1. **S/I/T/C of DM & Soft water plant in utility area for centralized treated water and centralized storage/ generation and distribution of utility services through pipeline system including DM water storage tanks in labs at NIPER, S.A.S. Nagar**

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***************
NOTICE INVITING e-TENDERS

The National Institute of Pharmaceutical Education & Research (NIPER), Sector-67, S.A.S. Nagar-160062 invites online item rate bids on behalf of the Director NIPER, S.A.S. Nagar from agencies enlisted with CPWD, State PWD, MES and Railway dealing in similar type of jobs on two bid system (Eligibility Bid & Financial Bid) for the following work :-

NIT No.: T4/2020, Name of Work: S/I/T/C of DM & Soft water plant in utility area for centralized treated water and centralized storage/ generation and distribution of utility services through pipeline system including DM water storage tanks in labs at NIPER, S.A.S. Nagar, Estimated Cost: Rs. 40.71 Lakh, Earnest Money : Rs. 81,420/-, Period of Completion: Six months, Last date and time of submission of bid: 06.08.2020 upto 5:00 PM, Last date & time for submission of Original EMD: 06.08.2020 upto 5:00 PM, Date and time of opening of Eligibility bid: 07.08.2020 at 11.00 AM,

The original EMD as scanned & uploaded shall be deposited physically by all the intending bidders in Tender Box held in Purchase Section, NIPER, S.A.S. Nagar as per above schedule failing which the bid shall be treated as invalid.

The tender forms and other details can be obtained from the website: http://tenderwizard.com/niper and official website of the NIPER, S.A.S. Nagar at http://niper/gov.in. Press notice is also available on NIPER website. The contractors are requested to get their firm registered on the website http://tenderwizard.com/niper, for participating in e-tendering process.
CHECK LIST FOR CONTRACTORS FOR SUBMISSION OF TENDERS ONLINE:

1. THE CONTRACTOR MUST UPLOAD THE NECESSARY DOCUMENTS AS MENTIONED IN LIST OF DOCUMENTS TO BE SCANNED AND UPLOADED WITHIN THE PERIOD OF BID SUBMISSION AT PAGE 8 OF BID DOCUMENTS.

2. IF ANY DISCREPANCY IS NOTICED BETWEEN UPLOADED EMD AT THE TIME OF SUBMISSION OF BID AND ORIGINAL EMD SUBMITTED PHYSICALLY BY THE BIDDERS IN THE OFFICE OF BID OPENING AUTHORITY, THE BID SUBMITTED SHALL BECOME INVALID.

3. TENDER TO BE WITNESSED AT SPECIFIED PAGE OF TENDERED DOCUMENTS AT THE TIME OF DRAWING AGREEMENT WITH THE SUCCESSFUL BIDDER

4. THE TENDER / TENDERS CONTAINING CONDITIONS CONTRARY TO THOSE SPECIFIED IN THIS DOCUMENT SHALL BE SUMMARILY REJECTED.

5. THE INTENDING BIDDER SHALL QUOTE HIS ITEM RATES IN FIGURE ONLY. THE ITEM RATES IN WORDS & AMOUNT IS GENERATED AUTOMATICALLY. THEREFORE, THE ITEM RATE QUOTED BY THE BIDDER IN FIGURES IS TO BE TAKEN AS CORRECT.

6. THE CONTRACTOR(S) SHALL QUOTE THE RATES KEEPING IN MIND, GENERAL CONDITIONS OF CONTRACT, TECHNICAL SPECIFICATIONS, SPECIAL CONDITIONS OF CONTRACT ETC.

7. THE BIDDER CAN UPLOAD HIS BID ONLY AFTER SUBMISSION OF E-TENDER PROCESSING FEE AS MENTIONED AT PAGE 4 OF THE BID DOCUMENTS.

8. ONCE THE BID UPLOADED BY THE BIDDER IS WITHDRAWN, HE WILL NOT BE ALLOWED TO RESUBMIT HIS BID, HOWEVER, HE CAN EDIT HIS BID ANY NUMBER OF TIMES BUT BEFORE LAST DATE & TIME OF SUBMISSION OF BID.
1. Bids are invited on behalf of the Director NIPER, S.A.S. Nagar from the Specialized agencies dealing in similar type of jobs for the work of "S/I/T/C of DM & Soft water plant in utility area for centralized treated water and centralized storage/ generation and distribution of utility services through pipeline system including small DM water storage tanks in labs at NIPER, S.A.S. Nagar".

1.1 The work is estimated to cost Rs. 40.71 Lakh. This estimate, however, is given merely as a rough guide.

1.2 Contractors who fulfill the following requirements shall be eligible to apply. Joint ventures are not accepted

1.2.1 Intending bidders is eligible to submit the bid provided he has definite proof from the appropriate authority, which shall be to the satisfaction of the competent authority, of having:
- Average annual financial turnover during the last 3 years ending 31st March of previous financial year should be at least Rs. 20.36 lakhs.
- Should not have incurred loss in more than 2 years during the last 3 years ending 31st March of previous financial year.
- Satisfactorily completed three similar jobs each costing not less than Rs. 16.28 Lakh OR two similar jobs each costing not less than Rs. 24.43 Lakh OR one similar jobs costing not less than Rs. 32.57 Lakh in last 7 years ending previous day of last date of submission of bids. (Similar jobs shall mean "S/I/T/C of DM & Soft water plants of comparable capacities and layout of pipeline system in govt organizations/PSU’s /reputed Pharmaceutical companies. (Agency having worked in reputed pharmaceutical companies must have atleast one similar nature of work in govt. department/PSUs etc).

The value of executed works shall be brought to current costing level by enhancing the actual value of work at simple rate of 7% per annum; calculated from the date of completion to last date of receipt of applications for bids.

1.2.2 To become eligible, the bidders shall have to furnish an affidavit as under:-
I/we undertake and confirm that eligible similar works(s) has/have not been got executed through another contractor on back to back basis. Further that, if such a violation comes to the notice of Department, then I/we shall be debarred for bidding in NIPER, S.A.S. Nagar in future forever. Also, if such a violation comes to the notice of Department before date of start of work, the Engineer-in-Charge shall be free to forfeit the entire amount of Earnest Money Deposit/Performance Guarantee. (Scanned copy to be uploaded at the time of submission of bid)

1.2.3 The bidders should have Valid PAN No.
1.2.4 The bidders should have Certificate of Registration for GST.
1.2.5 The bidders should have ESI & EPF No.
1.2.6 It is presumed that all the bidders who have submitted the bid have gone through the entire bid documents including integrity pact and that all the terms & conditions are acceptable to them.
1.2.7 If any agency/contractor has more than 2 (two) projects pending for more than 1 (one) year after schedule date of completion or has any 1 (one) project pending for more than 2 (two ) years after schedule date of completion at NIPER, S.A.S. Nagar, he is not eligible for tendering.

2. Agreement shall be drawn with the successful bidders on General Conditions of Contract which is available with the concerned office and official website of the Institute [http://niper.gov.in], and the bidders shall quote his rates as per various terms and conditions of the said form subject to the exclusions /
modifications attached at along with amendments uploaded on the official website of the Institute which will form part of the agreement.

3. The time allowed for carrying out the work will be six months from the period of 15 days after the date of award of order or from the first date of handing over of the site, whichever is later, in accordance with the phasing, if any, indicated in the bid documents.

4. (i) The site for the work is available
(ii) The layout drawings for the utility service pipe lines work is available with the Engineer-in-Charge in Engg Office
(iii) The layout drawings for DM and Soft water plant shall be provided by the contractor/ supplier as per the design given to him.

5. The bid document consisting of plans, specifications, the schedule of quantities of various types of items to be executed and the set of terms and conditions of the contract to be complied with and other necessary documents except General Conditions of Contract Form can be seen on website http://tenderwizard.com/niper and official website of the NIPER, S.A.S. Nagar at http://niper/gov.in, free of cost.

6. After submission of the bid the contractor can re-submit revised bid any number of times but before last time and date of submission of bid as notified.

7. While submitting the revised bid, contractor can revise the rate of one or more item(s) any number of times (he need not re-enter rate of all the items) but before last time and date of submission of bid as notified.

8. When bids are invited in three stage system and if it is desired to submit revised financial bid then it shall be mandatory to submit revised financial bid. If not submitted then the bid submitted earlier shall become invalid.

9. Earnest Money in the form of Demand Draft or Pay order or Banker's Cheque or Deposit at Call Receipt or Fixed Deposit Receipt (drawn in favour of Director, NIPER, S.A.S. Nagar) shall be scanned and uploaded to the e-Tendering website within the period of bid submission.

A part of earnest money is acceptable in the form of bank guarantee also. In such case, minimum 50% of earnest money or Rs. 20 lac, whichever is less, shall have to be deposited in shape prescribed above, and balance may be deposited in shape of Bank Guarantee of any scheduled bank having validity for six months or more from the last date of receipt of bids which is to be scanned and uploaded by the intending bidders.

The original EMD as scanned & uploaded shall be deposited physically by all the intending bidders in Tender Box held in Purchase Section, NIPER, S.A.S. Nagar upto 05.00 PM on 06.08.2020 failing which the bid shall be treated as invalid.

Interested contractor who wish to participate in the bid has also to make following payments within the period of bid submission:

e-tender processing fee - Rs. __________/- plus GST as applicable shall be payable to M/s ITI Limited through their e-gateway by credit /debit card, internet banking or RGTS/NEFT facility.

Copy of certificate of work experience and other documents as specified in the press notice shall be scanned and uploaded to the e-Tendering website within the period of bid submission. However, certified copy of all the scanned and uploaded documents as specified in press notice shall have to be submitted by the lowest bidder within a week physically in the office of tender opening authority.
Online bid documents submitted by intending bidders shall be opened only of those bidders, who has deposited e-Tender Processing Fee with M/s ITI Limited and Earnest Money Deposit and other documents scanned and uploaded are found in order.

The bid submitted shall be opened on **07.08.2020** at 11.00 AM

10. The bid submitted shall become invalid and e-Tender processing fee shall not be refunded if:

(i) The bidder is found ineligible.

(ii) The bidder does not upload all the documents (PAN No. & GST registration etc.) as stipulated in the bid document.

(iii) If any discrepancy is noticed between the documents as uploaded at the time of submission of bid and hard copies as submitted physically by the lowest bidder in the office of bid opening authority.

(iv) The intending bidder does not deposit original EMD physically as scanned & uploaded up to **05 PM on 06.08.2020**.

(v) If a tenderer does not quote any percentage above / below on the total amount of the tender or any section/ sub head, the tender shall be treated as invalid and will not be considered as lowest tenderer.

