3.	**NRV**	➢ MOC – C.I. ➢ Type –disc- SS316 ➢ Dia. – 30mm ➢ Make - CNR/Jayhiwa/Castle	**2**		
4.	**GATE VALVE**	➢ MOC - G.M. ➢ Type – Screwed ➢ Dia. – 30mm ➢ Make - Shenco	**4**		
5.	**GATE VALVE**	➢ MOC - G.M. ➢ Type – Screwed ➢ Dia. – 65mm ➢ Make - Shenco	**3**		
6.	**GATE VALVE**	➢ MOC - G.M. ➢ Type – Screwed ➢ Dia. – 50mm ➢ Make - Shenco	**1**		
7.	**PRESSURE GAUGE** **WITH FITTINGS**	➢ MOC – SS316 ➢ Type – Bourdon ➢ Ranges – 1-2 kg/cm^2 ➢ Dial – 100 mm ➢ Make – H.Guru/Fiebig	**2**		
8.	**PIPE –SUCTION HEADER**	➢ MOC – MS-Black ➢ Type – Class-B ➢ Pressure Rating -10kg/cm^2 ➢ Dia. – 65 mm ➢ Make –Tata/Jindal	**6 Mtr.**		
9.	**PIPE – DISCHARGE**	➢ MOC – MS-Black ➢ Type – Class-B ➢ Pressure Rating -10kg/cm^2 ➢ Dia. – 30 mm ➢ Make –Tata/Jindal	**4 Mtr.**		
10.	**PIPE- DISCHARGE TO AERATION TANK & CONNECTION UPTO COMMON SLUDGE LINE OF TUBE SETTLER**	➢ MOC – MS-Black ➢ Type – Class-B ➢ Pressure Rating -10kg/cm^2 ➢ Dia. – 50mm ➢ Make –Tata/Jindal	**35 Mtr.**		

Sl. No.	ITEMS	PARTICULARS	QTY.	UNIT RATE (In Rs.)	COST (In Rs.)
11.	**PIPE- DISCHARGE TO SLUDGE SUMP**	➢ MOC – MS-Black ➢ Type – Class-B ➢ Pressure Rating -10kg/cm² ➢ Dia. – 65mm ➢ Make –Tata/Jindal	**43 Mtr.**		
12.	**FITTINGS – SUCTION**				
a.	**MATCHING FLANGE**	➢ MOC – MS-Black ➢ Type – Table -E ➢ Dia – As per pump outlet dia. ➢ Make – Standard Make	**2**		
b.	**FLANGE**	➢ MOC – MS-Black ➢ Type – Table -E ➢ Dia. – 65 mm ➢ Make – Standard Make	**1**		
c.	**BLIND FLANGE**	➢ MOC – MS-Black ➢ Type – Table -E ➢ Dia. – 65 mm ➢ Make – Standard Make	**1**		
d.	**TEE**	➢ MOC – MS-Black ➢ Type – Class-B ➢ Pressure Rating -10kg/cm² ➢ Dia. – 65 mm ➢ Make – Standard Make	**2**		
13.	**FITTINGS – DISCHARGE**				
a.	**MATCHING FLANGE**	➢ MOC – MS-Black ➢ Type – Table -E ➢ Dia. – As per pump inlet dia. ➢ Make – Standard Make	**2**		
b.	**FLANGE**	➢ MOC – MS-Black ➢ Type – Table -E ➢ Dia. – 50 mm ➢ Make – Standard Make	**2**		
c.	**BLIND FLANGE**	➢ MOC – MS-Black ➢ Type – Table -E ➢ Dia. – 50 mm ➢ Make – Standard Make	**2**		
d.	**FLANGE**	➢ MOC – MS-Black ➢ Type – Table -E ➢ Dia. – 65 mm ➢ Make – Standard Make	**4**		
e.	**BLIND FLANGE**	➢ MOC – MS-Black ➢ Type – Table -E ➢ Dia. – 65 mm ➢ Make – Standard Make	**4**		
f.	**TEE**	➢ MOC – MS-Black ➢ Type – Class-B ➢ Pressure Rating -10kg/cm² ➢ Dia. – 50 mm ➢ Make – Standard Make	**4**		

Sl. No.	ITEMS	PARTICULARS	QTY.	UNIT RATE (In Rs.)	COST (In Rs.)
g.	**TEE**	➢ MOC – MS-Black ➢ Type – Class-B ➢ Pressure Rating -10kg/cm² ➢ Dia. – 65 mm ➢ Make – Standard Make	**6**		
h.	**REDUCING TEE**	➢ MOC – MS-Black ➢ Type – Class-B ➢ Pressure Rating -10kg/cm² ➢ Dia. – 65x 50 x 65mm ➢ Make – Standard Make	**1**		
i.	**REDUCING TEE**	➢ MOC – MS-Black ➢ Type – Class-B ➢ Pressure Rating -10kg/cm² ➢ Dia. – 65mm x 30mm x 65mm ➢ Make – Standard Make	**2**		
j.	**ELBOW**	➢ MOC – MS-Black ➢ Type – Class-B ➢ Pressure Rating -10kg/cm² ➢ Dia. – 50mm ➢ Make - Standard Make	**8**		
k.	**ELBOW**	➢ MOC – MS-Black ➢ Type – Class-B ➢ Pressure Rating -10kg/cm² ➢ Dia. – 65mm ➢ Make - Standard Make	**6**		
14.	**SLUDGE LINE IN AERATION TANK**				
a.	**PIPE**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 25 mm ➢ Make – Finolex/Supreme/Astral	**23 Mtr.**		
b.	**SOCKET**	➢ MOC – MS-Black ➢ Type – Class-B ➢ Pressure Rating -10kg/cm² ➢ Dia. – 25 mm ➢ Make – Supreme/Astral	**5**		
c.	**MTA**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 25 mm ➢ Make - Finolex/Supreme/Astral	**5**		
d.	**ELBOW**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 25 mm ➢ Make – Supreme/Astral	**5**		
	SUB TOTAL				

TABLE- H: EFFLUENT TRANSFER STATION -FITTINGS UP TO MGF (PS-3)

Sl. No.	ITEMS	PARTICULARS	QTY.	UNIT RATE (In Rs.)	COST (In Rs.)
1.	**FOOT VALVE**	➢ MOC - G.M. ➢ Type – Screwed ➢ Dia. – 50mm ➢ Make - Kirloskar/Gajanand	**2**		
2.	**NRV**	➢ MOC – C.I. ➢ Type –Flap- SS316 ➢ Dia. – 40mm ➢ Make - CNR/Jayhiwa/Castle	**2**		
3.	**GATE VALVE**	➢ MOC - G.M. ➢ Type – Screwed ➢ Dia. – 40mm ➢ Make - Shenco	**3**		
4.	**BALL VALVE**	➢ MOC - G.M. ➢ Type – Three piece ➢ Dia. – 20mm ➢ Make - Shenco	**4**		
5.	**PRESSURE GAUGE WITH FITTINGS**	➢ MOC – SS316 ➢ Type – Bourdon ➢ Ranges –0-7 kg/cm² ➢ Dial – 100 mm ➢ Make – H.Guru/Fiebig	**2**		
6.	**PIPE -SUCTION**	➢ MOC – MS-Black ➢ Type – Class-B ➢ Pressure Rating -10kg/cm² ➢ Dia. – 50mm ➢ Make –Tata/Jindal	**8 Mtr.**		
7.	**PIPE-BY PASS LINE**	➢ MOC – MS-Black ➢ Type – Class-B ➢ Pressure Rating -10kg/cm² ➢ Dia. – 20mm ➢ Make –Tata/Jindal	**2 Mtr.**		
8.	**PIPE-DISCHARGE**	➢ MOC – MS-Black ➢ Type – Class-B ➢ Pressure Rating -10kg/cm² ➢ Dia. – 40mm ➢ Make –Tata/Jindal	**10 Mtr.**		
9.	**FITTINGS – SUCTION**				
a.	**MATCHING FLANGE**	➢ MOC – MS-Black ➢ Type – Table -E ➢ Dia. – As per pump inlet dia. ➢ Make – Standard Make	**2**		
b.	**ELBOW**	➢ MOC – MS-Black ➢ Type – Class-B	**2**		

Sl. No.	ITEMS	PARTICULARS	QTY.	UNIT RATE (In Rs.)	COST (In Rs.)
		➢ Pressure Rating -10kg/cm² ➢ Dia. – 50mm ➢ Make – Standard Make			
10.	**FITTINGS – DISCHARGE**				
a.	**MATCHING FLANGE**	➢ MOC – MS-Black ➢ Type – Table -E ➢ Dia. – As per pump outlet dia. ➢ Make – Standard Make	**2**		
b.	**FLANGE**	➢ MOC – MS-Black ➢ Type – Table -E ➢ Dia. – 40mm ➢ Make – Standard Make	**5**		
c.	**BLIND FLANGE**	➢ MOC – MS-Black ➢ Type – Table -E ➢ Dia. – 40mm ➢ Make – Standard Make	**1**		
d.	**TEE**	➢ MOC – MS-Black ➢ Type – Class-B ➢ Pressure Rating -10kg/cm² ➢ Dia. – 40mm ➢ Make – Standard Make	**2**		
e.	**REDUCING TEE**	➢ MOC – MS-Black ➢ Type – Class-B ➢ Pressure Rating -10kg/cm² ➢ Dia. – 40 x 20 x 40 mm ➢ Make – Standard Make	**2**		
f.	**CROSS**	➢ MOC – MS-Black ➢ Type – Class-B ➢ Pressure Rating -10kg/cm² ➢ Dia. – 20 mm ➢ Make – Standard Make	**1**		
h.	**ELBOW**	➢ MOC – MS-Black ➢ Type – Class-B ➢ Pressure Rating -10kg/cm² ➢ Dia. – 40 mm ➢ Make – Standard Make	**6**		
11.	**LIST OF NIPPLE**				
a.	**NIPPLE**	➢ MOC – MS-Black ➢ Type – Class-B ➢ Pressure Rating -10kg/cm² ➢ Size – 50 x 100 mm ➢ Make – Standard Make	**2**		
b.	**NIPPLE**	➢ MOC – MS-Black ➢ Type – Class-B ➢ Pressure Rating -10kg/cm² ➢ Size – 40 x 100 mm ➢ Make – Standard Make	**2**		

Sl. No.	ITEMS	PARTICULARS	QTY.	UNIT RATE (In Rs.)	COST (In Rs.)
c.	**NIPPLE**	➢ MOC – MS-Black ➢ Type – Class-B ➢ Pressure Rating -10kg/cm² ➢ Size – 20 x 100 mm ➢ Make – Standard Make	**8**		
	SUB TOTAL				

TABLE- I: OUTLET OF IRF FILTER TO OVERHEAD TANK AND WASHING GHAT

Sl. No.	ITEMS	PARTICULARS	QTY.	UNIT RATE (In Rs.)	COST (In Rs.)
1.	**GATE VALVE**	➢ MOC - G.M. ➢ Type – Screwed ➢ Dia. – 40mm ➢ Make - Shenco	**2**		
2.	**PIPE FROM OUTLET OF IRF TO WASHING GHAT & OVERHEAD TANK**	➢ MOC – MS-Black ➢ Type – Class-B ➢ Pressure Rating -10kg/cm² ➢ Dia. – 40mm ➢ Make –Tata/Jindal	**70 Mtr.**		
3.	**FITTINGS**				
a.	**MATCHING FLANGE**	➢ MOC – MS-Black ➢ Type – Table -E ➢ Dia. – As per IRF outlet dia. ➢ Make – Standard Make	**1**		
b.	**ELBOW**	➢ MOC – MS-Black ➢ Type – Class-B ➢ Pressure Rating -10kg/cm² ➢ Dia. – 40mm ➢ Make – Standard Make	**12**		
c.	**TEE**	➢ MOC – MS-Black ➢ Type – Class-B ➢ Pressure Rating -10kg/cm² ➢ Dia. – 40mm ➢ Make – Standard Make	**1**		
	SUB TOTAL				

TABLE- J : SCREW PUMPING STATION(PS-4)

Sl. No.	ITEMS	PARTICULARS	QTY.	UNIT RATE (In Rs.)	COST (In Rs.)
1.	**BUTTERFLY VALVE**	➢ MOC - G.M. ➢ Type – Screwed ➢ Dia. – 65 mm ➢ Make - Shenco	**2**		
2.	**SLUICE VALVE**	➢ MOC – G.M. ➢ Type – Screwed ➢ Dia. – 20 mm ➢ Make - Shenco	**1**		
3.	**GATE VALVE**	➢ MOC - G.M. ➢ Type – Screwed ➢ Dia. – 40mm ➢ Make - Shenco	**1**		
4.	**NRV**	➢ MOC – C.I. ➢ Type – Disc –SS316 ➢ Dia. – 40mm ➢ Make - CNR/Jayhiwa/Castle	**1**		
5.	**PRESSURE GAUGE WITH FITTINGS**	➢ MOC – SS316 ➢ Type – Bourdon ➢ Ranges – 0-7 kg/cm² ➢ Dial – 100 mm ➢ Make – H.Guru/Fiebig	**1**		
6.	**PIPE –SUCTION**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 65 mm ➢ Make – Finolex/Supreme/Astral	**15 Mtr.**		
7.	**PIPE-BY PASS LINE**	➢ MOC – MS-Black ➢ Type – Class-B ➢ Pressure Rating -10kg/cm² ➢ Dia. – 20mm ➢ Make –Tata/Jindal	**6 Mtr.**		
8.	**PIPE-DISCHARGE**	➢ MOC – MS-Black ➢ Type – Class-B ➢ Pressure Rating -10kg/cm² ➢ Dia. – 40mm ➢ Make –Tata/Jindal	**20 Mtr.**		
9.	**FITTINGS SUCTION**				
a.	**MATCHING FLANGE**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – As per pump inlet dia. ➢ Make – Finolex/Supreme/Astral	**1**		
b.	**FLANGE**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 65 mm ➢ Make – Finolex/Supreme/Astral	**2**		

Sl. No.	ITEMS	PARTICULARS	QTY.	UNIT RATE (In Rs.)	COST (In Rs.)
c.	**BLIND FLANGE**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 65 mm ➢ Make – Finolex/Supreme/Astral	**2**		
c.	**TEE**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Pressure Rating -10kg/cm² ➢ Dia. – 65 mm ➢ Make – Finolex/Supreme/Astral	**3**		
d.	**ELBOW**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 65 mm ➢ Make – Finolex/Supreme/Astral	**2**		
10.	**FITTINGS – BY PASS**				
a.	**REDUCER TEE**	➢ MOC – MS-Black ➢ Type – Class-B ➢ Pressure Rating -10kg/cm² ➢ Size – 40 x 20 x 40 mm ➢ Make – Standard Make	**1**		
b.	**ELBOW**	➢ MOC – MS-Black ➢ Type – Class-B ➢ Pressure Rating -10kg/cm² ➢ Dia. – 20 mm ➢ Make – Standard Make	**2**		
11.	**FITTINGS – DISCHARGE**				
a.	**MATCHING FLANGE**	➢ MOC – MS-Black ➢ Type – Table -E ➢ Dia. – As per pump outlet dia. ➢ Make – Standard Make	**1**		
b.	**ELBOW**	➢ MOC – MS-Black ➢ Type – Class-B ➢ Pressure Rating -10kg/cm² ➢ Dia. – 40 mm ➢ Make – Standard Make	**8**		
c.	**MTA**	➢ MOC – MS-Black ➢ Type – Class-B ➢ Pressure Rating -10kg/cm² ➢ Dia. – As per filter press inlet ➢ Make – Standard Make	**1**		
d.	**REDUCER**	➢ MOC – MS-Black ➢ Type – Class-B ➢ Pressure Rating -10kg/cm² ➢ Dia. – 40x 25 mm ➢ Make – Standard Make	**1**		

Sl. No.	ITEMS	PARTICULARS	QTY.	UNIT RATE (In Rs.)	COST (In Rs.)
12.	**FILTRATE LINE –BACK TO EQUALIZATION TANK**				
a.	**PIPE**	➢ MOC – MS-Black ➢ Type – Class-B ➢ Pressure Rating -10kg/cm² ➢ Dia. – 50 mm ➢ Make –Tata/Jindal	**7 Mtr.**		
b.	**ELBOW**	➢ MOC – MS-Black ➢ Type – Class-B ➢ Pressure Rating -10kg/cm² ➢ Dia. – 50 mm ➢ Make – Standard Make	**4**		
c.	**FLANGE**	➢ MOC – MS-Black ➢ Type – Table -E ➢ Dia. – 50 mm ➢ Make – Standard Make	**3**		
d.	**BLIND FLANGE**	➢ MOC – MS-Black ➢ Type – Table -E ➢ Dia. – 50 mm ➢ Make – Standard Make	**1**		
	SUB TOTAL				

TABLE- K: FeSo4 – DOSING PUMP

Sl. No.	ITEMS	PARTICULARS	QTY.	UNIT RATE (In Rs.)	COST (In Rs.)
1.	**SLUICE VALVE**	➢ MOC –uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 15 mm ➢ Make – Astral/Prince	**6**		
2.	**PIPE -SUCTION**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 15 mm ➢ Make – Finolex/Supreme /Astral	**0.5 Mtr.**		
3.	**PIPE- DISCHARGE TO REACTION TANK -1 & 2 (BY GRAVITY)**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 15 mm ➢ Make – Finolex/Supreme/ Astral	**20 Mtr.**		
4.	**PIPE- DISCHARGE TO REACTION TANK -1 & 2 (BY PUMP)**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 15 mm ➢ Make – Finolex/Supreme/ Astral	**20 Mtr.**		
5.	**PIPE – BY PASS LINE**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 15 mm ➢ Make – Finolex/Supreme/ Astral	**2 Mtr.**		
6.	**FITTINGS – SUCTION**				
a.	**MATCHING FLANGE/MTA**	➢ MOC – uPVC ➢ Type – Table –E ➢ Dia. – As per pump inlet dia. ➢ Make – Finolex/Supreme/ Astral	**1**		
b.	**FLANGE**	➢ MOC – uPVC ➢ Type – Table -E ➢ Dia. – 15 mm ➢ Make – Finolex/Supreme/ Astral	**1**		
c.	**TEE**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 15 mm ➢ Make – Finolex/Supreme/ Astral	**1**		
7.	**FITTINGS - DISCHARGE (BY GRAVITY) TO REACTION TANK -1 & 2**				
a.	**FLANGE**	➢ MOC – uPVC ➢ Type – Table-E ➢ Dia. – 15 mm ➢ Make – Finolex/Supreme/ Astral	**2**		

Sl. No.	ITEMS	PARTICULARS	QTY.	UNIT RATE (In Rs.)	COST (In Rs.)
b.	**TEE**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 15 mm ➢ Make – Finolex/Supreme/ Astral	**1**		
c.	**ELBOW**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 15 mm ➢ Make – Finolex/Supreme/ Astral	**10**		
8.	**FITTINGS – DISCHARGE TO REACTION TANK -1 & 2**				
a.	**MATCHING FLANGE/MTA**	➢ MOC – uPVC ➢ Type – Table –E ➢ Dia. – As per pump inlet dia. ➢ Make – Finolex/Supreme/ Astral	**1**		
b.	**FLANGE**	➢ MOC – uPVC ➢ Type – Table -E ➢ Dia. – 15 mm ➢ Make – Finolex/Supreme/ Astral	**2**		
c.	**TEE**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 15 mm ➢ Make – Finolex/Supreme/ Astral	**1**		
d.	**ELBOW**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 15 mm ➢ Make – Finolex/Supreme/ Astral	**10**		
9.	**FITTINGS – BY PASS LINE TO DOSING TANK**				
a.	**FLANGE**	➢ MOC – uPVC ➢ Type – Table -E ➢ Dia. – 15 mm ➢ Make – Finolex/Supreme/ Astral	**2**		
b.	**ELBOW**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 15 mm ➢ Make – Finolex/Supreme/ Astral	**2**		
c.	**TEE**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 15 mm ➢ Make – Finolex/Supreme/ Astral	**1**		
	SUB TOTAL				

TABLE - L : POLYELECTROLYTE – DOSING PUMP

Sl. No.	ITEMS	PARTICULARS	QTY.	UNIT RATE (In Rs.)	COST (In Rs.)
1.	**SLUICE VALVE**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 15 mm Make - Astral/Prince	**6**		
2.	**PIPE -SUCTION**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 15 mm ➢ Make – Finolex/Supreme/ Astral	**0.5 Mtr.**		
3.	**PIPE- DISCHARGE TO REACTION TANK -1 & 2 (BY GRAVITY)**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 15 mm ➢ Make – Finolex/Supreme/ Astral	**20 Mtr.**		
4.	**PIPE- DISCHARGE TO REACTION TANK -1 & 2 (BY PUMP)**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 15 mm ➢ Make – Finolex/Supreme/ Astral	**20 Mtr.**		
5.	**PIPE – BY PASS LINE TO DOSING TANK**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 15 mm ➢ Make – Finolex/Supreme/ Astral	**2 Mtr.**		
6.	**FITTINGS – SUCTION**				
a.	**MATCHING FLANGE/MTA**	➢ MOC – uPVC ➢ Type – Table –E ➢ Dia. – As per pump inlet dia. ➢ Make – Finolex/Supreme/ Astral	**1**		
b.	**FLANGE**	➢ MOC – uPVC ➢ Type – Table -E ➢ Dia. – 15 mm ➢ Make – Finolex/Supreme/ Astral	**1**		
c.	**TEE**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 15 mm ➢ Make – Finolex/Supreme/ Astral	**1**		
7.	**FITTINGS - DISCHARGE (BY GRAVITY) TO REACTION TANK -1 & 2**				
a.	**FLANGE**	➢ MOC – uPVC ➢ Type – Table-E ➢ Dia. – 15 mm ➢ Make – Finolex/Supreme/ Astral	**2**		
b.	**ELBOW**	➢ MOC – uPVC	**10**		