(vi) If a tendered amount works out to "Zero" as per percentage quoted by the bidder, the tender shall be treated as invalid and will not be considered as lowest tenderer.

11. The contractor whose bid is accepted, will be required to furnish **Performance Guarantee of 5%** (Five Percent) of the tendered amount within the period specified. This guarantee shall be in the form of Deposit at Call receipt of any scheduled bank/Banker’s cheque of any scheduled bank/Demand Draft of any scheduled bank/Pay order of any scheduled bank (in case guarantee amount is less than Rs. 1,00,000/-) or Government Securities or Fixed Deposit Receipts or Guarantee Bonds of any Scheduled Bank or the State Bank of India in accordance with the prescribed form. In case the contractor fails to deposit the said performance guarantee within the stipulated period including the extended period if any, the Earnest Money deposited by the contractor shall be forfeited automatically without any notice to the contractor. The Earnest Money deposited along with bid shall be returned after receiving the aforesaid performance guarantee.

The contractor whose bid is accepted will also be required to furnish either copy of applicable licenses/registrations or proof of applying for obtaining labour licenses, registration with EPFO, ESIC and BOCW Welfare Board including Provident Fund Code No. if applicable and also ensure the compliance of aforesaid provisions by the contractor, if any engaged by the sub contractor for the said work and Programme Chart (Time and Progress) within the Period specified.

**Performance guarantee shall be released to the contractor only after the release of any liability with respect to completion status of works/workers/manpower engaged under this contract and satisfactory handing over the site to the NIPER, S.A.S. Nagar.**

12. The description of the work is as follows:

"S/I/T/C of DM & Soft water plant in utility area for centralized treated water and centralized storage/ generation and distribution of utility services through pipeline system including small DM water storage tanks in labs at NIPER, S.A.S. Nagar".

Intending Bidders are advised to inspect and examine the site and its surroundings and satisfy themselves before submitting their bids as to the nature of the ground and sub-soil (so far as is practicable), the form and nature of the site, the means of access to the site, the accommodation they may require and in general shall themselves obtain all necessary information as to risks, contingencies and other circumstances which may influence or affect their bid. A bidders shall be deemed to have full knowledge of the site whether he inspects it or not and no extra charge consequent on any misunderstanding or otherwise shall be allowed. The bidders shall be responsible for arranging and maintaining at his own cost all materials, tools & plants, water, electricity access, facilities for workers and all other services required for executing the work unless otherwise specifically provided for in the contract documents. Submission of a bid by a bidders implies that he has read this notice and all other contract documents and has made himself aware of the scope and specifications of the work to be done and of conditions and rates at which stores, tools and plant, etc. will be issued to him by the Government and local conditions and other factors having a bearing on the execution of the work.
13. Director, NIPER, S.A.S. Nagar does not bind itself to accept the lowest or any other bid and reserves to itself the authority to reject any or all the bids received without the assignment of any reason. All bids in which any of the prescribed condition is not fulfilled or any condition including that of conditional rebate is put forth by the bidders shall be summarily rejected.

14. Canvassing whether directly or indirectly, in connection with bidders is strictly prohibited and the bids submitted by the contractors who resort to canvassing will be liable for rejection.

15. Director, NIPER, S.A.S. Nagar reserves to himself the right of accepting the whole or any part of the bid and the bidders shall be bound to perform the same at the rate quoted.

16. The contractor shall not be permitted to bid for works in the Institute’s Engineering Department (responsible for award and execution of contracts) in which his near relative is posted as Divisional Accountant or as an officer in any capacity between the grades of Assistant Engineer (both inclusive). He shall also intimate the names of persons who are working with him in any capacity or are subsequently employed by him and who are near relatives to any gazetted officer in the Institute. Any breach of this condition by the contractor would render him liable to be removed from the approved list of contractors of NIPER.

17. No Engineer or other officers employed in Engineering or Administrative duties in Institute is allowed to work as a contractor for a period of one year after his retirement from Institute’s service without the previous permission of the competent authority in writing. This contract is liable to be cancelled if either the contractor or any of his employees is found at any time to be such a person who had not obtained the permission of the competent authority as aforesaid before submission of the tender or engagement in the contractor’s service.

18. The bid for the works shall remain open for acceptance for a period of Ninety (90) days from the date of opening of bids. If any bidders withdraws his tender before the said period or issue of letter of acceptance, whichever is earlier, or makes any modifications in the terms and conditions of the bid which are not acceptable to the department, then the Institute shall, without prejudice to any other right or remedy, be at liberty to forfeit 50% of the said earnest money as aforesaid. Further the bidders shall not be allowed to participate in the rebidding process of the work.

19. **SIGNING OF CONTRACT**

   The successful tenderer/ contractor, on acceptance of his tender by the Accepting authority shall, within 15 days from the stipulated date of start of the work sign the contract consisting of:

   i) The notice inviting tender, all the documents including drawings if any forming the tender as issued at the time of invitation of tender and accepting thereof together with any correspondence leading thereto.

   ii) Standard form as mentioned consisting of:

   a) Various standard clauses with corrections up to date as stipulated along with annexure thereto.

   b) Safety codes.

   c) Model rules for the protection of health, sanitary arrangements for the workers employed by the contractor.

   d) Contractor’s labour regulations.

   List of acts and omissions for which fines can be imposed.

20. **For Composite Bids (Not Applicable)**

21. All the payments to the contractor shall be deposited in their bank account through RTGS and the contractor shall submit the detail of his bank account & IFSC code after award of work including any statutory details required if any as applicable.

22. In case, date for opening of Eligibility / Financial bid is declared/happens to be public holiday, the Eligibility / Financial bid will be opened on the next working day.
On behalf of the Director, NIPER, S.A.S. Nagar invites **online item wise rate bids** from the Specialized agencies dealing in similar type of jobs on two bid system for the following work:-

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<tr>
<td>1.</td>
<td>NIT No.</td>
<td></td>
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<tr>
<td>2.</td>
<td>Name of work &amp; Location</td>
<td>&quot;S/I/T/C of DM &amp; Soft water plant in utility area for centralized treated water and centralized storage/ generation and distribution of utility services through pipeline system including small DM water storage tanks in labs at NIPER, Sector- 67, S.A.S. Nagar, Punjab&quot;.</td>
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<tr>
<td>3.</td>
<td>Estimated cost put to bid</td>
<td>Rs. 40.71 lacs</td>
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<td>4.</td>
<td>Earnest Money</td>
<td>Rs. 81,420 /-</td>
</tr>
<tr>
<td>5.</td>
<td>Period of Completion</td>
<td>Six Months</td>
</tr>
<tr>
<td>6.</td>
<td>Last date &amp; time of submission of bid, EMD, e-tender processing fee and other documents as specified in the press notice</td>
<td>06.08.2020 upto 5:00 PM</td>
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<tr>
<td>7.</td>
<td>Last date &amp; time for submission of Original EMD:</td>
<td>06.08.2020 upto 5:00 PM</td>
</tr>
<tr>
<td>8.</td>
<td>Date &amp; Time of opening of Eligibility bid</td>
<td>07.08.2020 at 11.00 AM</td>
</tr>
<tr>
<td>9.</td>
<td>Date &amp; Time of opening of financial bid</td>
<td>Define Later</td>
</tr>
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1. Contractors who fulfill the following requirements shall be eligible to apply.
   a). Joint ventures are not accepted
   b) Should have satisfactorily completed the jobs as mentioned below during the last Seven years ending previous day of last date of submission of bids.

   Three similar jobs each costing not less than **Rs. 16.28 Lakh** OR two similar jobs each costing not less than **Rs. 24.43 Lakh** OR one similar jobs costing not less than **Rs. 32.57 Lakh** in last 7 years ending previous day of last date of submission of bids. (**Similar jobs shall mean** "S/I/T/C of DM & Soft water plants and layout of pipeline system in govt organizations/PSU's /reputed Pharmaceutical companies.

   The value of executed works shall be brought to current costing level by enhancing the actual value of work at simple rate of 7% per annum; calculated from the date of completion to last date of receipt of applications for bids.

2. The intending bidder must read the terms and conditions of Form-6 carefully. He should only submit his bid if he considers himself eligible and he is in possession of all the documents required.

3. Information and Instructions for bidders posted on website shall form of bid document.
4. The bid document consisting of plans, specifications, the schedule of quantities of various types of items to be executed and the set of terms and conditions of the contract to be complied with and other necessary documents can be seen and downloaded from the website: [http://tenderwizard.com/niper](http://tenderwizard.com/niper) and official website of the NIPER, S.A.S. Nagar at [http://niper/gov.in](http://niper/gov.in) free of cost.

5. But the bid can only be submitted after depositing **Processing Fee in favour of ITI Limited** and uploading the mandatory scanned documents such as Demand Draft or Pay order or Banker’s Cheque or Deposit at call Receipt or Fixed Deposit Receipts and Bank Guarantee of any Scheduled Bank towards EMD in favour of Director, NIPER, S.A.S. Nagar and other documents as specified.

6. Those contractors not registered on the website mentioned above, are required to get registered beforehand. If needed they can be imparted training on online bidding process as per details available on the website.

7. The intending bidder must have valid class-III digital signature to submit the bid.

8. On opening date, the contractor can login and see the bid opening process. After opening of bids he will receive the competitor bid sheets.

9. Contractor can upload documents in the form of **JPG** format and **PDF** format.

10. Contractor must ensure to quote item wise rate in the **Schedule of Quantity**. The column meant for quoting item wise rate in figures appears in pink colour and the moment rate is entered, it turns sky blue.

11. The Eligibility bid shall be opened first on due date and time as mentioned above. The financial bid of contractors qualifying the eligibility bid shall be opened at a later date as mentioned in the Press Notice Inviting Tender.

12. The agency shall submit the status of his firm w.r.t. proprietary firm / partnership firm or Limited company as per detail given below:-

   If the bidder is a proprietary firm, a self undertaking of the proprietorship shall be uploaded by the bidder.

   If the bidder is a firm in partnership, the bid documents shall be signed by all the partners of the firm above their full typewritten names and current addresses, or, alternatively, by a partner holding power of attorney for the firm. In the later case a certified copy of the power of attorney should be uploaded. In both cases a certified copy of the partnership deed and current address of all the partners of the firm should also be uploaded.

   If the bidder is a limited company or a corporation, the bid documents shall be signed by a duly authorized person holding power of attorney for signing the bid documents accompanied by a copy of the power of attorney / Authorization Letter. The bidder should also furnish a copy of the Memorandum of Articles of Association duly attested by a Public Notary.