Sl. No.	ITEMS	PARTICULARS	QTY.	UNIT RATE (In Rs.)	COST (In Rs.)
		➢ Pressure Rating -10kg/cm² ➢ Dia. – 15 mm ➢ Make – Finolex/Supreme/ Astral			
8.	**FITTINGS – DISCHARGE TO REACTION TANK -1 & 2**				
a.	**MATCHING FLANGE/MTA**	➢ MOC – uPVC ➢ Type – Table –E ➢ Dia. – As per pump inlet dia. ➢ Make – Finolex/Supreme/ Astral	**1**		
b.	**FLANGE**	➢ MOC – uPVC ➢ Type – Table -E ➢ Dia. – 15 mm ➢ Make – Finolex/Supreme/ Astral	**2**		
c.	**TEE**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 15 mm ➢ Make – Finolex/Supreme/ Astral	**1**		
d.	**ELBOW**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 15 mm ➢ Make – Finolex/Supreme/ Astral	**10**		
9.	**FITTINGS – BY PASS LINE TO DOSING TANK**				
a.	**FLANGE**	➢ MOC – uPVC ➢ Type – Table -E ➢ Dia. – 15 mm ➢ Make – Finolex/Supreme/ Astral	**2**		
b.	**ELBOW**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 15 mm ➢ Make – Finolex/Supreme/ Astral	**2**		
c.	**TEE**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 15 mm ➢ Make – Finolex/Supreme/ Astral	**1**		
	SUB TOTAL				

TABLE- M: LIME – DOSING PUMP

Sl. No.	ITEMS	PARTICULARS	QTY.	UNIT RATE (In Rs.)	COST (In Rs.)
1.	**SLUICE VALVE**	➢ MOC – SS316 ➢ Type – Screwed ➢ Dia. – 30 mm ➢ Make - Kavaata/S.D.I./Kanti	**5**		
2.	**SLUICE VALVE**	➢ MOC – SS316 ➢ Type – Screwed ➢ Dia. – 20 mm ➢ Make - Kavaata/S.D.I./Kanti	**1**		
3.	**PIPE -SUCTION**	➢ MOC – SS316 ➢ SCH. – 10 ➢ Dia. – 30 mm ➢ Make – Jyoti Metal/Jignesh Steel	**0.5 Mtr.**		
4.	**PIPE- DISCHARGE TO REACTION TANK -1 & 2 (BY GRAVITY)**	➢ MOC – SS316 ➢ SCH. –10 ➢ Dia. – 30 mm ➢ Make – Jyoti Metal/Jignesh Steel	**20 Mtr.**		
5.	**PIPE- DISCHARGE TO REACTION TANK -1 & 2 (BY PUMP)**	➢ MOC – SS316 ➢ SCH. – 10 ➢ Dia. – 30 mm ➢ Make – Jyoti Metal/Jignesh Steel	**20 Mtr.**		
6.	**PIPE – BY PASS LINE TO DOSING TANK**	➢ MOC – SS316 ➢ SCH. – 10 ➢ Dia. – 20 mm ➢ Make – Jyoti Metal/Jignesh Steel	**2 Mtr.**		
7.	**FITTINGS – SUCTION**				
a.	**MATCHING FLANGE/MTA**	➢ MOC – SS316 ➢ Type – Table –E ➢ SCH. –10 ➢ Dia. – As per pump inlet dia. ➢ Make – Jyoti Metal/Jignesh Steel	**1**		
b.	**FLANGE**	➢ MOC – SS316 ➢ Type – Table –E ➢ SCH. –10 ➢ Dia. – 30 mm ➢ Make – Jyoti Metal/Jignesh Steel	**1**		
c.	**TEE**	➢ MOC – SS316 ➢ SCH. – 10 ➢ Dia. – 30 mm ➢ Make – Jyoti Metal/Jignesh	**1**		

Sl. No.	ITEMS	PARTICULARS	QTY.	UNIT RATE (In Rs.)	COST (In Rs.)
		Steel			
8.	**FITTINGS - DISCHARGE (BY GRAVITY) TO REACTION TANK -1 & 2**				
a.	**FLANGE**	➢ MOC – SS316 ➢ Type – Table-E ➢ SCH. – 10 ➢ Dia. – 30 mm ➢ Make – Jyoti Metal/Jignesh Steel	**2**		
b.	**TEE**	➢ MOC – SS316 ➢ SCH. –10 ➢ Dia. – 30 mm ➢ Make – Jyoti Metal/Jignesh Steel	**1**		
c.	**ELBOW**	➢ MOC – SS316 ➢ SCH. –10 ➢ Dia. – 30 mm ➢ Make – Jyoti Metal/Jignesh Steel	**10**		
9.	**FITTINGS – DISCHARGE TO REACTION TANK -1 & 2**				
a.	**MATCHING FLANGE/MTA**	➢ MOC – SS316 ➢ Type – Table –E ➢ SCH. –10 ➢ Dia. – As per pump inlet dia. ➢ Make – Jyoti Metal/Jignesh Steel	**1**		
b.	**FLANGE**	➢ MOC – SS316 ➢ Type – Table –E ➢ SCH. –10 ➢ Dia. – 30 mm ➢ Make – Jyoti Metal/Jignesh Steel	**2**		
c.	**TEE**	➢ MOC – SS316 ➢ SCH. –10 ➢ Size – 30mm ➢ Make – Jyoti Metal/Jignesh Steel	**1**		
d.	**ELBOW**	➢ MOC – SS316 ➢ SCH. –10 ➢ Dia. – 30 mm ➢ Make – Jyoti Metal/Jignesh Steel	**10**		
10.	**FITTINGS – BY PASS LINE TO DOSING TANK**				
a.	**FLANGE**	➢ MOC – SS316 ➢ Type – Table –E ➢ SCH. –10 ➢ Dia. – 20 mm ➢ Make – Jyoti Metal/Jignesh Steel	**2**		

Sl. No.	ITEMS	PARTICULARS	QTY.	UNIT RATE (In Rs.)	COST (In Rs.)
b.	**REDUCING TEE**	➢ MOC – SS316 ➢ SCH. –10 ➢ Size – 30mm x 20mm x 30mm ➢ Make – Jyoti Metal/Jignesh Steel	**1**		
c.	**ELBOW**	➢ MOC – SS316 ➢ SCH. –10 ➢ Dia. – 20 mm ➢ Make – Jyoti Metal/Jignesh Steel	**2**		
	SUB TOTAL				

TABLE- N : Na2CO3 – DOSING PUMP

Sl. No.	ITEMS	PARTICULARS	QTY.	UNIT RATE (In Rs.)	COST (In Rs.)
1.	**SLUICE VALVE**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 15 mm ➢ Make – Astral/Prince	**6**		
2.	**PIPE -SUCTION**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 15 mm ➢ Make – Finolex/Supreme/ Astral	**0.5 Mtr.**		
3.	**PIPE- DISCHARGE TO REACTION TANK -1 & 2 (BY GRAVITY)**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 15 mm ➢ Make – Finolex/Supreme/ Astral	**20 Mtr.**		
4.	**PIPE- DISCHARGE TO REACTION TANK -1 & 2 (BY PUMP)**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 15 mm ➢ Make – Finolex/Supreme/ Astral	**20 Mtr.**		
5.	**PIPE – BY PASS LINE TO DOSING TANK**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 15 mm ➢ Make – Finolex/Supreme/ Astral	**2 Mtr.**		
6.	**FITTINGS – SUCTION**				
a.	**MATCHING FLANGE/MTA**	➢ MOC – uPVC ➢ Type – Table –E ➢ Dia. – As per pump inlet dia. ➢ Make – Finolex/Supreme/ Astral	**1**		
b.	**FLANGE**	➢ MOC – uPVC ➢ Type – Table -E ➢ Dia. – 15 mm ➢ Make – Finolex/Supreme/ Astral	**1**		
c.	**TEE**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 15 mm ➢ Make – Finolex/Supreme/ Astral	**1**		
7.	**FITTINGS - DISCHARGE (BY GRAVITY) TO REACTION TANK -1 & 2**				
a.	**FLANGE**	➢ MOC – uPVC ➢ Type – Table -E ➢ Dia. – 15 mm ➢ Make – Finolex/Supreme/ Astral	**2**		

Sl. No.	ITEMS	PARTICULARS	QTY.	UNIT RATE (In Rs.)	COST (In Rs.)
b.	**TEE**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 15 mm ➢ Make – Finolex/Supreme/ Astral	**1**		
c.	**ELBOW**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 15 mm ➢ Make – Finolex/Supreme/ Astral	**10**		
8.	**FITTINGS – DISCHARGE TO REACTION TANK -1 & 2**				
a.	**MATCHING FLANGE/MTA**	➢ MOC – uPVC ➢ Type – Table -E ➢ Dia. – 15 mm ➢ Make – Finolex/Supreme/ Astral	**1**		
b.	**FLANGE**	➢ MOC – uPVC ➢ Type – Table -E ➢ Dia. – 15 mm ➢ Make – Finolex/Supreme/ Astral	**2**		
c.	**TEE**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 15 mm ➢ Make – Finolex/Supreme/ Astral	**1**		
d.	**ELBOW**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 15 mm ➢ Make – Finolex/Supreme/ Astral	**10**		
9.	**FITTINGS – BY PASS LINE TO DOSING TANK**				
a.	**FLANGE**	➢ MOC – uPVC ➢ Type – Table -E ➢ Dia. – 15 mm ➢ Make – Finolex/Supreme/ Astral	**2**		
b.	**TEE**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 15 mm ➢ Make – Finolex/Supreme/ Astral	**1**		
c.	**ELBOW**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 15 mm ➢ Make – Finolex/Supreme/ Astral	**2**		
	SUB TOTAL				

TABLE - O : UREA – DOSING PUMP

Sl. No.	ITEMS	PARTICULARS	QTY.	UNIT RATE (In Rs.)	COST (In Rs.)
1.	**SLUICE VALVE**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 15 mm Make – Astral/Prince	**6**		
2.	**PIPE -SUCTION**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 15 mm ➢ Make – Finolex/Supreme/ Astral	**0.5 Mtr.**		
3.	**PIPE-DISCHARGE TO REACTION TANK -1 & 2 (BY GRAVITY)**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 15 mm ➢ Make – Finolex/Supreme/ Astral	**21 Mtr.**		
4.	**PIPE-DISCHARGE TO REACTION TANK -1 & 2 (BY PUMP)**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 15 mm ➢ Make – Finolex/Supreme/ Astral	**21 Mtr.**		
5.	**PIPE – BY PASS LINE TO DOSING TANK**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 15 mm ➢ Make – Finolex/Supreme/ Astral	**2 Mtr.**		
6.	**FITTINGS – SUCTION**				
a.	**MATCHING FLANGE/MTA**	➢ MOC – uPVC ➢ Type – Table -E ➢ Dia. – 15 mm ➢ Make – Finolex/Supreme/ Astral	**1**		
b.	**FLANGE**	➢ MOC – uPVC ➢ Type – Table -E ➢ Dia. – 15 mm ➢ Make – Finolex/Supreme/ Astral	**1**		
c.	**TEE**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 15 mm ➢ Make – Finolex/Supreme/ Astral	**1**		
7.	**FITTINGS - DISCHARGE (BY GRAVITY) TO REACTION TANK -1 & 2**				
a.	**FLANGE**	➢ MOC – uPVC ➢ Type – Table -E ➢ Dia. – 15 mm ➢ Make – Finolex/Supreme/ Astral	**2**		

Sl. No.	ITEMS	PARTICULARS	QTY.	UNIT RATE (In Rs.)	COST (In Rs.)
b.	**TEE**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 15 mm ➢ Make – Finolex/Supreme/ Astral	**1**		
c.	**ELBOW**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 15 mm ➢ Make – Finolex/Supreme/ Astral	**10**		
8.	**FITTINGS – DISCHARGE TO REACTION TANK -1 & 2**				
a.	**MATCHING FLANGE/MTA**	➢ MOC – uPVC ➢ Type – Table -E ➢ Dia. – 15 mm ➢ Make – Finolex/Supreme/ Astral	**1**		
b.	**FLANGE**	➢ MOC – uPVC ➢ Type – Table -E ➢ Dia. – 15 mm ➢ Make – Finolex/Supreme/ Astral	**2**		
c.	**TEE**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 15 mm ➢ Make – Finolex/Supreme/ Astral	**1**		
d.	**ELBOW**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 15 mm ➢ Make – Finolex/Supreme/ ➢ Astral	**10**		
9.	**FITTINGS – BY PASS LINE TO DOSING TANK**				
a.	**FLANGE**	➢ MOC – uPVC ➢ Type – Table -E ➢ Dia. – 15 mm ➢ Make – Finolex/Supreme/ Astral	**2**		
b.	**TEE**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 15 mm ➢ Make – Finolex/Supreme/ Astral	**1**		
c.	**ELBOW**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 15 mm ➢ Make – Finolex/Supreme/ Astral	**2**		
	SUB TOTAL				

TABLE - P : DAP – DOSING PUMP

Sl. No.	ITEMS	PARTICULARS	QTY.	UNIT RATE (In Rs.)	COST (In Rs.)
1.	**SLUICE VALVE**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 15 mm Make – Astral/Prince	**6**		
2.	**PIPE -SUCTION**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 15 mm ➢ Make – Finolex/Supreme/ Astral	**0.5 Mtr.**		
3.	**PIPE- DISCHARGE TO REACTION TANK -1 & 2 (BY GRAVITY)**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 15 mm ➢ Make – Finolex/Supreme/ Astral	**22 Mtr.**		
4.	**PIPE- DISCHARGE TO REACTION TANK -1 & 2 (BY PUMP)**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 15 mm ➢ Make – Finolex/Supreme/ Astral	**22 Mtr.**		
5.	**PIPE – BY PASS LINE TO DOSING TANK**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 15 mm ➢ Make – Finolex/Supreme/ Astral	**2 Mtr.**		
6.	**FITTINGS – SUCTION**				
a.	**MATCHING FLANGE/MTA**	➢ MOC – uPVC ➢ Type – Table -E ➢ Dia. – 15 mm ➢ Make – Finolex/Supreme/ Astral	**1**		
b.	**FLANGE**	➢ MOC – uPVC ➢ Type – Table -E ➢ Dia. – 15 mm ➢ Make – Finolex/Supreme/ Astral	**1**		
c.	**TEE**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 15 mm ➢ Make – Finolex/Supreme/ Astral	**1**		
7.	**FITTINGS - DISCHARGE (BY GRAVITY) TO REACTION TANK -1 & 2**				
a.	**FLANGE**	➢ MOC – uPVC ➢ Type – Table -E ➢ Dia. – 15 mm ➢ Make – Finolex/Supreme/ Astral	**2**		

Sl. No.	ITEMS	PARTICULARS	QTY.	UNIT RATE (In Rs.)	COST (In Rs.)
b.	**TEE**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 15 mm ➢ Make – Finolex/Supreme/ Astral	**1**		
c.	**ELBOW**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 15 mm ➢ Make – Finolex/Supreme/ Astral	**10**		
8.	**FITTINGS – DISCHARGE TO REACTION TANK -1 & 2**				
a.	**MATCHING FLANGE/MTA**	➢ MOC – uPVC ➢ Type – Table -E ➢ Dia. – 15 mm ➢ Make – Finolex/Supreme/ Astral	**1**		
b.	**FLANGE**	➢ MOC – uPVC ➢ Type – Table -E ➢ Dia. – 15 mm ➢ Make – Finolex/Supreme/ Astral	**2**		
c.	**TEE**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 15 mm ➢ Make – Finolex/Supreme/ Astral	**1**		
d.	**ELBOW**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 15 mm ➢ Make – Finolex/Supreme/ Astral	**10**		
9.	**FITTINGS – BY PASS LINE TO DOSING TANK**				
a.	**FLANGE**	➢ MOC – uPVC ➢ Type – Table -E ➢ Dia. – 15 mm ➢ Make – Finolex/Supreme/ Astral	**2**		
b.	**TEE**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 15 mm ➢ Make – Finolex/Supreme/ Astral	**1**		
c.	**ELBOW**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 15 mm ➢ Make – Finolex/Supreme/ Astral	**2**		
	SUB TOTAL				

TABLE - Q : LIME SLAKER – LIME TRANSFER PUMP

Sl. No.	ITEMS	PARTICULARS	QTY.	UNIT RATE (In Rs.)	COST (In Rs.)
1.	**GATE VALVE**	➢ MOC – GM ➢ Type – Screwed ➢ Dia. – 25 mm ➢ Make – Shenco	**3**		
2.	**PIPE -SUCTION**	➢ MOC – MS-Black ➢ Type – Class-B ➢ Dia. – 25 mm ➢ Make –Tata/Jindal	**0.5 Mtr.**		
3.	**PIPE-DISCHARGE**	➢ MOC – MS-Black ➢ Type – Class-B ➢ Dia. – 25 mm ➢ Make –Tata/Jindal	**25 Mtr.**		
4.	**PIPE – BY PASS LINE**	➢ MOC – MS-Black ➢ Type – Class-B ➢ Dia. – 25 mm ➢ Make –Tata/Jindal	**3 Mtr.**		
5.	**FITTINGS – SUCTION**				
a.	**MATCHING FLANGE/MTA**	➢ MOC – MS ➢ Type – Table –E ➢ Dia. – As per pump inlet dia. ➢ Make – Standard Make ➢	**1**		
b.	**TEE**	➢ MOC – MS-Black ➢ Type – Class-B ➢ Dia. – 25mm ➢ Make – Standard Make	**1**		
6.	**FITTINGS – DISCHARGE**				
a.	**MATCHING FLANGE/MTA**	➢ MOC – MS ➢ Type – Table –E ➢ Dia. – As per pump outlet dia. ➢ Make – Standard Make	**1**		
b.	**ELBOW**	➢ MOC – MS-Black ➢ Type – Class-B ➢ Dia. – 25mm ➢ Make – Standard Make	**6**		
7.	**FITTINGS – BY PASS LINE**				
a.	**FLANGE**	➢ MOC – MS ➢ Type – Table -E ➢ Dia. – 25 mm ➢ Make – Standard Make	**2**		

Sl. No.	ITEMS	PARTICULARS	QTY.	UNIT RATE (In Rs.)	COST (In Rs.)
b.	**ELBOW**	➢ MOC – MS-Black ➢ Type – Class-B ➢ Dia. – 25mm ➢ Make – Standard Make	**2**		
	SUB TOTAL				

TABLE - R : BLOWER STATION

Sl. No.	ITEMS	PARTICULARS	QTY.	UNIT RATE (In Rs.)	COST (In Rs.)
1.	**BUTTERFLY VALVE**	➢ MOC – CI body, SS flap ➢ Type – Screwed ➢ Dia. – 80 mm ➢ Make - Shenco	**2**		
2.	**NRV**	➢ MOC – C.I. ➢ Type –disc- SS316 ➢ Dia. – 80 mm ➢ Make - CNR/Jayhiwa/Castle	**2**		
3.	**PRESSURE GAUGE WITH FITTINGS**	➢ MOC – SS316 ➢ Type – Bourdon ➢ Ranges – 0-7 kg/cm² ➢ Dial – 100mm ➢ Make – H.Guru/Fiebig	**2**		
4.	**PIPE- HEADER**	➢ MOC – MS-Black ➢ Type – Class-B ➢ Dia. – 80 mm ➢ Make –Tata/Jindal	**6 Mtr.**		
5.	**FITTINGS – HEADER**				
a.	**MATCHING FLANGE**	➢ MOC – MS-Black ➢ Type – Table -E ➢ Dia. – As per blower outlet dia. ➢ Make – Standard Make	**2**		
b.	**FLANGE**	➢ MOC – MS-Black ➢ Type – Table -E ➢ Dia. – 80 mm ➢ Make – Standard Make	**2**		
c.	**BLIND FLANGE**	➢ MOC – MS-Black ➢ Type – Table -E ➢ Dia. – 80mm ➢ Make – Standard Make	**2**		
d.	**TEE**	➢ MOC – MS-Black ➢ Type – Class-B ➢ Dia. – 80mm ➢ Make – Standard Make	**2**		
6.	**BLOWER HEADER TO AERATION TANK**				
a.	**GATE VALVE**	➢ MOC – CS ➢ Type – Screwed ➢ Dia. – 50 mm ➢ Make – Shenco	**1**		
b.	**PIPE**	➢ MOC – MS-Black ➢ Type – Class-B ➢ Dia. – 50mm ➢ Make –Tata/jindal	**15 Mtr.**		
c.	**REDUCING TEE**	➢ MOC – MS-Black ➢ Type – Class-B ➢ Dia.–80mm x 50mm x 80mm ➢ Make – Standard Make	**1**		

Sl. No.	ITEMS	PARTICULARS	QTY.	UNIT RATE (In Rs.)	COST (In Rs.)
d.	**ELBOW**	➢ MOC – MS-Black ➢ Type – Class-B ➢ Dia. – 50mm ➢ Make – Standard Make	**5**		
e.	**FLANGE**	➢ MOC – MS-Black ➢ Type – Table -E ➢ Dia. – 50 mm ➢ Make – Standard Make	**2**		
f.	**BLIND FLANGE**	➢ MOC – MS-Black ➢ Type – Table -E ➢ Dia. – 50mm ➢ Make – Standard Make	**2**		
7.	**BRANCHING TO AERATION TANK**				
a.	**DIFFUSER**	➢ Size - ∅65 X 1000 mm ➢ Diffuser MOC - Silicon membrane in PVC casing ➢ Type - fine bubble diffuser ➢ Air flow rate: 6-8 CMH ➢ Make- Southern Cogen/W2P/Adobe International	**10**		
b.	**PIPE**	➢ MOC – SS 304 ➢ Type – Sch.40 ➢ Size – 25 mm ➢ Make – Jyoti Metal/Jignesh Steel	**40 Mtr.**		
c.	**SOCKET**	➢ MOC – MS-Black ➢ Type – Class-B ➢ Size – 25 mm ➢ Make – Standard Make	**7**		
d.	**TEE**	➢ MOC – MS - Black ➢ Type – class B ➢ Dia. – 25 mm ➢ Make - B&M /VS	**6**		
e.	**BALL VALVE**	➢ MOC – SS 304 ➢ Type – screwed ➢ Dia. – 25 mm ➢ Make - Kavaata/S.D.I./Kanti	**7**		
f.	**NIPPLE**	➢ MOC – SS 304 ➢ Pressure Rating -10kg/cm² ➢ Dia. – 25mm x100 mm ➢ Make - Jyoti Metal/Jignesh Steel	**14**		
g.	**UNION**	➢ MOC – GI ➢ Type – class B ➢ Dia. – 25 mm ➢ Make – Unik	**7**		