13. **LIST OF DOCUMENTS TO BE SCANNED AND UPLOADED WITHIN THE PERIOD OF BID SUBMISSION:**

   a. Scanned copy of DD of EMD.

   b. Scanned copy of Enlistment.

   c. Scanned copy of PAN Card.

   d. Scanned copy of financial certificate from CA for the last three financial years.

   e. Scanned copy of work experience.

   f. Scanned copy of registration: Proprietorship/partnership deed/ltd company / as applicable.

   g. Scanned copy of Power of Attorney.

   h. Scanned copy of Tender Acceptance Letter.
### Form- 7/8

#### SECTION-V

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#### Item wise Rate Tender & Contract For Works

Tender for the work of "S/I/T/C of DM & Soft water plant in utility area for centralized treated water and centralized storage/ generation and distribution of utility services through pipeline system including small DM water storage tanks in labs at NIPER, S.A.S. Nagar" only.

(i) To be submitted online - **06.08.2020** upto 05.00 AM

(ii) Original EMD to be submitted Physically: **06.08.2020** upto 05.00 AM

(iii) Eligibility Bid To be opened online - **07.08.2020** upto 11.00 AM

(iv) Financial Bid To be opened online - Define Later

#### TENDER

I/we have read and examined the notice inviting tender, Drawings and Designs, General Rules and Directions, conditions of Contract, clauses of contract, special conditions, additional terms & conditions & specifications, schedule of rate and other documents and rules referred to in the conditions of contract and all other contents in the tender documents for the work.

I/we hereby tender for the execution of the work specified for the Institute within the time specified in relevant clause, schedule of quantities and in accordance in all respects with the specifications, designs, drawings and instructions in writing referred to general rules and Directions and in relevant Clauses of the conditions of contract and with such materials as are provided for, by, and in respects in accordance with, such conditions so far as applicable.

I/we agree to keep the tender open for 90 days from the due date of opening of financial bid and not to make any modifications in its terms and conditions.

A sum of **Rs. 81,420/-** is hereby forwarded in the shape of deposit at call receipt of a scheduled bank/ demand draft of a scheduled bank/ Fixed deposit receipt of scheduled bank in favour of the Director, NIPER, payable at Chandigarh/S.A.S. Nagar as earnest money. If I/We, fail to furnish the prescribed performance guarantee within prescribed period. I/We agree that the said the Director, NIPER or his successors, in office shall without prejudice to any other right or remedy, be at liberty to forfeit the said earnest money absolutely. Further, if I/We fail to commence work as specified, I/We agree that Director NIPER or the successors in office shall without prejudice to any other right or remedy available in law, be at liberty to forfeit the said earnest money and the performance guarantee absolutely. The said performance guarantee shall be a guarantee to execute all the works referred to in the tender documents upon the terms and conditions contained or referred to therein and to carry out such deviation as may be ordered upto maximum of the percentage mentioned in tender documents and those in excess of that limit at the rates to be determined in accordance with the provision contained in tender form. Further, I/We agree that in case of forfeiture of Earnest Money & Performance Guarantee as aforesaid, I/We shall be debarred for participation in the re-tendering process of the work.

I/We undertake and confirm that eligible similar work(s) has/have not been got executed through another contractor on back to back basis. Further that, if such a violation comes to the notice of institute, then I/We shall be debarred for tendering in NIPER, S.A.S. Nagar in future forever. Also, if such a violation comes
to the notice of institute before date of start of work, the Engineer-in-Charge shall be free to forfeit the entire amount of Earnest Money Deposit/Performance Guarantee.

I/We hereby declare that I/We shall treat the tender documents drawings and other records connected with the work as secret/confidential documents and shall not communicate information/derived there from to any person other than a person to whom I/We am/are authorized to communicate the same or use the information in any manner prejudicial to the safety of the Institute.

Dated:-

Signature of Contractor

Witness:

Postal Address:

Address:

Telephone No.:

Fax No.:

Occupation:

E-Mail.:

ACCEPTANCE

The above tender (as modified by you as provided in the letters mentioned hereunder) is accepted by me for and on behalf of the Institute for a sum of Rs.______________________________

The letters referred to below shall form part of this contract agreement:

i)  

ii)  

iii)  

Dated_______

For & on behalf of the Director,

NIPER, S.A.S. Nagar.
To,

………………………..,

………………………..,

………………………..

Sub: NIT No. ________________ for the work "S/I/T/C of DM & Soft water plant in utility area for centralized treated water and centralized storage/generation and distribution of utility services through pipeline system including small DM water storage tanks in labs at NIPER, S.A.S. Nagar".

Dear Sir,

It is here by declared that NIPER, S.A.S. Nagar is committed to follow the principle of transparency, equity and competitiveness in public procurement.

The subject Notice Inviting Tender (NIT) is an invitation to offer made on the condition that the Bidder will sign the integrity Agreement, which is an integral part of tender/bid documents, failing which the tenderer/bidder will stand disqualified from the tendering process and the bid of the bidder would be summarily rejected.

This declaration shall form part and parcel of the Integrity Agreement and signing of the same shall be deemed as acceptance and signing of the Integrity Agreement on behalf of the Institute.

Yours faithfully

For & on behalf of the Director,

NIPER, S.A.S. Nagar.
To,

NIPER, S.A.S. Nagar,

………………………..
………………………..

Sub: Submission of Tender for the work of "S/I/T/C of DM & Soft water plant in utility area for centralized treated water and centralized storage/ generation and distribution of utility services through pipeline system including small DM water storage tanks in labs at NIPER, S.A.S. Nagar"

Dear Sir,

I/We acknowledge that NIPER, S.A.S. Nagar is committed to follow the principles thereof as enumerated in the Integrity Agreement enclosed with the tender/bid document.

I/We agree that the Notice Inviting Tender (NIT) is an invitation to offer made on the condition that I/We will sign the enclosed integrity Agreement, which is an integral part of tender documents, failing which I/We will stand disqualified from the tendering process.

I/We acknowledge that THE MAKING OF THE BID SHALL BE REGARDED AS AN UNCONDITIONAL AND ABSOLUTE ACCEPTANCE of this condition of the NIT. I/We confirm acceptance and compliance with the Integrity Agreement in letter and spirit and further agree that execution of the said Integrity Agreement shall be separate and distinct from the main contract, which will come into existence when tender/bid is finally accepted by NIPER, S.A.S. Nagar. I/We acknowledge and accept the duration of the Integrity Agreement, which shall be in the line with Article 1 of the enclosed Integrity Agreement.

I/We acknowledge that in the event of my/our failure to sign and accept the Integrity Agreement, while submitting the tender/bid, NIPER, S.A.S. Nagar shall have unqualified, absolute and unfettered right to disqualify the tenderer/bidder and reject the tender/bid in accordance with terms and conditions of the tender/bid.

Yours faithfully

(Duly authorized signatory of the Bidder)
To be signed by the bidder and same signatory competent / authorized to sign the relevant contract on behalf of Institute.

INTEGRITY AGREEMENT

This Integrity Agreement is made at ............... on this ........ day of ........20...... BETWEEN Director, NIPER, S.A.S. Nagar (Hereinafter referred as the (Address of Division) ‘Principal/Owner’, which expression shall unless repugnant to the meaning or context hereof include its successors and permitted assigns)

AND

........................................................................................................ (Name and Address of the Individual/firm/Company) through .................................................................................. (Hereinafter referred to as the (Details of duly authorized signatory) “Bidder/Contractor” and which expression shall unless repugnant to the meaning or context hereof include its successors and permitted assigns) Preamble WHEREAS the Principal / Owner has floated the Tender (NIT No.................................) (hereinafter referred to as “Tender/Bid”) and intends to award, under laid down organizational procedure, contract for .......................................................................................... (Name of work) hereinafter referred to as the “Contract”.

AND WHEREAS the Principal/Owner values full compliance with all relevant laws of the land, rules, regulations, economic use of resources and of fairness/transparency in its relation with its Bidder(s) and Contractor(s).

AND WHEREAS to meet the purpose aforesaid both the parties have agreed to enter into this Integrity Agreement (hereinafter referred to as “Integrity Pact” or “Pact”), the terms and conditions of which shall also be read as integral part and parcel of the Tender/Bid documents and Contract between the parties.

NOW, THEREFORE, in consideration of mutual covenants contained in this Pact, the parties hereby agree as follows and this Pact witnesses as under:

Article 1: Commitment of the Principal/Owner

1) The Principal/Owner commits itself to take all measures necessary to prevent corruption and to observe the following principles:

(a) No employee of the Principal/Owner, personally or through any of his/her family members, will in connection with the Tender, or the execution of the Contract, demand, take a promise for or accept, for self or third person, any material or immaterial benefit which the person is not legally entitled to.

(b) The Principal/Owner will, during the Tender process, treat all Bidder(s) with equity and reason. The Principal/Owner will, in particular, before and during the Tender process, provide to all Bidder(s) the same information and will not provide to any Bidder(s) confidential / additional information through which the Bidder(s) could obtain an advantage in relation to the Tender process or the Contract execution.

(c) The Principal/Owner shall endeavour to exclude from the Tender process any person, whose conduct in the past has been of biased nature.

2) If the Principal/Owner obtains information on the conduct of any of its employees which is a criminal offence under the Indian Penal code (IPC)/Prevention of Corruption Act, 1988 (PC Act) or is in violation of the principles herein mentioned or if there be a substantive suspicion in this regard, the Principal/Owner will inform the Chief Vigilance Officer and in addition can also initiate disciplinary actions as per its internal laid down policies and procedures.

Article 2: Commitment of the Bidder(s)/Contractor(s)

1) It is required that each Bidder/Contractor (including their respective officers, employees and agents) adhere to the highest ethical standards, and report to the Institute all suspected acts of fraud or corruption or Coercion or Collusion of which it has knowledge or becomes aware, during the tendering process and throughout the negotiation or award of a contract.
2) The Bidder(s)/Contractor(s) commits himself to take all measures necessary to prevent corruption. He commits himself to observe the following principles during his participation in the Tender process and during the Contract execution:

a) The Bidder(s)/Contractor(s) will not, directly or through any other person or firm, offer, promise or give to any of the Principal/Owner’s employees involved in the Tender process or execution of the Contract or to any third person any material or other benefit which he/she is not legally entitled to, in order to obtain in exchange any advantage of any kind whatsoever during the Tender process or during the execution of the Contract.

b) The Bidder(s)/Contractor(s) will not enter with other Bidder(s) into any undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to cartelize in the bidding process.

c) The Bidder(s)/Contractor(s) will not commit any offence under the relevant IPC/PC Act. Further the Bidder(s)/Contractor(s) will not use improperly, (for the purpose of competition or personal gain), or pass on to others, any information or documents provided by the Principal/Owner as part of the business relationship, regarding plans, technical proposals and business details, including information contained or transmitted electronically.

d) The Bidder(s)/Contractor(s) of foreign origin shall disclose the names and addresses of agents/representatives in India, if any. Similarly Bidder(s)/Contractor(s) of Indian Nationality shall disclose names and addresses of foreign agents/representatives, if any. Either the Indian agent on behalf of the foreign principal or the foreign principal directly could bid in a tender but not both. Further, in cases where an agent participate in a tender on behalf of one manufacturer, he shall not be allowed to quote on behalf of another manufacturer along with the first manufacturer in a subsequent/parallel tender for the same item.

d) The Bidder(s)/Contractor(s) will, when presenting his bid, disclose (with each tender as per proforma enclosed) any and all payments he has made, is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the Contract.