Sl. No.	ITEMS	PARTICULARS	QTY.	UNIT RATE (In Rs.)	COST (In Rs.)
h.	**FLANGE**	➢ MOC – SS 304 ➢ Type – Table -E ➢ Dia. – 25 mm ➢ Make – Jyoti Metal/Jignesh Steel	**14**		
i.	**TEE**	➢ MOC –SS 304 ➢ Pressure Rating -10kg/cm² ➢ Dia. – 25 mm ➢ Make - Jyoti Metal/Jignesh Steel	**3**		
j.	**ELBOW**	➢ MOC –SS 304 ➢ Pressure Rating -10kg/cm² ➢ Dia. – 25 mm ➢ Make - Jyoti Metal/Jignesh Steel	**4**		
k.	**RING**	➢ MOC – SS 304 ➢ Pressure Rating -10kg/cm² ➢ Dia. – 10 mm ➢ Wire – 1.5 mm ➢ Make – Jyoti Metal/Jignesh Steel	**20 Mtr.**		
l.	**PAD**	➢ MOC – SS 304 ➢ Pressure Rating -10kg/cm² ➢ Size – Ø 80 x 12 mm ➢ Make – Jyoti Metal/Jignesh Steel	**10**		
m.	**SPRING**	➢ MOC – SS 304 ➢ Pressure Rating -10kg/cm² ➢ Dia. – 20 mm ➢ Wire – 3 mm ➢ Make – Jyoti Metal/Jignesh Steel	**10**		
n.	**HEX NIPPLE**	➢ MOC – SS 304 ➢ Pressure Rating -10kg/cm² ➢ Size – Ø25mm x Ø 18 mm ➢ Make – Jyoti Metal/Jignesh Steel	**10**		
o.	**SOCKET**	➢ MOC – SS 304 ➢ Pressure Rating -10kg/cm² ➢ Dia. – 18 mm ➢ Make – Jyoti Metal/Jignesh Steel	**10**		
8.	**BRANCHING TO MBBR TANK**				
a.	**DIFFUSER**	➢ Size: ∅65 X 1000 mm ➢ Diffuser MOC: Silicon membrane in PVC casing ➢ Type: fine bubble diffuser ➢ Air flow rate: 6-8 CMH ➢ Make - Southern Cogen/W2P/Adobe International	**3**		

Sl. No.	ITEMS	PARTICULARS	QTY.	UNIT RATE (In Rs.)	COST (In Rs.)
b.	**PIPE**	➢ MOC – SS 304 ➢ Type – Sch.40 ➢ Size – 25 mm ➢ Make – Jyoti Metal/Jignesh Steel	12 Mtr**.**		
c.	**FLANGE**	➢ MOC – SS 304 ➢ Type – Table -E ➢ Dia. – 25 mm ➢ Make – Jyoti Metal/Jignesh Steel	**2**		
d.	**BLIND FLANGE**	➢ MOC – SS 304 ➢ Type – Table -E ➢ Dia. – 25 mm ➢ Make – Jyoti Metal/Jignesh Steel	**2**		
e.	**SOCKET**	➢ MOC – MS-Black ➢ Type – Class-B ➢ Size – 25 mm ➢ Make – Standard Make	**3**		
f.	**TEE**	➢ MOC – MS-Black ➢ Type – class B ➢ Dia. – 25 mm ➢ Make - B&M /VS	**2**		
g.	**NEEDLE VALVE**	➢ MOC – SS 304 ➢ Type – screwed ➢ Dia. – 25 mm ➢ Make - Kavaata/S.D.I./Kanti	**3**		
h.	**NIPPLE**	➢ MOC – SS 304 ➢ Pressure Rating -10kg/cm^2 ➢ Dia. – 25 x100 mm ➢ Make - Jyoti Metal/Jignesh Steel	**6**		
i.	**UNION**	➢ MOC – GI ➢ Type – class B ➢ Dia. – 25 mm ➢ Make – Unik	**3**		
j.	**RING**	➢ MOC – SS 304 ➢ Pressure Rating -10kg/cm^2 ➢ Dia. – 10 mm ➢ Wire – 1.5 mm ➢ Make – Jyoti Metal/Jignesh Steel	**6 Mtr.**		
k.	**PAD**	➢ MOC – SS 304 ➢ Pressure Rating -10kg/cm^2 ➢ Size – Ø 80 x 12 mm ➢ Make – Jyoti Metal/Jignesh Steel	**3**		

Sl. No.	ITEMS	PARTICULARS	QTY.	UNIT RATE (In Rs.)	COST (In Rs.)
l.	**SPRING**	➢ MOC – SS 304 ➢ Pressure Rating -10kg/cm² ➢ Dia. – 20 mm ➢ Wire – 3 mm ➢ Make – Jyoti Metal/Jignesh Steel	**3**		
m.	**HEX NIPPLE**	➢ MOC – SS 304 ➢ Pressure Rating -10kg/cm² ➢ Size – Ø25mm x Ø 18 mm ➢ Make – Jyoti Metal/Jignesh Steel	**3**		
n.	**SOCKET**	➢ MOC – SS 304 ➢ Pressure Rating -10kg/cm² ➢ Dia. – 18 mm ➢ Make – Jyoti Metal/Jignesh Steel	**3**		
o.	**ELBOW**	➢ MOC – SS 304 ➢ Pressure Rating -10kg/cm² ➢ Dia. – 25 mm ➢ Make – Jyoti Metal/Jignesh Steel	**3**		
9.	**BLOWER LINE TO STORAGE TANK**				
a.	**SLUICE VALVE**	➢ MOC – G.M. ➢ Type –Screwed ➢ Dia. – 25 mm ➢ Make - Shenco	**2**		
b.	**PIPE**	➢ MOC – MS-Black ➢ Type – Class-B ➢ Dia. – 40 mm ➢ Make –Tata/Jindal	40 Mtr.		
c.	**PIPE**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 25 mm ➢ Make –Finolex/Astral	**8 Mtr.**		
d.	**PIPE-PERFORATED**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 25 mm ➢ Hole- Ø3mm hole c/c 25 mm at triangular pitch ➢ Make – Finolex/Astral	**8 Mtr.**		
e.	**TEE**	➢ MOC – MS-Black ➢ Type – class B ➢ Dia. – 40 mm ➢ Make – Standard Make	**1**		
f.	**ELBOW**	➢ MOC – MS-Black ➢ Type – class B ➢ Dia. – 40 mm ➢ Make – Standard Make	**10**		

Sl. No.	ITEMS	PARTICULARS	QTY.	UNIT RATE (In Rs.)	COST (In Rs.)
g.	**ELBOW**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 25 mm ➢ Make – Finolex/Astral	**4**		
h.	**REDUCER TEE**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 40mm x 25mm x40 mm ➢ Make – Finolex/Astral	**2**		
i.	**FLANGE**	➢ MOC – MS-Black ➢ Type – Table -E ➢ Dia. – 40 mm ➢ Make – Standard Make	**2**		
j.	**BLIND FLANGE**	➢ MOC – MS-Black ➢ Type – Table -E ➢ Dia. – 40 mm ➢ Make – Standard Make	**2**		
k.	**FLANGE**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 25 mm ➢ Make – Finolex/Astral	**2**		
l.	**BLIND FLANGE**	➢ MOC – Upvc ➢ Pressure Rating -10kg/cm² ➢ Dia. – 25 mm ➢ Make – Finolex/Astral	**2**		
10.	**BLOWER LINE TO REACTION TANK -1, 2, DOSING TANK-1,2**				
a.	**PIPE**	➢ MOC – MS-Black ➢ Type – Class-B ➢ Dia. – 40 mm ➢ Make –Tata/Jindal	**25 Mtr.**		
b.	**FLANGE**	➢ MOC – MS-Black ➢ Type – Table -E ➢ Dia. – 40 mm ➢ Make – Standard Make	**1**		
c.	**BLIND FLANGE**	➢ MOC – MS-Black ➢ Type – Table -E ➢ Dia. – 40mm ➢ Make – Standard Make	**1**		
d.	**TEE**	➢ MOC – MS-Black ➢ Type – class B ➢ Dia. – 40 mm ➢ Make – Standard Make	**1**		
e.	**REDUCER TEE**	➢ MOC – MS-Black ➢ Type – class B ➢ Dia. – 40mm x 25mm x 40 mm ➢ Make – Standard Make	**6**		

Sl. No.	ITEMS	PARTICULARS	QTY.	UNIT RATE (In Rs.)	COST (In Rs.)
f.	**REDUCER TEE**	➢ MOC – MS-Black ➢ Type – class B ➢ Dia. – 40mm x 15mm x 40 mm ➢ Make – Standard Make	**4**		
g.	**ELBOW**	➢ MOC – MS-Black ➢ Type – Class-B ➢ Dia. – 40 mm ➢ Make – Standard Make	**5**		
11.	**BLOWER BRANCH LINE TO RT-1**				
a.	**SLUICE VALVE**	➢ MOC –uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 25 mm ➢ Make – Astral/Prince	**2**		
b.	**PIPE**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 25 mm ➢ Make – Finolex/Astral	**4 Mtr.**		
c.	**PIPE-PERFORATED**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 25 mm ➢ Hole- Ø3mm hole c/c 25 mm at triangular pitch ➢ Make – Finolex/Astral	**2 Mtr.**		
d.	**FTA**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 25 mm ➢ Make – Finolex/Astral	**2**		
e.	**ELBOW**	➢ MOC – MS-Black ➢ Type – class B ➢ Dia. – 25 mm ➢ Make – Standard Make	**2**		
f.	**ELBOW**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 25 mm ➢ Make – Finolex/Astral	**2**		
g.	**FLANGE**	➢ MOC – uPVC ➢ Type – Table –E,sch.40 ➢ Dia. – 25 mm ➢ Make – Finolex/Astral	**6**		
h.	**BLIND FLANGE**	➢ MOC – uPVC ➢ Type – Table –E,sch.40 ➢ Dia. – 25 mm ➢ Make – Finolex/Astral	**2**		

Sl. No.	ITEMS	PARTICULARS	QTY.	UNIT RATE (In Rs.)	COST (In Rs.)
12.	**BLOWER BRANCH LINE TO DOSING TANK-1**				
a.	**SLUICE VALVE**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 15mm ➢ Make – Astral/Prince	**2**		
b.	**PIPE**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. –15mm ➢ Make – Finolex/Astral	**5 Mtr.**		
c.	**PIPE-PERFORATED**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 15mm ➢ Hole- Ø3mm hole c/c 25 mm at triangular pitch ➢ Make – Finolex/Astral	**2 Mtr.**		
d.	**REDUCING TEE**	➢ MOC – MS-Black ➢ Type – Class-B ➢ Size – 40mm x 15mm x 40 mm ➢ Make – Standard Make	**2**		
e.	**FTA**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 15mm ➢ Make - Finolex/Astral	**2**		
f.	**ELBOW**	➢ MOC – MS-Black ➢ Type – class B ➢ Dia. – 15mm ➢ Make – Standard Make	**4**		
g.	**ELBOW**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 15mm ➢ Make – Finolex/Astral	**4**		
h.	**FLANGE**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 15mm ➢ Make – Finolex/Astral	**2**		
i.	**BLIND FLANGE**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 15mm ➢ Make – Finolex/Astral	**2**		
13.	**BLOWER BRANCH LINE TO DOSING TANK-2**				
a.	**SLUICE VALVE**	➢ MOC –uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 15mm ➢ Make – Astral/Prince	**3**		
b.	**PIPE**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 15mm ➢ Make – Finolex/Astral	**5 Mtr.**		