3) The Bidder(s)/Contractor(s) will not instigate third persons to omit offences outlined above or be an accessory to such offences.

4) The Bidder(s)/Contractor(s) will not, directly or through any other person or firm indulge in fraudulent practice means a willful misrepresentation or omission of facts or submission of fake/forged documents in order to induce public official to act in reliance thereof, with the purpose of obtaining unjust advantage by or causing damage to justified interest of others and/or to influence the procurement process to the detriment of the Institute interests.

5) The Bidder(s)/Contractor(s) will not, directly or through any other person or firm use Coercive Practices (means the act of obtaining something, compelling an action or influencing a decision through intimidation, threat or the use of force directly or indirectly, where potential or actual injury may befall upon a person, his/ her reputation or property to influence their participation in the tendering process).

**Article 3: Consequences of Breach**

Without prejudice to any rights that may be available to the Principal/Owner under law or the Contract or its established policies and laid down procedures, the Principal/Owner shall have the following rights in case of breach of this Integrity Pact by the Bidder(s)/Contractor(s) and the Bidder/Contractor accepts and undertakes to respect and uphold the Principal/Owner’s absolute right:

1) If the Bidder(s)/Contractor(s), either before award or during execution of Contract has committed a transgression through a violation of Article 2 above or in any other form, such as to put his reliability or credibility in question, the Principal/Owner after giving 14 days notice to the contractor shall have powers to disqualify the Bidder(s)/Contractor(s) from the Tender process or terminate/determine the Contract, if already executed or exclude the Bidder/Contractor from future contract award processes.
The imposition and duration of the exclusion will be determined by the severity of transgression and determined by the Principal/Owner. Such exclusion may be forever or for a limited period as decided by the Principal/Owner.

2) Forfeiture of EMD/Performance Guarantee/Security Deposit: If the Principal/Owner has disqualified the Bidder(s) from the Tender process prior to the award of the Contract or terminated/determined the Contract or has accrued the right to terminate/determine the Contract according to Article 3(1), the Principal/Owner apart from exercising any legal rights that may have accrued to the Principal/Owner, may in its considered opinion forfeit the entire amount of Earnest Money Deposit, Performance Guarantee and Security Deposit of the Bidder/Contractor.

3) Criminal Liability: If the Principal/Owner obtains knowledge of conduct of a Bidder or Contractor, or of an employee or a representative or an associate of a Bidder or Contractor which constitutes corruption within the meaning of Indian Penal code (IPC)/Prevention of Corruption Act, or if the Principal/Owner has substantive suspicion in this regard, the Principal/Owner will inform the same to law enforcing agencies for further investigation.

Article 4: Previous Transgression

1) The Bidder declares that no previous transgressions occurred in the last 5 years with any other Company in any country confirming to the anticorruption approach or with Central Government or State Government or any other Central/State Public Sector Enterprises in India that could justify his exclusion from the Tender process.  
2) If the Bidder makes incorrect statement on this subject, he can be disqualified from the Tender process or action can be taken for banning of business dealings/ holiday listing of the Bidder/Contractor as deemed fit by the Principal/Owner.  
3) If the Bidder/Contractor can prove that he has resorted / recouped the damage caused by him and has installed a suitable corruption prevention system, the Principal/Owner may, at its own discretion, revoke the exclusion prematurely.

Article 5: Equal Treatment of all Bidders/Contractors/ Subcontractors

1) The Bidder(s)/Contractor(s) undertake(s) to demand from all subcontractors a commitment in conformity with this Integrity Pact. The Bidder/Contractor shall be responsible for any violation(s) of the principles laid down in this agreement/Pact by any of its Subcontractors/ sub-vendors.  
2) The Principal/Owner will enter into Pacts on identical terms as this one with all Bidders and Contractors. 
3) The Principal/Owner will disqualify Bidders, who do not submit, the duly signed Pact between the Principal/Owner and the bidder, along with the Tender or violate its provisions at any stage of the Tender process, from the Tender process.

Article 6- Duration of the Pact

This Pact begins when both the parties have legally signed it. It expires for the Contractor/Vendor 12 months after the completion of work under the contract or till the continuation of defect liability period, whichever is more and for all other bidders, till the Contract has been awarded. If any claim is made/lodged during the time, the same shall be binding and continue to be valid despite the lapse of this Pacts as specified above, unless it is discharged/determined by the Competent Authority of NIPER, S.A.S. Nagar.

Article 7- Other Provisions

1) This Pact is subject to Indian Law, place of performance and jurisdiction is the S.A.S. Nagar/ Chandigarh. 
2) Changes and supplements need to be made in writing. Side agreements have not been made. 
3) If the Contractor is a partnership or a consortium, this Pact must be signed by all the partners or by one or more partner holding power of attorney signed by all partners and consortium members. In case of a Company, the Pact must be signed by a representative duly authorized by board resolution.
4) Should one or several provisions of this Pact turn out to be invalid; the remainder of this Pact remains valid. In this case, the parties will strive to come to an agreement to their original intensions.

5) It is agreed term and condition that any dispute or difference arising between the parties with regard to the terms of this Integrity Agreement / Pact, any action taken by the Owner/Principal in accordance with this Integrity Agreement/ Pact or interpretation thereof shall not be subject to arbitration.

**Article 8- LEGAL AND PRIOR RIGHTS**

All rights and remedies of the parties hereto shall be in addition to all the other legal rights and remedies belonging to such parties under the Contract and/or law and the same shall be deemed to be cumulative and not alternative to such legal rights and remedies aforesaid. For the sake of brevity, both the Parties agree that this Integrity Pact will have precedence over the Tender/Contact documents with regard any of the provisions covered under this Integrity Pact.

IN WITNESS WHEREOF the parties have signed and executed this Integrity Pact at the place and date first above mentioned in the presence of following witnesses:

..............................................................................
(For and on behalf of Bidder/Contractor)

WITNESSES:

1. ..............................................
   (signature, name and address)

2. ..............................................
   (signature, name and address)

Place:

Dated :
PERFORMA FOR BANK GUARANTEE (PERFORMANCE)

Whereas the National Institute of Pharmaceutical Education & Research (hereinafter called NIPER which expression shall include its successors and assigns) having awarded a work order/ contract No. ___________________________ dated _______________(hereinafter called the contract ) for ________________ to M/s _______________________ hereinafter of __________________________subject to the terms and conditions contained in the contract.

Whereas the terms and conditions of the contract require the contractor to furnish a bank guarantee for Rs._____________________ (Rs. _____________________________) being _________% of the total value of the contract for proper execution and due fulfillment of the terms and conditions contained in the contract.

We, the ____________________ Bank, (hereinafter called the “Bank”) do hereby unconditionally and irrevocably undertake to pay to NIPER immediately on demand in writing an without protest/ or demur all moneys payable by the contractor to NIPER in connection with the execution of and performance of the works/ equipment , inclusive of any loss, damages, charges, caused to or suffered by NIPER by reasons of any breach by the contained n the contract as specified in notice of demand made by NIPER to the bank.  Any such demand made by NIPER on the bank shall be conclusive evidence of the amount due and payable by the bank under this guarantee.  However, the bank’s liability under this guarantee shall be limited to Rs. ____________ in the aggregate and the bank hereby agreed to the following terms and conditions:-

I. This guarantee shall be a continuing guarantee an irrevocable for all claims of NIER as specified above and shall be valid during the period specified for the performance of the contract including the period of maintenance/ warranty i.e. up to _________________.

II. We, the said bank further agree with NIPER that NIPER shall have the fullest liberty without our consent and without affecting in any manner our obligations the terms and conditions of the said contract or to extend time for performance of contact by the contractor from time to time any of the powers exercisable by contract and to bear or enforce any of the terms and conditions relating to the said contract an we shall not be relieved from our liability by reason of any such variations of extension being granted to the contractor or for any forbearance, act or omission on the part of NIPER or any indulgence by NIPER to the contractor of by any such matter or thing whatsoever, which under the law relating to the sureties, would, but for this provision, have effect of so relieving us.

III. This guarantee/ undertaking shall be in addition to any other guarantee or security whatsoever NIPER may now or at any time have in relation to the company shall have full recourse to or enforce the security in preference to any other security or guarantee which the NIPER may have or obtained and there shall be no forbearance on the part of the company in enforcing or requiring enforcement of any other security which shall have the effect of releasing the Bank from its liability.  It shall not be necessary for NIPER to proceed against the said contractor before proceedings against the Bank.

IV. The bank hereby waives all rights at any time inconsistent with the terms of this Guarantee and the obligations of the Bank ‘in terms hereof shall not be otherwise affected or suspended by reasons of any dispute or disputes having been raised by the contractor (whether or not pending before any arbitrator, Tribunal or court) or any denial of liability by the contractor stopping or preventing or purporting to stop or prevent any payment by the bank to NIPER in terms hereof.

We, the said bank lastly undertake not to revoke this guarantee during its currency except with the previous consent of NIPER in writing.  Unless a claim is made in writing within six month from the date of expiry of this guarantee i.e. ....................... We hall be relieved from all liabilities under this guarantee thereafter.

Signed
This..................................day of .................20.......at...........

For and on behalf of Bank

WITNESS:

1. ___________________________

2. ___________________________
1. **GENERAL CONDITIONS**

1.1 The Contract

**Definitions**

In the contract (as defined below) the words and expressions defined below shall have the meanings assigned to them, except where the context requires otherwise.

1.1.1 **Documents**

1.1.1.1 “Contract” means these conditions of Contract (Part I and II), the Employer’s Requirements, the Tender, the Contractor’s proposal, the Schedules, the Letter of Acceptance, the Contract Agreement (if completed) and such further documents as may be expressly incorporated in the Letter of Acceptance or Contract Agreement (if completed).

1.1.1.2 “Employer’s Requirements” means the description of the scope, standard, design criteria (if any) and programme of work as issued by the Employer and included in the contract, and any variations thereto.

1.1.1.3 “Tender” means the Contractor’s priced offer to the Employer for the works, as accepted by the Letter of Acceptance.

1.1.1.4 “Appendix to Tender” means the completed Appendix comprised in the Tender.

1.1.1.5 “Contractor’s proposal” means the preliminary design submitted by the contractor with his Tender and included in the contract.

1.1.1.6 “Schedule” means the information and data submitted by the contractor with his Tender and included in the contract.

1.1.1.7 “Schedule of Payments” means the Schedule designated as such (if any). Schedule of Payments means the schedule designated as such (if any).

1.1.1.8 “Letter of Acceptance” means the formal acceptance by the Employer of the Tender.

1.1.1.9 “Contract Agreement” means the contract agreement (if any).

1.1.2 **Persons**

1.1.2.1 “Employer” means the person named as such in the Appendix to Tender and the legal successors in title to such person, but not (except with the consent of the contractor) any assignee of such person.

1.1.2.2 “Contractor” means the person whose Tender has been accepted by the employer and the legal successors in title to such person, but not (except with the consent of the Employer) any assignee of such person.

1.1.2.3 “Employer’s Representative” means the person appointed by the Employer to act as Employer’s representative for the purpose of the contract and named as such in the Appendix to Tender, or other person appointed from time to time by the Employer and notified as such to the contractor.

1.1.2.4 “Subcontractor” means any person named in the contract as a subcontractor, manufacturer or supplier for a part of the works or any person to whom a part of the works has been subcontracted, and the legal successors in title to such person, but not any assignee of such person.
1.1.3 Dates, Time and Periods

1.1.3.1 Base date, means the date 28 days prior to the latest date for submission of the Tender for acceptance by the Employer.

1.1.3.2 Effective date means the date on which the contract entered into legal force and effect.

1.1.3.3 Commencement Data means the date on which the contractor receives the order to commence issued by the institute.

1.1.3.4 Time for Completion means the time for completing the execution of and passing the Tests of completion of, the works or a Section (as the case may be) as stated in the Appendix to Tender.

1.1.3.5 Contract Period means the period from the commencement date to the Date 365 days after the date on which the whole of the works shall have been completed as certified by the Employer’s Representative.

1.1.3.6 Day means a calendar day and year means 365 days.

1.1.4 Tests and Completion

1.1.4.1 Tests on Completion means the tests specified in the contract and designated as such, and any other such tests as may be agreed by the Employers representative and the contractor or instructed as a variation, which are to be carried out before the works or any section are taken over by the employer.

1.1.4.2 Taking-over certificate means a certificate issued by the institute.

1.1.4.3 Performance Tests means the tests specified in the contract and designated as such, which are to be carried out to verify that the works fulfill the performance requirements of the contract.

1.1.4.4 Performance Certificate means the certificate issued by the Employers representative.

1.1.5 Money and Payments

1.1.5.1 Contract Price means the sum stated in the letter of acceptance as payable to the contractor for the design, execution and completion of the works and the remedying of the defects in accordance with the provisions of the contract.

1.1.5.2 Local currency means the currency of the country.

1.1.5.3 Foreign Currency means a freely convertible currency, named in the Appendix to Tender as a currency in which part of the contract price is payable but not the local currency.

1.1.5.4 Retention money means the accumulated retention monies retained by the employer.

1.1.5.5 Provisional Sum means a sum (if any) specified in the contract and designated as such for the execution of any part of the works or for the supply of plant, materials or services.

1.1.5.6 Cost means all expenditure properly incurred (or to be incurred) by the contractor, whether on or off the site, including overhead and similar charges, but does not include profit.

1.1.5.7 Final Payment Certificate means the payment certificate issued by the Employer’s Representative.

1.1.6 Other Definition

1.1.6.1 Construction Documents means all drawings, calculations, computer software (programs), samples, patterns, models, operation and maintenance manuals, and other manuals and information of a similar nature, submitted by the Contractor and approved by the Employers’ Representative.
1.1.6.2 Variation means any alternation and/or modification to the works, which is instructed by the Employer’s Representative or approved as a variation by the Employer’s representative.

1.1.6.3 Works means the permanent works and the temporary works or either of them as appropriate.

1.1.6.4 Permanent Works means the permanent works to be designed and executed in accordance with the contract.

1.1.6.5 Temporary Works means all temporary works of every kind (other than contractor’s equipment) required for the execution and completion of the works and the remediating of any defects.

1.1.6.6 Plant means machinery and apparatus intended to form or forming part of the Permanent Works, including the supply-only items (if any) which are to be supplied by the contractor as specified in the contract.

1.1.6.7 Materials means things of all kinds (other than plant) to be provided and incorporated in the permanent works by the contractor, including the supply-only items (if any), which are to be supplied by the contractor as specified in the contract.

1.1.6.8 Contractor’s Equipment means all machinery, apparatus and other things (other than temporary works) required for the execution and completion of the works and the remediating of any defects, but does not include plant, materials, or other things intended to form or forming part of the permanent works.

1.1.6.9 Section means a part of the works specifically defined in the Appendix to Tender as a Section (if any).

1.1.6.10 Site means the places provided by the employer where the works are to be executed and to which plant and materials are to be delivered and any other places as may be specifically designated in the contract as forming part of the site.

1.1.6.11 Country means the country in which the works are to be executed and to which plant and materials are to be delivered.

1.2 Handings and Marginal Notes.
The headings and marginal notes are not part of these conditions, and shall not be taken into consideration in their interpretation.

1.3 Interpretation
Words importing persons or parties shall include firms and corporations and any organization having legal capacity. Words importing the singular also include the plural and vice versa where the context requires. Words importing one gender also include other genders.

1.4 Law and Language
The law of the contract is named in the Appendix to Tender.
Where versions of the contract are prepared in different languages, the version which is in ruling language named in the Appendix to Tender shall prevail. The language for day-to-day communications shall be as stated in the Appendix to Tender.

1.5 Contract Agreement
Either party shall, if requested by the other party, execute a contract Agreement, in the form annexed with such modifications as may be necessary to record the contract.

1.6 Priority of Documents
The documents forming the contract are to be taken as mutually explanatory of one another. If there is an ambiguity or discrepancy in the documents, the Employee’s Representative shall issue any
necessary clarification or instruction to the contractor, and the priority of the documents shall be as follows:

(a) The Contract Agreement.
(b) The Letter of Acceptance.
(c) The employer’s Requirements;
(d) The Tender.
(e) The Special Conditions of Contract.
(f) The General Conditions of Contract.
(g) The Schedules; and
(h) The Contractor’s proposal.

1.7 Documents on Site

The contractor shall keep on the site one complete set of the documents forming the contract, the construction documents, variations and communications. The employer, the Employer’s Representatives, and all persons authorized by either of them shall have the right to use such documents at all reasonable times.

Wherever provisions is made for the giving or issue of any notice, instruction, consent, approval, certificate or determination by any person, unless otherwise specified such communication shall be in writing and shall not be unreasonably withheld or delayed.

Wherever provision is made for a communication to be written or in writing, this means any hand-written, type-written or printed communication, including the agreed systems of electronic transmission.

All certificates, notices or written orders to be given to the contractor by the employer or the Employer’s Representative, and all notices to be given to the employer or to the Employer’s representative by the contractor, shall either be delivered by hand against written acknowledgement of receipt, or be sent by airmail or one of the agreed systems of electronic transmission.

1.8 Provision of Construction Documents

The construction Documents shall be in the custody and care of the contractor. The contractor shall provide a sufficient number for the use of the employer’s representative or as specified in the Employer’s requirements.

1.9 Employer’s Use of Contractor’s Documents

Copy right in the construction documents and other design documents made by or on behalf of the contractor shall (as between the parties) remain the property of the contractor. The employer may, at his cost, copy, use and communicate any such documents (including making and using modification) for the purpose of completing, operating, maintaining, altering, adjusting and repair the works. They shall not, without the contractor’s consent, be used, copied or communicated to a third party by the Employer or the Employer’s representative for other purposes.

1.10 Contractor’s Use of Employer’s Documents

Copy right in the Employer’s requirement and other documents issued by the Employer or the Employer’s representative to the contractor shall (as between the parties) remain the property of the Employer. The contractor may, at his cost, copy, use and communicate any such documents for the purpose of contract. This shall not, without the Employer’s consent, be used, copied or communicated to a third party by the contractor except as necessary for the purposes of the contract.
1.11 **Confidential Details**
Maintaining the confidentiality of the documents, works awarded during the contract period will be the sole responsibility of contractor.

1.12 **Compliance with Statutes, Regulations and Laws**
The contractor shall, in all matters arising in the performance of the contract, comply with, give all notices under, and pay all fees required by, the provisions of any national or state statute, ordinance or other law, or any regulation of any legally constituted public authority having jurisdiction over the works. The contractor shall obtain all permits, licenses or approvals required for any part of the works, in reasonable time taking account of the times for delivery of the plant and materials and for completion of the work. The Employer and the contractor shall comply with the laws of each country where activities are performed.

1.13 **Joint and Several Liability**
If the contractor is a joint venture (or consortium) of two or more persons, all such persons shall be jointly and severally liable to the Employer for the fulfillment of the terms of the contract. Such persons shall designate one of them to act as leader with authority to bind the joint venture (or consortium) and each of its members. The composition or the constitution of the joint venture (or consortium) shall not be altered without the prior consent of the employer.

2. **The Employer**

2.1 **General Obligations**
The contractor will ensure the clear site before execution of awarded work.

2.2 **Access and Possession of the Site.**
The employer shall grant the contractor right of access to, and possession of site as per the directions of Engineer-in-Charge. The possession may be taken by the contractor within stipulated time.

2.3 **Permits, Licenses or Approvals**
The employer shall, at the request and cost of the contractor, assist him in applying for permits, licenses or approvals, which may be required for any part of the works, plant, materials and contractor’s equipment, and for the completion of works. Such requests may also include requests for the employers’ assistance in procuring any necessary government consent.

3. **The Employer’s(NIPER) Representative**

3.1 **Employer’s Representative’s Authority to Delegate**
The employers’ representative may from time to time delegate any of his duties to assistants, and may at any time revoke any such delegation. Any such delegation or revocation shall be in writing and shall not take effect until a copy has been delivered to the Employer and the contractor.

Any determination, instruction, inspection, examination, testing, consent, approval or similar act by any such assistant of the employer’s representative, in accordance with the delegation, shall have the same effect as though it had been an act of the Employer’s representative. However:

(a) Any failure to disapprove any plant, materials, design or workmanship shall not prejudice the right of the employer’s representative to reject such plant, materials, design or workmanship;
(b) If the Contractor questions any determination or instruction of an assistant of the Employer’s representative, the contractor may refer the matter to the Employer’s representative, who shall confirm, reverse or vary such determination or instruction.
3.2 Employer’s Representative Instructions
Unless it is legally or physically impossible, the contractor shall comply with instructions given by the Employer’s representative in accordance with the contract.