Sl. No.	ITEMS	PARTICULARS	QTY.	UNIT RATE (In Rs.)	COST (In Rs.)
c.	**PIPE-PERFORATED**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 15mm ➢ Hole- Ø3mm hole c/c 25 mm at triangular pitch ➢ Make – Finolex/Astral	**3 Mtr.**		
d.	**REDUCING TEE**	➢ MOC – MS-Black ➢ Type – Class-B ➢ Size – 40mm x 15mm x 40 mm ➢ Make –B&M/VS	**1**		
e.	**FTA**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 15mm ➢ Make - Finolex/Astral	**3**		
f.	**ELBOW**	➢ MOC – MS-Black ➢ Type – class B ➢ Dia. – 15mm ➢ Make –B&M/VS	**6**		
g.	**ELBOW**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 15mm ➢ Make – Finolex/Astral	**6**		
h.	**TEE**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. –15mm ➢ Make – Finolex/Astral	**3**		
i.	**FLANGE**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. –15mm ➢ Make – Finolex/Astral	**3**		
j.	**BLIND FLANGE**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. –15mm ➢ Make – Finolex/Astral	**3**		
k.	**FLANGE**	➢ MOC – MS -Black ➢ Type – Table -E ➢ Dia. – 15mm ➢ Make –B&M/VS	**1**		
l.	**BLIND FLANGE**	➢ MOC – MS -Black ➢ Type – Table -E ➢ Dia. – 15mm ➢ Make –B&M/VS	**1**		
14.	**BLOWER BRANCH LINE TO REACTION TANK-2**				
a.	**SLUICE VALVE**	➢ MOC –G.M ➢ Type – class B ➢ Dia. – 25 mm ➢ Make –Shenco	**4**		

Sl. No.	ITEMS	PARTICULARS	QTY.	UNIT RATE (In Rs.)	COST (In Rs.)
b.	**PIPE**	➢ MOC – MS-Black ➢ Type – Class-B ➢ Dia. – 25 mm ➢ Make –Tata/Jindal	**8 Mtr.**		
c.	**PIPE-PERFORATED**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 25 mm ➢ Hole- Ø3mm hole c/c 25 mm at triangular pitch ➢ Make – Finolex/Astral	**4 Mtr.**		
d.	**REDUCING TEE**	➢ MOC – MS-Black ➢ Type – Class-B ➢ Size – 40mm x 25mm x 40 mm ➢ Make – Finolex/Astral	**4**		
e.	**FTA**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 25 mm ➢ Make – Finolex/Astral	**4**		
f.	**ELBOW**	➢ MOC – MS-Black ➢ Type – class B ➢ Dia. – 40 mm ➢ Make –B&M/VS	**2**		
g.	**ELBOW**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 25 mm ➢ Make – Finolex/Astral	**8**		
h.	**FLANGE**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 25 mm ➢ Make – Finolex/Astral	**4**		
i.	**BLIND FLANGE**	➢ MOC – uPVC ➢ Pressure Rating -10kg/cm² ➢ Dia. – 25 mm ➢ Make – Finolex/Astral	**4**		
j.	**FLANGE**	➢ MOC – MS Black ➢ Type – Table -E ➢ Dia. – 40 mm ➢ Make – B&M/VS	**1**		
k.	**BLIND FLANGE**	➢ MOC – MS Black ➢ Type – Table -E ➢ Dia. – 40 mm ➢ Make –B&M/VS	**1**		
15.	**BLOWER HEADER TO EQUALIZATION TANK-2**				
a.	**GATE VALVE**	➢ MOC – CS ➢ Type – Screwed ➢ Dia. – 65 mm ➢ Make – Shenco	**1**		

Sl. No.	ITEMS	PARTICULARS	QTY.	UNIT RATE (In Rs.)	COST (In Rs.)
b.	**PIPE**	➢ MOC – MS-Black ➢ Type – Class-B ➢ Dia. – 65mm ➢ Make –Tata/jindal	**40 Mtr.**		
c.	**REDUCING TEE**	➢ MOC – MS-Black ➢ Type – Class-B ➢ Dia. – 80mm x 65mm x 80 mm ➢ Make – Standard Make	**1**		
d.	**TEE**	➢ MOC – MS-Black ➢ Type – Class-B ➢ Dia. – 65mm ➢ Make – Standard Make	**3**		
e.	**ELBOW**	➢ MOC – MS-Black ➢ Type – Class-B ➢ Dia. – 65mm ➢ Make – Standard Make	**6**		
f.	**FLANGE**	➢ MOC – MS-Black ➢ Type – Table -E ➢ Dia. – 65 mm ➢ Make – Standard Make	**8**		
g.	**BLIND FLANGE**	➢ MOC – MS-Black ➢ Type – Table -E ➢ Dia. – 65mm ➢ Make – Standard Make	**8**		
16.	**BRANCHING TO EQUALIZATION TANK-2**				
a.	**DIFFUSER**	➢ Size - ∅65 X 1000 mm ➢ Diffuser MOC - Silicon membrane in PVC casing ➢ Type - fine bubble diffuser ➢ Air flow rate: 6-8 CMH ➢ Make-Southern Cogen/W2P/Adobe International	**18**		
b.	**PIPE**	➢ MOC – SS 304 ➢ Type – Sch.40 ➢ Size – 25 mm ➢ Make – Jyoti Metal/Jignesh Steel	**45 Mtr.**		
c.	**SOCKET**	➢ MOC – MS-Black ➢ Type – Class-B ➢ Size – 25 mm ➢ Make – Standard Make	**9**		
d.	**BALL VALVE**	➢ MOC – SS 304 ➢ Type – screwed ➢ Dia. – 25 mm ➢ Make - Kavaata/S.D.I./Kanti	**9**		

Sl. No.	ITEMS	PARTICULARS	QTY.	UNIT RATE (In Rs.)	COST (In Rs.)
e.	**NIPPLE**	➢ MOC – SS 304 ➢ Pressure Rating -10kg/cm² ➢ Dia. – 25mm x100 mm ➢ Make - Jyoti Metal/Jignesh Steel	**18**		
f.	**UNION**	➢ MOC – GI ➢ Type – class B ➢ Dia. – 25 mm ➢ Make - Unik	**9**		
g.	**FLANGE**	➢ MOC – SS 304 ➢ Type – Table -E ➢ Dia. – 25 mm ➢ Make – Jyoti Metal/Jignesh Steel	**18**		
h.	**TEE**	➢ MOC –SS 304 ➢ Pressure Rating -10kg/cm² ➢ Dia. – 25 mm ➢ Make - Jyoti Metal/Jignesh Steel	**9**		
i.	**RING**	➢ MOC – SS 304 ➢ Pressure Rating -10kg/cm² ➢ Dia. – 10 mm ➢ Wire – 1.5 mm ➢ Make – Jyoti Metal/Jignesh Steel	**27 Mtr.**		
j.	**PAD**	➢ MOC – SS 304 ➢ Pressure Rating -10kg/cm² ➢ Size – Ø 80 x 12 mm ➢ Make – Jyoti Metal/Jignesh Steel	**9**		
k.	**SPRING**	➢ MOC – SS 304 ➢ Pressure Rating -10kg/cm² ➢ Dia. – 20 mm ➢ Wire – 3 mm ➢ Make – Jyoti Metal/Jignesh Steel	**18**		
l.	**HEX NIPPLE**	➢ MOC – SS 304 ➢ Pressure Rating -10kg/cm² ➢ Size – Ø25mm x Ø 18 mm ➢ Make – Jyoti Metal/Jignesh Steel	**18**		
m.	**SOCKET**	➢ MOC – SS 304 ➢ Pressure Rating -10kg/cm² ➢ Dia. – 18 mm ➢ Make – Jyoti Metal/Jignesh Steel	**18**		
	SUB TOTAL				

TABLE - S : OVERFLOW PIPING BOQ

Sl. No.	ITEMS	PARTICULARS	QTY.	UNIT RATE (In Rs.)	COST (In Rs.)
1.	**CHANNEL OVERFLOW FROM REACTION TANK-1 TO TUBE SETTLER - 1**	➢ MOC – FRP, 8mm thick with MS angle (40mm x 40mm x 5mm) stiffener ➢ Color should be blue ➢ Size – 200mm x 150 mm ➢ Support from ground by using angle with proper clamping-spacing 4m c/c ➢ Spray painting & thickness will be 100 micron ➢ Surface finishing- sand ballast & water proof	**6 Mtr.**		
2.	**CHANNEL OVERFLOW FROM TS-1 TO MBBR**	➢ MOC – FRP, 8mm thick with MS angle (40mm x 40mm x 5 mm) stiffener ➢ Color should be blue ➢ Size – 200mm x 150 mm ➢ Support from ground by using angle with proper clamping-spacing 4m c/c ➢ Spray painting & thickness will be 100 micron ➢ Surface finishing- sand ballast & water proof	**10 Mtr.**		
3.	**OVERFLOW FROM AERATION TANK TO SEC. CLARIFIER**				
a.	**PIPE**	➢ MOC – MS-Black ➢ Type – Class-B ➢ Dia. – 150 mm ➢ Make –Tata/Jindal	**10 Mtr.**		
b.	**MATCHING FLANGE**	➢ MOC – MS-Black ➢ Type – Table -E ➢ Dia. – As per aeration tank outlet ➢ Make – B&M/VS	**1**		
c.	**ELBOW**	➢ MOC – MS-Black ➢ Type – Class-B ➢ Dia. – 150 mm ➢ Make – B&M/VS	**2**		
4.	**CHANNEL OVERFLOW FROM REACTION TANK-2 TO TUBE SETTLER-2**	➢ MOC – FRP, 8mm thick with MS angle (40mm x 40mm x5 mm) stiffener ➢ Color should be blue ➢ Size – 200mm x 150 mm ➢ Support from ground by using angle with proper clamping-spacing 4m c/c ➢ Spray painting & thickness will be 100 micron ➢ Surface finishing- sand	**8 Mtr.**		

Sl. No.	ITEMS	PARTICULARS	QTY.	UNIT RATE (In Rs.)	COST (In Rs.)
		ballast & water proof			
5.	**OVERFLOW FROM TUBE SETTLER-2 TO STORAGE TANK**				
a.	**PIPE**	➢ MOC – MS-Black ➢ Type – Class-B ➢ Dia. – 150 mm ➢ Make –Tata/Jindal	**20 Mtr.**		
b.	**FLANGE**	➢ MOC – MS-Black ➢ Type – Table -E ➢ Dia. – 150 mm ➢ Make – B&M/VS	**1**		
c.	**ELBOW**	➢ MOC – MS-Black ➢ Type – Class-B ➢ Dia. – 150 mm ➢ Make – B&M/VS	**5**		
	SUB TOTAL				