4. The Contractor
4.1 General Obligations
The works as completed by the contractor shall be wholly in accordance with the contract and fit for the purpose for which they are intended, as defined in the contract. The works shall include any work, which is necessary to satisfy the Employer’s requirements. Contractor’s proposal and schedules, or is implied by the contract, or arises from any obligation of the contractor, and all works not mentioned in the contract but which may be inferred to be necessary for stability or completion or the state, reliable and efficient operation of the works.

The contractor shall design, execute and complete the works, including providing construction documents, within the time for completion, and shall remedy any defects within the contract period. The contractor shall provide all superintendence, labour, plant, materials, contractor’s equipment, temporary works and all other things, whether of a temporary or permanent nature, required in and for such design, execution, completion and remedying of defects.

4.2 Contractor’s Representative
Unless the contractor’s representative is named in the contract, the contractor shall, within 15 days of the effective date, submit to the employer’s representative for consent the name and particulars of the person the contractor proposes to appoint. The contractor shall not revoke the appointment of the contractor’s representative without the prior consent of the employer’s representative.

The contractor representative shall give the whole time to directing the preparation of the construction documents and the execution of the works. Except as otherwise stated in the contract, the contractor’s representative shall receive (on behalf of the contractor) all notices, instructions, consents, approvals, certificates, determinations and other communications under the contract. Whenever the contractor’s representative is to be absent from the site, a suitable replacement person shall be appointed, and the employer’s representative shall be notified accordingly.

The contractor’s representative may delegate to any person, any of his powers, functions and authorities, and may at any time revoke any such delegation. Any such delegation or revocation shall be in writing and shall not take effect until the employer’s representative has received prior notice signed by the contractor’s representative, specifying the powers, functions and authorities being delegated or revoked. The contractor’s representative and such persons shall be fluent in the language for day to day communications.

4.3 Co-ordination of the Works
The contractor shall be responsible for the co-ordination and proper execution of the works, including co-ordination of other contractors to the extent specified in the Employer’s requirements. The contractor shall, as specified in the Employer’s requirements, afford all reasonable opportunities for carrying out their work to:

(a) Any other contractors employed by the employer and their workmen.
(b) The workmen of the employer, and
(c) The workmen of any legally constituted public authorities who may be employed in the execution on or near the site of any work not included in the contract, which the employer may required.
The contractor shall obtain, co-ordinate and submit to the employers representative for his information all details (including details of work to be carried out off the site) from sub contractors and suppliers. The contractor shall be responsible for the locations of their work or materials, in order to ensure that there is no conflict with the work or materials, in order to ensure that there is no conflict with the work of other sub contractors, the contractor or other contractors.

4.4 Subcontractors
The contractor shall not subcontract the whole of the works. Unless otherwise stated in Part II (Special Conditions):

(a) The contractor shall not be required to obtain consent for purchases of materials or for subcontracts for which the sub contractor is named in the contract.
(b) The prior consent of the Employer’s representative shall be obtained to other proposed subcontractors:
(c) The Contractor shall notify the employer’s representative of each proposed sub contractor not less than 28 days before the intended date of such sub contractor commencing work on the site; and
(d) Where practicable, the contractor shall give a fair and reasonable opportunity for contractors from the country to be appointed as subcontractors.

The contractor shall be responsible for observance by all subcontractors of all the provisions of the contract. The contractor shall be responsible for the acts or defaults of any subcontractor, his agents or employees, as fully as if they were the acts or defaults of the contractor, his agents or employees. Proper records of personnel, time and work profile to be submitted by the contractor to the Engineer-in-Charge, NIPER.

4.5 Assignment of Sub Contractor’s Obligations
If a subcontractor has undertaking a continuing and assignable obligation to the contractor for the work designed or executed, or plant, materials or services supplied, by such subcontractor, and if such obligation extends beyond the expiry of the contract period, the contractor shall, upon the expiry of the contract period, assign the benefit of such obligation to the employer for its unexpired duration, at the request and cost of the employer.

4.6 Setting Out
The contractor shall set out the works in relation to original points, lines and levels of reference specified in the Employer’s requirements or, if not specified, given by the employer’s representative in writing. The contractor shall rectify, at his cost, any error in the positions, levels, dimensions or alignment of the works.

4.7 Quality Assurance
The contractor shall institute a quality assurance system to demonstrate compliance with the requirements of the contract. Such system shall be in accordance with the details stated in the contract. Compliance with the quality assurance system shall not relieve the contractor of his duties, obligations or responsibilities.

Details of all procedures and compliance documents shall be submitted to the employer’s representative for his information before each design and execution stage is commenced. When any document is issued to the employer’s representative, it shall be accompanied by the signed quality statements for such documents, in accordance with the details stated in the contract. The employer’s representative shall be entitled to audit any aspect of the system and require corrective to be taken.
4.8 Site Data
The employer shall have made available to the contractor, prior to the base date, all the data on hydrological and sub-surface conditions at the site, and studies on environment impact, which have been obtained by or on behalf of the employer from investigations for the works. The contractor shall be responsible for interpreting all data.

The employer shall be deemed to have inspected and examined the site, its surroundings, the above data and other available information, and to have satisfied himself (so far as is practicable, taking account of cost and time before submitting the Tender, as to:

(a) The form and nature of the site, including the sub-surface conditions.
(b) The hydrological and climatic conditions.
(c) The extent and nature of the work and materials necessary for the executing and completion of the works, and the remedying of any defects, and
(d) The means of access to the site and the accommodation he may require.

The contractor shall be deemed to have obtained all necessary information as to risks, contingencies and all other circumstances which may influence or affect the tender.

4.9 Matters Affecting the execution of the works
The contractor shall be deemed to have satisfied himself as to the correctness and sufficiency of the contract price. Unless otherwise stated in the contract, the contract price shall cover all his obligations under the contract (including those under provisional sums, if any) and all things necessary for the proper design, execution and completion of the work and the remedying of any defects.

4.10 Unforeseeable by Sub-surface conditions
If sub-surface conditions are encountered the contractor which in his opinion were not foreseeable by an experienced contractor, the contractor shall give notice to the employer’s representative so that the employer’s representative can inspect such conditions. After receipt of such notice and after his inspection and investigation, the employers representative shall, if such conditions were not (by the effective date) foreseeable by an experienced contractor.

Any extension of time to which the contractor is entitled and per tender conditions, and

4.11 Access Route
The contractor shall be deemed to have satisfied himself as to the suitability and availability of the access routes he chooses to use. As between the parties, the contractor shall be responsible for the maintenance of access routes. The contractor shall provide any signs or directions which he may consider necessary for the guidance of his staff, labour and others. The contractor shall obtain any permission that may be required from the relevant authorities for the use of such routes, signs and directions.

The employer will not be responsible for any claims which may arise from the use or otherwise of any access route. The employer does not guarantee the suitability or availability of any particular access route, and will not entertain any claim for any non-suitability or non-availability for continuous use during construction of any such route.

4.12 Rights of way and Facilities
The contractor shall bear all costs and charges for special or temporary rights-of-way required by him for access to the site. The contractor shall also provide, at his own cost, any additional facilities outside the site required by him for the purposes of the works.
4.13 Programme
Within the time stipulated, the contractor shall submit to the Employer’s representative, for information, a programme which shall contain the following:

(a) The order in which the contractor proposes to carry out the works (including each stage of design, procurement, manufacture, delivery to site, construction, erection, testing and commissioning).
(b) The times when submissions and approvals or consents are required, and
(c) The sequence of Tests on completion.

The programme shall include all major events and activities in the production of construction documents and the periods for the employer’s representatives approval or consent, as indicated in the employer’s requirement. Unless otherwise stated in the contract, the programme shall be development using precedence networking techniques, showing early start, late start, early finish and late finish dates. No work shall be programmed to begin on site before the relevant late finish date of the periods for the employer’s representative’s approval or consent.

The contractor shall, whenever required by the employer’s representative, provide in writing, for information, a general description of the arrangements and methods which the contractor proposes to adopt for the execution of the works. No significant alteration to the programme, or to such arrangements and methods, shall be made without informing the employer’s representative. If the progress of the works does not conform to the programme, the employer’s representative may instruct the contractor to revise the programme, showing the modifications necessary to achieve completion within the time for completion.

4.14 Progress Report
Monthly progress reports shall be prepared by the contractor and submitted to the employer’s representative in 2 copies. The first report shall cover the period upto the end of the calendar month after that in which the commencement date occurred; reports shall be submitted monthly thereafter, each within 30 days of the last day of the period to which it relates. Reporting shall continue until the contractor has completed all work, which is known to be outstanding at the completion date stated in the taking-over certificate for works. Each report shall include:

a. Photographs and detailed descriptions of progress, including each stage of design, procurement, manufacture, delivery to site, construction, erection, testing and commissioning;
b. Charts showing the status of construction documents, purchase orders, manufacture and construction.
c. For the manufacture of each main item of plant and materials, the name of manufacturer, manufacture location, percentage progress and the actual or excepted date of commencement of manufacture, contractor’s inspections, tests and delivery;
d. Records of personnel and contractor’s tests and delivery.
e. Copies of quality assurance documents, test results and certificates of materials.
f. Safety statistics, including details of any hazardous incidents and activities relating to environmental aspects and public relations; and
g. Comparisons of actual and planned progress, with details of any aspects which may jeopardize the completion in accordance with the contract, and the measures being (or to be) adopted to overcome such aspects.

4.15 Contractor’s Equipment
Unless otherwise stated in Part II (Special Conditions), the contractor shall provide all contractor’s equipment necessary to complete the works. All contractor’s equipment shall, when brought on the site, be deemed to be exclusively intended for the execution of the works. The contractor
shall not remove from the site any such contractor’s equipment without the consent of the employer’s representative.

4.16 **Safety Precautions**
The contractor shall comply with all applicable safety regulations in his design, access arrangements and operations on site. The contractor shall, from the commencement of work on site until taking over by the employer, provide:
(a) Fencing, lighting, guarding and watching of the works, and
(b) Temporary roadways, footways, guards and fences which may be necessary for the accommodation and protection of owners and occupiers of adjacent area, the public and others.

4.17 **Protection of the environment**
During construction, the contractor shall take all reasonable steps to protect the environment (both on and off the site) and to limit damage and nuisance to people and properly resulting from pollution, noise and other results of his operations. The contractor shall ensure that air emissions, surface discharges and effluent from the site during the contract period shall not exceed the values indicated in the employer’s requirements, and shall not exceed the values prescribed by law.

4.18 **Electricity, Water and Gas**
The contractor shall be entitled to use for the purposes of the works such supplies of electricity, water, gas and other services as may be available on the site and of which details are given in the employer’s requirements. The contractor shall pay the employer at the prices stated. The quantities consumed shall be determined by the Employer’s representative, who shall include the amounts due as deductions in Interim and final payment certificates. The contractor shall, at his risk and cost, provide any apparatus necessary for such determination and for his use of these services.

4.19 **Clearance of Site**
During the execution of the works, the contractor shall keep the site free from all unnecessary obstruction, and shall store or dispose of the contractor’s equipment or surplus materials. The contractor shall clear away and remove from the site any wreckage, rubbish or temporary works no longer required.

Upon the issue of any taking-over certificate, the contractor shall clear away and remove, from the part of the site and works to which such taking-over certificate refers, all contractor’s equipment, surplus materials, wreckage, rubbish and temporary works. The contractor shall leave such part of the site and the works in a clean and safe condition to the satisfaction of the employer’s representative. Except that, the contractor shall be entitled to retain on site, until the expiry of the contract period, such contractor’s equipment, materials and temporary works as required by him for the purpose of fulfilling his obligations under the contract.

If the contractor fails to remove, by 28 days after the issue of the performance certificate, any remaining contractor’s equipment, surplus material, wreckage, rubbish and temporary works, the employer may sell or otherwise dispose of such items. The employer shall be entitled to retain, from the proceeds of such sale, a sum sufficient to meet the costs incurred in connection with the sale or disposal, and in restoring the site. Any balance of the proceeds shall be paid to the contractor. If the proceeds of the sale are insufficient to meet the employer’s costs, the outstanding balance shall be recoverable from the contractor by the employer.

4.20 **Security of the site**
Unless otherwise stated:
(a) The contractor shall be responsible for keeping unauthorized persons off the site, and
(b) Authorized persons shall be limited to the employees of the contractor, employees of his sub contractors and persons authorized by the employer or the employer’s representative.

4.21 Contractor Operations on site
The contractor shall confine his operations to the site and any additional areas which may be provided by the contractor and agreed by the employer as forming part of the site. The contractor shall take all necessary precautions to keep his personnel and equipment within the site and such additional areas, and to keep and prohibit them from encroaching on adjacent land.

5. Design
5.1 General Obligations
The contractor shall carry out, and be responsible for, the design of the works. Design shall be prepared by qualified designers who are engineer or other professionals who comply with the criteria (if any) stated in the employer’s requirements. For each part of the works, the prior consent of the employer’s representative shall be obtained to the designer and design sub conductor, if they are not named as such in the contract. The obligations of designers and design subcontractors shall be undertaken and performed on behalf of the contractor in accordance with the contract. Nothing contained in the contract shall create any contractual relationship or professional obligations between any designer, or a design subcontractor, and the employer.

The contractor holds himself, his designers and design subcontractors as having the experience and capability necessary for the design. The contractor undertakes that the designers shall be available to attend discussions with the employer’s representative, at all reasonable times during the contract period.

5.2 Construction Documents
The contractor shall prepare construction documents in sufficient details to satisfy all regulatory approvals, to provide suppliers and construction personnel sufficient instruction to execute the works, and to describe the operation of the completed works. The employer’s representative shall have the right to review and inspect the preparation of construction documents, wherever they are being prepared.

In accordance with the details (if any) specified in the employer’s requirements, the contractor shall submit his proposed construction documents for the employer’s representative’s approval. For each part of the works, construction shall not commence prior to receipt of such approval to the relevant proposed construction documents, and shall be in accordance with such construction documents.

The contractor shall notify the employer’s representative if the contractor wishes to modify any design or document to which approval has previously been given, and shall submit revised documents to the employer’s representative for further approval.

If the employer’s representative instructs that further construction documents are necessary for carrying out the works, the contractor shall upon receiving the employer’s representatives’ instructions prepare such construction documents. Errors, omissions, ambiguities, inconsistencies, inadequacies and other defects shall be rectified by the contractor at his cost.

5.3 Contractor’s Undertaking
The contractor undertakes that, if legally and physically possible, the design, the execution documents, the execution and the completed works will be in accordance with the following, in order to priority:
(a) The law in the country, and 
(b) The documents forming the contract, as altered or modified by variations.

5.4 **Technical standards and Regulations**
The design, the construction documents, the execution and the completed works shall comply with
the country’s national specifications, technical standards, building, construction and environmental
regulations, regulations applicable to the product being produced from the works, and the standards
specified in the employer’s requirements, applicable to the contractor’s proposal and schedules, or
defined by law. References in the contract to such specifications and other matters shall be
understood to be references to the edition applicable on the base date, unless stated otherwise. If
substantially changed or new applicable national specifications, technical standards or regulations
come into force after the base date, the contractor shall submit proposals for compliance to the
employer’s representative. In the event that the employer’s representative determines that such
proposals constitute a variation, he shall then initiate a variation to the Authorities, NIPER, S.A.S.
Nagar.

5.5 **Samples**
In accordance with the details specified in the employers’ requirements, the contractor shall submit
his proposed samples for the employer’s representative’s approval, together with any relevant
information. The contractor shall also submit, for the employer’s representative’s approval,
manufacturer’s standard sample of materials (with relevant information) and any additional samples
instructed by the employers’ representative. All these samples shall be labeled as to origin and
intended use in the works. For each part of the works, construction shall not commence prior to
receipt of such approval to the relevant samples.

5.6 **As-built drawings**
The contractor shall prepare, and keep up-to-date, a complete set of “as-built” records of the
execution of the works, showing the exact “as-built” locations, sizes and details of the work as
executed, with cross references to relevant sizes and details of the work as executed, with cross
references to relevant specifications and data sheets. These records shall be kept on the site and shall
be used exclusively for this purpose. Two copies shall be submitted to the employer”. Representative
prior to the commencement of the Tests on completion.

In addition, the contractor shall prepare and submit to the employer’s representatives “as built
drawings” of the works, showing all works as executed. The drawings shall be prepared as the works
proceed, and shall be submitted to the employer’s representative for his inspection. The contractor
shall obtain the consent of the employer’s representative as to their size, the referencing system, and
other pertinent details.

Prior to the issue of any taking over certificate, the contractor shall submit to the employer’s
representative one microfiche copy, one full size original copy and six printed copies of the relevant
“as built drawings”, and any further construction documents specified in the employer’s
requirements. The works shall not be considered to be completed for the purposes of taking over
until such documents have been submitted to the employer’s representative.

5.7 **Operation and Maintenance Manuals**
Prior to commencement of the tests on completion, the contractor shall prepare, and submit to the
employer’s representative, operation and maintenance manuals in accordance with the employer’s
requirement and in sufficient details for the employer to operate, maintain, dismantle, reassemble,
adjust and repair the works. The works shall not be considered to be completed for the purposes of
taking over until such operation and maintenance manuals have been submitted to the employer’s representative.

5.8 Error by Contractor
If errors are found in the execution /construction documents, they and the works shall be corrected at the contractor’s cost.

5.9 Patent Rights
The contractor shall indemnify the employer against all claims of infringement of any patent, registered design, copyright, trademark or trade name or other intellectual property right, if;
(a) The claim or proceedings arise out of the design, construction, manufacture or use of works;
(b) The infringement (or allegation of infringement) was not the result of part (or all) of the works being used for a purpose other than that indicated by, or reasonably to be inferred from, the contract;
(c) The infringement (or allegation of infringement) was not the result of part (or all) of the works being used in association or combination with anything not supplied by the contractor, unless such association or combination was disclosed to the contractor prior to the Base Date or is stated in the contract; and
(d) The infringement (or allegation of infringement) was not the unavoidable result of the contractor’s compliance with the employer’s requirements.

The contractor shall be promptly notified of any claim under this sub-clause made against the employer. The contractor may, at his cost, conduct negotiations for the settlement of such claim, and any litigation or arbitration that may arise from it. The employer or the employer’s representative shall not make any admission which might be prejudicial to the contractor, unless the contractor has failed to take over the conduct of the negotiations, litigation or arbitration within reasonable time after having been so requested.

Except to the extent that the employer agrees otherwise, the contractor shall not make any admission which might be prejudicial to the employer, until the contractor has given the employer such reasonable security as the employer may require. The security shall be for an amount, which is an assessment of the compensation, damage, charges and costs for which the employer may become liable, and to which the indemnify under this sub clause applies.

The employer shall, at the request and cost of the contractor, assist him in contesting any such claim or action, and shall be repaid all reasonable costs incurred.

6. Staff and Labour

6.1 Engagement of staff and Labour
The contractor shall make his own arrangements for the engagement of all staff and labour, local or otherwise, and for their payment, housing, feeding and transport.

6.2 Rates of Wages
The contractor shall pay rates of conditions of wages, and observe labour, as favourable as those established for the trade or industry where the work is carried out. If no such established rates or conditions are applicable, the contractor shall pay rates of wages and observe conditions as favourable as the general level of wages and conditions observed by employers whose trade or industry is similar to that of the contractor.

6.3 Persons in the Service of others
The contractor shall not recruit, attempt to recruit, his staff and labour from against persons in the service of the employer or the employer’s representative.

6.4 Labour Laws
The contractor shall comply with all the relevant labour laws applying to his employees, and shall duly pay and afford to them all their legal rights. The contractor shall require all such employees to obey all applicable laws and regulations concerning safety at work.

6.5 Working Hours
No work shall be carried out on the site outside the normal working hours stated or on the locally recognized days of rest, unless specified by Engineer-in-charge, NIPER, SAS Nagar.

(a) The contract so provides,
(b) The work is unavoidable, or necessary for the saving of life or property or for the safety of the works, in which case the contractor shall immediately advise the employer’s representative, or
(c) The employer’s representative gives his consent.

6.6 Facilities for staff and Labour
Unless otherwise stated in Part II (Special Conditions) contractor shall provide and maintain all necessary accommodation and welfare facilities for his (and his subcontractor’s) staff and labour. The contractor shall also provide the facilities specified in the employer’s requirement, for the employer’s and employer’s representative’s personnel. The contractor shall not permit any of his employees to maintain any temporary or permanent living quarters within the structures forming part of the works.

6.7 Health and Safety
Precautions shall be taken by the contractor to ensure the health and safety of his staff and labour. The contractor shall, in collaboration with and to the requirements of the local health authorities, ensure that medical staff, first aid facilities, sick bay and ambulance service are available at the accommodation and on the site at all times, and that suitable arrangements are made for all necessary welfare and hygiene requirements and for the prevention of epidemics. The contractor shall maintain records and make reports concerning health, safety and welfare of persons, and damage to property, as the employer’s representative may reasonably require.