TABLE-T : ELECTRICAL PANEL

Sl. No.	ITEMS	PARTICULARS	QTY.	UNIT RATE (In Rs.)	COST (In Rs.)
1.	**ELECTRICAL PANEL**	➢ The panel should be MS powder coated ➢ Should be single phase preventer Overload alarm device. ➢ On / off indicator ➢ Ammeter, Volt Meter, KWH Meter provision ➢ In case of pump, should have level controller activation for two of the three where standby mode is provided. ➢ Timer provision for Air Blower ➢ Havels switch ➢ Siemen contactor ➢ With local switch for all the pumps (L&T). ➢ All points must be tagged with printed ➢ consider two spare feeder and feeder for illumination and lighting in office cum panel room & for Lamp post	1 Set		
	SUB TOTAL				

TABLE - U : INSTRUMENTATION

Sl. No.	ITEMS	PARTICULARS	QTY.	UNIT RATE (In Rs.)	COST (In Rs.)
1.	**LEVEL CONTROLLER**	➢ Type : Fixed, ➢ MOC : SS-316, ➢ SIZE : 6 mm Rod ➢ Reputed make	3 Sets		
2.	**ELECTRO-MAGNETIC FLOW METER**	➢ MOC : SS-316 flange mounted ➢ Flow rate: 20 M^3 /Hr ➢ Dia : 30 mm ➢ With digital display LCD type ➢ Instantaneous & Integral Flow meter ➢ Make : Krohne/Forbes Marshall	1 No		
3.	**pH PROBE**	➢ pH range: 1-13 ➢ Reputed make	1 No		
4.	**PRESSURE GAUGE**	➢ Dia 4" dial ➢ 0-5 Kg/cm² ➢ Make : H Guru/ waree/Fiebig	6 Nos		
	SUB TOTAL				

TABLE - V : LIST OF CABLE

Sl. No	CABLE ROUTING	DISTANCE	H.P.	PARTICULARS	UNIT RATE (In Rs.)	COST (In Rs.)
1.	**PANEL TO EFFLUENT PUMPING STATION (PS-1)**	40 Mtr. + 40 Mtr.	**2**	➢ Cable - AL conductor cable ➢ Size -4 sqmm ➢ Type - 3 core ➢ Sheathed – PVC Insulated, armoured ➢ Make – Havells/Finolex/Plaza		
2.	**PANEL TO AIR BLOWER STATION**	38 Mtr.	**5**	➢ Cable - AL conductor cable ➢ Size -4 sqmm ➢ Type - 3 core ➢ Sheathed – PVC Insulated, armoured ➢ Make - Havells/Finolex/Plaza		
		38 Mtr.	**7.5**	➢ Cable - AL conductor cable ➢ Size -6 sqmm ➢ Type - 3 core ➢ Sheathed – PVC Insulated, armoured ➢ Make – Havells/Finolex/Plaza		
3.	**PANEL TO SLUDGE RECYCLING PUMPING STATION (PS-2)**	22 Mtr. + 22 Mtr.	**2**	➢ Cable - AL conductor cable ➢ Size -4 sqmm ➢ Type - 3 core ➢ Sheathed – PVC Insulated, armoured ➢ Make - Havells/Finolex/Plaza		
4.	**PANEL TO EFFLUENT TRANSFER STATION (PS-3)**	40 Mtr. + 40 Mtr.	**5**	➢ Cable - AL conductor cable ➢ Size -4 sqmm ➢ Type - 3 core ➢ Sheathed – PVC Insulated, armoured ➢ Make - Havells/Finolex/Plaza		
5.	**PANEL TO SCREW PUMPING STATION (PS-4)**	37 Mtr.	**3**	➢ Cable - AL conductor cable ➢ Size -4 sqmm ➢ Type - 3 core		

Sl. No	CABLE ROUTING	DISTANCE	H.P.	PARTICULARS	UNIT RATE (In Rs.)	COST (In Rs.)
				➢ Sheathed – PVC Insulated, armoured ➢ Make - Havells/Finolex/Plaza		
6.	**PANEL TO REACTION TANK -1 (CHAMBER -1)**	19 Mtr.	**1**	➢ Cable - AL conductor cable ➢ Size -4 sqmm ➢ Type - 3 core ➢ Sheathed – PVC Insulated, armoured ➢ Make – Havells/Finolex/Plaza		
7.	**PANEL TO REACTION TANK -1 (CHAMBER-2)**	**18 Mtr.**	**1**	➢ Cable - AL conductor cable ➢ Size -4 sqmm ➢ Type - 3 core ➢ Sheathed – PVC Insulated, armoured ➢ Make - Havells/Finolex/Plaza		
8.	**PANEL TO REACTION TANK -2 (CHAMBER -1)**	15 Mtr.	**1**	➢ Cable - AL conductor cable ➢ Size -4 sqmm ➢ Type - 3 core ➢ Sheathed – PVC Insulated, armoured ➢ Make - Havells/Finolex/Plaza		
9.	**PANEL TO REACTION TANK -2 (CHAMBER -2)**	14 Mtr.	**1**	➢ Cable - AL conductor cable ➢ Size -4 sqmm ➢ Type - 3 core ➢ Sheathed – PVC Insulated, armoured ➢ Make - Havells/Finolex/Plaza		
10.	**PANEL TO REACTION TANK -2 (CHAMBER -3)**	13 Mtr.	**1**	➢ Cable - AL conductor cable ➢ Size -4 sqmm ➢ Type - 3 core ➢ Sheathed – PVC Insulated, armoured ➢ Make – Havells/Finolex/Plaza		
11.	**PANEL TO REACTION TANK -2 (CHAMBER -4)**	12 Mtr.	**1**	➢ Cable - AL conductor cable ➢ Size -4 sqmm ➢ Type - 3 core ➢ Sheathed – PVC Insulated, armoured		

Sl. No	CABLE ROUTING	DISTANCE	H.P.	PARTICULARS	UNIT RATE (In Rs.)	COST (In Rs.)
				➢ Make - Havells/Finolex/Plaza		
12.	**PANEL TO DOSING TANK -1** **(CHAMBER -2)**	11 Mtr.	**1**	➢ Cable - AL conductor cable ➢ Size -4 sqmm ➢ Type - 3 core ➢ Sheathed – PVC Insulated, armoured ➢ Make - Havells/Finolex/Plaza		
13.	**PANEL TO DOSING TANK -2** **(CHAMBER -2)**	16 Mtr.	**1**	➢ Cable - AL conductor cable ➢ Size -4 sqmm ➢ Type - 3 core ➢ Sheathed – PVC Insulated, armoured ➢ Make - Havells/Finolex/Plaza		
14.	**PANEL TO LIME SLAKER**	28 Mtr.	**1**	➢ Cable - AL conductor cable ➢ Size -4 sqmm ➢ Type - 3 core ➢ Sheathed – PVC Insulated, armoured ➢ Make - Havells/Finolex/Plaza		
	SUB TOTAL					

TABLE - W : LIST OF INSTRUMENTATION CABLING

S. NO.	CABLE ROUTING	DISTANCE	SPECIFICATION	UNIT RATE (In Rs.)	COST (In Rs.)
1.	**ELECTROMAGNETIC FLOW METER**				
a.	**PANEL TO OUTLET OF EFFLUENT PUMPING STATION (PS-1)**	40 Mtr.	➢ Cable – Copper conductor cable ➢ Size -Minimum 1.5 sqmm ➢ Type - 3 core ➢ Sheathed – PVC Insulated ➢ Make - Havells/Finolex/Plaza		
2.	**LEVEL CONTROLLER**				
a.	**PANEL TO EQUALIZATION TANK**	45 Mtr.	➢ Cable – Copper conductor cable ➢ Size -Minimum 1.5 sqmm ➢ Type - 3 core ➢ Sheathed – PVC Insulated ➢ Make – Havells/Finolex/Plaza		
b.	**PANEL TO STORAGE TANK**	45Mtr. + 45Mtr.	➢ Cable – Copper conductor cable ➢ Size -Minimum 1.5 sqmm ➢ Type - 3 core ➢ Sheathed – PVC Insulated ➢ Make - Havells/Finolex/Plaza		
3.	**PH PROBE**				
a.	**PANEL TO CHANNEL OUTLET OF REACTION TANK -1**	17 Mtr.	➢ Cable – Copper conductor cable ➢ Size -Minimum 1.5 sqmm ➢ Type - 3 core ➢ Sheathed – PVC Insulated ➢ Make - Havells/Finolex/Plaza		
	SUB TOTAL				

TABLE-X : INTERNAL ELECTRICAL WORKS FOR LAB, PANEL AND OFFICE ROOM

S. NO.	DESCRIPTION	SPECIFICATION	QTY.	UNIT RATE (In Rs.)	COST (In Rs.)
1.	Wiring for light point, fan point, exhaust fan point, call bell point with 1.5 sqmm. PVC insulated copper conductor single core cable in surface/recessed medium class PVC conduit with 6 Amp. Modular switch, modular plate, suitable GI box and earthing the point with 1.5 sqmm FRLS PVC insulated copper conductor single cable etc as required.	➢ Tube light on each floor of reputed make	**12**		
		➢ Illumination and lighting – periphery of panel cum office room as per requirement of reputed make	**4**		
		➢ Ceiling fan on each floor of reputed make	**4**		
		➢ Power connection for lab equipments & other accessories as per the requirement			
2.	Lamppost all over the plant area	➢ 250-watt sodium vapour lamp of reputed make ➢ Lamppost height as per site requirement and standard ➢ Post shall be Galvanised & panited	**10**		
	SUB TOTAL				

TABLE - Y : LIST OF POWER CABLE

S. NO.	CABLE ROUTING	DISTANCE	KVA	SPECIFICATION	UNIT RATE (In Rs.)	COST (In Rs.)
1.	**POWER CABLE FROM ELECTRIC POLE TO PANEL**	60 Mtr.	**35**	➢ Cable - AL conductor cable ➢ Size -50sqmm ➢ Type – 3.5 core ➢ Sheathed – PVC Insulated, armoured ➢ Make - Havells/Finolex/Plaza		
2.	**POWER CABLE FROM D.G. TO PANEL**	25 Mtr.	**15**	➢ Cable - AL conductor cable ➢ Size -25sqmm ➢ Type – 3.5 core ➢ Sheathed – PVC Insulated, armoured ➢ Make - Havells/Finolex/Plaza		
	SUB TOTAL					

TABLE – Z : LIST OF LAB EQUIPMENTS

Sl. No.	ITEMS	PARTICULARS	QTY.	UNIT RATE (In Rs.)	COST (In Rs.)
1.	**BOD INCUBATER**	➢ MOC –inner chamber of SS & outer wall of M.S. sheet duly painted ➢ Require working temperature-20 °C ➢ With heating & cooling system ➢ Capacity – 4 cuft. ➢ Make- Sisco	1		
2.	**WEIGHING BALANCE**	➢ Display upto 4 decimal ➢ Weight capacity upto 60 GMS ➢ Single pan ➢ Glass covered ➢ Auto calibration ➢ Make – Elico	1		
3.	**OVEN**	➢ MOC – SS chamber ➢ 3 Tray ➢ Capacity -165 Ltrs. ➢ Temp. range -0°C to 200°C ➢ Accuracy -± 2°C ➢ Type – Hot air or Vacuum type ➢ Digital indicator cum controller ➢ Make – Ambassador/Memmert/Lab Model	1		
4.	**FURNACE**	➢ MOC – SS chamber ➢ Temp. range -upto 600°C ➢ Accuracy -± 5°C ➢ Size -100mm x 100mm x 225mm ➢ Make – Ambassador	1		
5.	**pH METER**	➢ pH range -1 to 14 ➢ 2 point Calibration (pH- 4, pH -7, pH- 9) ➢ Portable type with glass electrode ➢ Temp. compensate for field work ➢ Sensitivity with ± 0.05 ➢ Make – Systronics/Toshniwal	1		
6.	**MANTLE HEATER WITH THERMOSTAT CONTROLLER (UPTO 120^{o}C) FOR REFLUXING FLASK**	➢ Temp.- upto 120^{o}C ➢ With 6 mantles	**1**		
7.	**COILED CONDENSER STANDARD JOINT FLASK**	➢ Capacity -500ML ➢ Glassware composition- Borosilicate ➢ Make -Borosil	3		
8.	**REFLUX FLASK STANDARD**	➢ Capacity -500ML ➢ Glassware composition- Borosilicate ➢ Make -Borosil	**3**		

Sl. No.	ITEMS	PARTICULARS	QTY.	UNIT RATE (In Rs.)	COST (In Rs.)
	JOINT ROUND BOTTOM				
9.	**WATER DISTILLATION ASSEMBLY**	➢ Mantle Heater (5 litres)-1.0KW ➢ Round bottom flask with standard joint - 5 litres ➢ Coiled condenser with standard joints & adaptors ➢ Collection bottles with standard joints & adaptors -2 litres -2 nos. ➢ Make -Borosil	**1**		
10.	**BOD BOTTLES WITH STOPPER**	➢ Bottle Size – 250/300 ml ➢ Glassware composition- Borosilicate ➢ Make -Borosil	**10**		
11.	**GLASS PIPETTE GRADUATED**	➢ Capacity -1ML ➢ Glassware composition- Borosilicate ➢ Make -Borosil	**3**		
		➢ Capacity -2 ML ➢ Glassware composition- Borosilicate ➢ Make -Borosil	**3**		
		➢ Capacity -5ML ➢ Glassware composition- Borosilicate ➢ Make -Borosil	**3**		
		➢ Capacity -10 ML ➢ Glassware composition- Borosilicate ➢ Make -Borosil	**3**		
		➢ Capacity -25 ML ➢ Glassware composition- Borosilicate ➢ Make -Borosil	**2**		
12.	**VOLUMETRIC FLASKS STANDARD JOINT**	➢ Capacity -50ML ➢ Glassware composition- Borosilicate ➢ Make -Borosil	**3**		
		➢ Capacity -100 ML ➢ Glassware composition- Borosilicate ➢ Make -Borosil	**3**		
		➢ Capacity -250ML ➢ Glassware composition- Borosilicate ➢ Make -Borosil	**2**		
		➢ Capacity -500 ML ➢ Glassware composition- Borosilicate ➢ Make -Borosil	**2**		
		➢ Capacity -1000 ML ➢ Glassware composition- Borosilicate ➢ Make -Borosil	**2**		
13.	**CONICAL FLASKS**	➢ Capacity -50ML ➢ Glassware composition- Borosilicate ➢ Make -Borosil	**3**		
		➢ Capacity -100 ML ➢ Glassware composition- Borosilicate ➢ Make -Borosil	**3**		

Sl. No.	ITEMS	PARTICULARS	QTY.	UNIT RATE (In Rs.)	COST (In Rs.)
		➢ Capacity -250ML ➢ Glassware composition- Borosilicate ➢ Make -Borosil	**3**		
		➢ Capacity -500 ML ➢ Glassware composition- Borosilicate ➢ Make -Borosil	**3**		
		➢ Capacity -1000 ML ➢ Glassware composition- Borosilicate ➢ Make -Borosil	**2**		
14.	**BLUE BURETTE**	➢ Capacity -50 ML ➢ With Glass Stoppered ➢ Glassware composition- Borosilicate ➢ Make -Borosil	**2**		
15.	**GLASS BOTTLES**	➢ Capacity -2 LITS ➢ Glassware composition- Borosilicate ➢ Make -Borosil	**3**		
16.	**MEASURING CYLINDERS**	➢ Capacity -50ML ➢ Glassware composition- Borosilicate ➢ Make -Borosil	**3**		
		➢ Capacity -100 ML ➢ Glassware composition- Borosilicate ➢ Make -Borosil	**3**		
		➢ Capacity -250ML ➢ Glassware composition- Borosilicate ➢ Make -Borosil	**3**		
		➢ Capacity -500 ML ➢ Glassware composition- Borosilicate ➢ Make -Borosil	**2**		
		➢ Capacity -1000 ML ➢ Glassware composition- Borosilicate ➢ Make -Borosil	**1**		
17.	**TEST TUBES**	➢ Capacity -20 ML ➢ Glassware composition- Borosilicate ➢ Make -Borosil	**10**		
18.	**BEAKERS**	➢ Capacity -50ML ➢ Glassware composition- Borosilicate ➢ Make -Borosil	**3**		
		➢ Capacity -100 ML ➢ Glassware composition- Borosilicate ➢ Make -Borosil	**3**		
		➢ Capacity -250ML ➢ Glassware composition- Borosilicate ➢ Make -Borosil	**3**		
		➢ Capacity -500 ML ➢ Glassware composition- Borosilicate ➢ Make -Borosil	**3**		
		➢ Capacity -1000 ML ➢ Glassware composition- Borosilicate ➢ Make –Borosil	**2**		

Sl. No.	ITEMS	PARTICULARS	QTY.	UNIT RATE (In Rs.)	COST (In Rs.)
19.	**FUNNELS**	➢ Capacity -50ML ➢ Glassware composition- Borosilicate ➢ Make -Borosil	**2**		
		➢ Capacity -100 ML ➢ Glassware composition- Borosilicate ➢ Make -Borosil	**2**		
20.	**TEST TUBE STAND**	➢ As per standard ➢ Make - polylab	**2**		
21.	**PIPETTE STAND**	➢ As per standard ➢ Make - polylab	**2**		
22.	**REFLUX STAND WITH CLAMP**	➢ As per standard ➢ Make - polylab	**2**		
23.	**FUNNEL STAND**	➢ As per standard ➢ Make - polylab	**2**		
24.	**BURETTE STAND**	➢ As per standard ➢ Make - polylab	**2**		
25.	**PETRIDISH**	➢ DIA -100 MM ➢ Reputed make	**3**		
26.	**GLASS ROD**	➢ Size - 8 MM DIA X 200 MM ➢ Reputed make	**6**		
27.	**RUBBER TUBE**	➢ OD -10 MM ➢ ID -8 MM ➢ Reputed make	2 BUNDLES		
28.	**AL FOIL**	➢ Reputed make	3 SETS		
29.	**COTTON ROLL**	➢ Should be good quality ➢ Reputed make	**6**		
30.	**SILICA CRUCIBLE WITH LID**	➢ MOC- Silica ➢ Dia. -30mm ➢ High Temp. resistant	**2**		
31.	**TONGS**	➢ MOC-SS ➢ Reputed make	**2**		
32.	**PINCH COCK**	➢ MOC-SS ➢ Reputed make	**12**		
33.	**SPATULA**	➢ MOC-SS ➢ Reputed make	**1 SET**		
34.	**GLASS BEADS**	➢ Should be good quality ➢ Reputed make	1 PACKET		
35.	**TISSUE ROLL**	➢ Should be good quality ➢ Reputed make ➢	6 ROLLS		
36.	**FILTER CIRCLE**	➢ Grade no.-541 ➢ Make - Whatman	1 PACKET		

Sl. No.	ITEMS	PARTICULARS	QTY.	UNIT RATE (In Rs.)	COST (In Rs.)
37.	**BUCHNUR FUNNEL WITH SINTERED GLASS AND SUCTION ASSEMBLY**	➢ Dia. -100mm ➢ Reputed make	**2**		
	SUB TOTAL				

TABLE – AA : LIST OF CIVIL ITEMS

Sr. No.	ITEMS	PARTICULARS	COST (In Rs.)
1.	**CONTROL PANEL ROOM**	➢ As per detail given in chapter -6 under general guidelines for civil activities **(Point no.4)**	
2.	**FOUNDATION FOR MBBR CUM AERATION TANK**	➢ As per detail given in chapter -6 under general guidelines for civil activities**(Point no.6)**	
3.	**FOUNDATION FOR TUBE SETTLER -1 &2 AND FOR SECONDARY CLARIFIER**	➢ As per detail given in chapter -6 under general guidelines for civil activities **(Point no.7)**	
4.	**UNDERGROUND TANK**	➢ As per detail given in chapter -6 under general guidelines for civil activities **(Point no.8)**	
5.	**FOUNDATION FOR ELECTRO-MECHANICAL EQUIPMENT LIKE PUMP, BLOWER etc.**	➢ As per detail given in chapter -6 under general guidelines for civil activities **(Point no.9)**	
6.	**CUTOUTS**	➢ As per detail given in chapter -6 under general guidelines for civil activities **(Point no.10)**	
7.	**FOUNDATION FOR LAMP-POST**	➢ As per detail given in chapter -6 under general guidelines for civil activities (**Point no.12)**	
8.	**SLUDGE STORAGE CANOPY**	➢ As per detail given in chapter -6 under general guidelines for civil activities **(Point no.13)**	
	SUB TOTAL		

PRICE FOR OPTIONAL ITEMS

Project Title : Setting up 150 KLD- Common Effluent Treatment Plant (CETP) at Block Printing Cluster in Ajrakhpur, Bhuj (Gujarat)

Tender No. Nitra/Pur/PT-3/2017-18

To,
The Chairman
Purchase Committee (for CETP)
NITRA
Sector-23, Raj Nagar
Ghaziabad

Dear Sir,

Our rate for the optional items as per table- AB is as under:

In figures: Rs.....

In words :Rupees.....

The above rates are inclusive of prices of materials & services proposed to supply under the contract, all taxes, duties, packing and forwarding charges, levies of state or central governments, all costs like travel, lodging and boarding, local travel expenses etc. Details of the above referred cost are mentioned in table – AB of the Volume –II of the tender document.

Signature of Bidder / Contractor

Seal of the firm of Bidder / Contractor

TABLE – AB: LIST OF OPTIONAL ITEMS

(to be quoted separately)

Sr. No.	ITEMS	PARTICULARS	COST (In Rs.)
1.	**INTERNAL ROAD CONSTRUCTION**	➢ As per detail given in chapter -6 under general guidelines for civil activities **(Point no.1, 2, 3 5)** ➢ Width of the road will be 3 meter and length of 90 meters.	
2.	**BOUNDARY WALL**	➢ As per detail given in chapter -6 under general guidelines for civil activities **(Point no.11)**	
3.	**RAIN WATER DRAIN**	➢ As per detail given in chapter -6 under general guidelines for civil activities **(Point no.14)**	
4.	**D.G. SET**	➢ Green Silent 10 K.V.A. D.G.Set ➢ Quantity – 1 no. ➢ Water Cooled ➢ Alternator , 415 Volt, 1500 R. P. M. Coupled ➢ On a Common Base Frame With Accessories Such As Fuel Tank , Battery With Leads ➢ Control Panel ➢ In Sound Proof Canopy ➢ Fuel Consumption - 3ltrs/hr at 100% load ➢ Make – Kirloskar	
	SUB TOTAL		