The contractor shall appoint a member of his staff at the site to be responsible for maintaining the safety, and protection against accidents, of personnel on the site. This person shall be qualified for his work and shall have the authority to issue instructions and take protective measures to prevent accidents. They contractor shall send, to the employers’ representative, details of any accidents as soon as possible after its occurrence.

6.8 Contractor’s Superintendence
The contractor shall provide all necessary superintendence during the design and execution of the works, and as long thereafter as the employer’s representative may consider necessary for the proper fulfilling of the contractor’s obligations under the contract. Such superintendence shall be given by sufficient persons having adequate knowledge of the operations to be carried (including the methods and techniques required, the hazards likely to be encountered and methods of preventing accidents) for the satisfactory and safe execution of the works.

6.9 Contractor’s personnel
The contractor’s shall employ (or cause to be employed) only persons who are careful and appropriately qualified, skilled and experienced in their respective trades or occupants. The employer’s representative may required the contractor to remove (or cause to the removed) any
person employed on the site or works, including the contractor’s representative, who in the opinion of the employer’s representative:

(a) Persist in any misconduct.
(b) Is incompetent or negligent in the performance of his duties.
(c) Fails to conform with any provisions of the contract, or
(d) Persists in any conduct, which is prejudicial to safety, health, or the protection of the environment.

If appropriate, the contractor shall then appoint (or cause to be appointed) a suitable replacement person.

6.10 Disorderly Conduct
The contractor shall at all times take all reasonable precautions to prevent any unlawful, riotous or disorderly conduct by or amongst his staff and labour, and to preserve peace and protection of persons and properly in the neighborhood of the works against such conduct.

6.11 Claims on Manpower and Materials.
No claim of any sort shall be applicable for contractor’s material against theft, damage, loss etc. Any loss to the human lives, accidents, injuries, diseases, death during the period of contract shall be the sole responsibility of contractor. NIPER, S.A.S. Nagar shall not be responsible for the any above claims during the period of contract.

7. Plant, Materials and Workmanship

7.1 Manner of Execution
All plant and materials to be supplied as per O.E.M./ shall be manufactured, wherever required, and all work to be done shall be executed, in the manner set out in the contract. Where the manner of manufacture and execution is not set out in the contract, the work shall be executed in a proper, workman like and careful manner, with properly equipped facilities and non-hazardous materials, and in accordance with recognized good practice.

7.2 Delivery to Site
The contractor shall be responsible for procurement, transport, receiving, unloading and safe keeping of all plant, materials, contractor’s equipment and other things required for the completion of the works.

7.3 Inspection
The employer and the employer’s representative shall be entitled, during manufacture, fabrication and preparation at any places where work is being carried out, to inspect, examine and test the materials and workmanship, and to check the progress of manufacture, of all plant and materials to be supplied under the contract. The contractor shall given them full opportunity to inspect, examine, measure and test any work on site or wherever carried out.

The contractor shall give due notice to the Employer’s representative whenever such work is ready, before packaging, covering up or putting out of view. The employer’s representative shall then either carry out the inspection, examination, measurement or testing without unreasonable delay, or notify the contractor that it is considered unnecessary. If the contractors fails to give such notice, he shall, when required by the employer’s representative, uncover such work and thereafter reinstate and make good at his own cost.
7.4 Testing
If the contract provides for tests, other than the performance tests, the contractor shall provide all documents and other information necessary for testing and such assistance, labour, materials, electricity, fuel, stores, apparatus and instruments as are necessary to carry out such tests efficiently.

The contractor shall agree, with the employer’s representative, the time and place for the testing of any plant and other parts of the works as specified in the contract. The employers’ representative shall give the contractor not less than 24 hours notice of his intention to attend the tests. The contractor shall provide sufficient suitably qualified and experienced staff to carry out the tests specified in the contract.

If the employer’s representative does not attend at the time and place agreed, or if the contractor and the employer’s representative agree that the employer’s representative shall not attend, the contractor may proceed with the tests, unless the employer’s representative instructs y the contractor otherwise. Such tests shall be deemed to have been made in the employer’s representative’s presence.

The contractor shall promptly forward to the employer’s representative has not attended the tests, he shall accept the readiness as accurate. When the specified tests have been passed, the employer’s representative shall endorse the contractor’s test certificate, or issue a certificate to him, to that effect.

7.5 Rejection
If, as a result of inspection, examination or testing, the employer’s representative decides that any plant, materials, design or workmanship is defective or otherwise not in accordance with the contract, the employer’s representative may reject such plant, materials, design or workmanship and shall notify the contractor promptly, stating his reasons. The contractor shall then promptly make good the defect and ensure that the rejected item complies with the contract.

If the employer’s representative requires such plant, materials design or workmanship to be retested, the tests shall be repeated under the same terms and conditions. If such rejection and re-testing cause the employer to incur additional costs, such costs shall be recoverable from the contractor by the employer, and may be deducted by the employer from any monies due, or to become due, to the contractor.

7.6 Ownership of Plant and Materials
Each item of plant and materials become the property of the employer at whichever is the earlier of the following times:
(a) When it is delivered to site.
(b) When by virtue of respective payment clause, the contractor becomes entitled to payment of the value of the plant and materials.
(c) Security and maintaining the equipment and materials delivered shall be the sole responsibility of the contractor till completion of contract period.

8. Commencement, Delays and Suspension

8.1 Commencement of Works
The contractor shall commence the design and execution of the works as soon as is reasonably possible after the receipt of the order to this effect from the institute

8.2 Time for Completion
The whole of the work, and each section (if any), shall be completed and shall have passed the Tests on completion within the time for completion for the works or such section (as the case may be).

8.3 Extension of Time for Completion
The contractor may apply for an extension the time for completion if he is or will be delayed either before or after the time for completion by any of the following causes:
(a) A variation (unless an adjustment to the time for completion is agreed as applicable within tender terms.
(b) A force Majeure event as applicable as per govt orders or natural calamities or otherwise as deemed fit by the Engineer-in-Charge/ Competent Authority.
(c) A cause of delay giving an entitlement to extension of time under these conditions, unless the contractor has not complied with such conditions.
(d) Physical conditions or circumstances on the site, which are exceptionally adverse and were not (by the effective date) foreseeable by an experienced contractor, or
(e) Any delay, impediment or prevention by the employer.

The contractor shall, within 28 days of the start of the event giving rise to the delay, give notice to the employer’s representative of the contractor’s intention to apply for an extension of the time for completion, together with any other notice required by the contract and relevant to such cause. The contractor shall keep such contemporary records as may be necessary to substantiate any application, either on the site or at another location acceptable to the employer’s representative, and such other records as may reasonably by requested by the employer’s representative.

The contractor shall permit the employer’s representative to inspect all such records and shall provide the employer’s representative with copies as required.

Within 28 days of the first day of such delay (or such other period as may be agreed by the employer’s representative), the contractor shall submit full supporting details of his application. Except that, if the contractor can not submit all relevant details within such period because the cause of delay continued for a period exceeding 7 days, the contractor shall submit interim details at intervals of not more than 28 days (from the first day of such delay) and full and final supporting details of his application within 21 days of the last day of delay.

The employer’s representative shall proceed to agree or determine either prospectively or retrospectively such extension of the time for completion as may be due. The employer’s representative shall notify the contractor accordingly. When determining each extension of time, the employer’s representative shall review his previous determination and may revise, but shall not decrease, the total extension of time.

8.4 Rate of Progress
If, at any time, the contractor’s actual progress falls behind the programme, or it becomes apparent that it will so fall behind, the contractor shall submit to the employer’s representative a revised programme taking into account the prevailing circumstances. The contractor shall, at the same time, notify the employer’s representative of the steps being taken to expedite progress, so as to achieve completion within the time for completion.

If any steps taken by the contractor in meeting his obligations under this sub-clause cause the employer to incur additional costs, such costs shall be recoverable from the contractor by the employer, and may be deducted by the employer from any monies due, or to become due, to the contractor.
8.5 Liquidated Damages for Delay
If the contractor fails to comply conditions of tender, the contractor shall pay to the employer the relevant sum stated in the Tender clauses applicable as liquidated damages for such default (which sum shall be the only monies due from the contractor for such default) for every day or part of a day which shall elapse between the relevant time for completion and the date stated in the Taking-Over certificate; except that the total payment shall not exceed the limit of liquidated damages (if any) stated. The employer may, without prejudice to any other method of recovery, deduct the amount of such damages from any monies due, or to become due, to the contractor. In the event of an extension of time being granted, and any over-payment refunded. The payment or deduction of such damages shall not relieve the contractor from his obligation to complete the works, or from the other of his duties, obligations or responsibilities under the contract.

8.6 Suspension of Work
The employer’s representative may at any time instruct the contractor to suspend progress of part or all of the works. During suspension, the contractor shall protect, store, secure and insure such part or the works against any deterioration, loss or damage.

8.7 Consequences of Suspension
If the contractor suffers delay and/ or incurs costs in following the employer’s representative’s instructions under relevant clause of tender, and in resumption of the work, and if such delay and/ or cost was not (by the effective date) foreseeable by an experienced contractor, the contractor shall give notice to the employer’s representative shall proceed in accordance with relevant clause to agree or determine;

(a) Any extension of time to which the contractor is entitled. And shall notify the contractor accordingly. Except that the contractor shall not be entitled to such extension and payment of cost if the suspension is due to a cause attributable to the contractor, or is necessitated by a contractor’s risk as defined.

The contractor shall not be entitled to extension of time for, or payment of the costs incurred in, making good any deterioration, defect or loss caused by faulty design, workmanship or materials, or by the contractor’s failure to take the measures specified.

8.8 Payment for Plant and Materials in Event of Suspension
The contractor shall be entitled to payment for plant and/ or materials, which have not been delivered to site, if the work on plant or delivery of plant and/ or materials has been suspended for more than 28 days. This entitlement shall be to payment of the value of such plant and/ or materials as at the date of suspension, if:

(a) The contractor has marked the plant and/ or materials as the employer’s property in accordance the employer’s representative instructions, and
(b) The suspension is not due to a cause attributable to the contractor.

The employer shall then, if requested by the contractor, take over the responsibility for protection, storage, security and insurance of such suspended plant and/ or materials; the risk of loss or damage to the suspended works shall then pass to the employer.

8.9 Prolonged Suspension
If suspension has continued for more than 84 days, and the suspension is not due to a cause attributable to the contractor, the contractor may be notice to the employer’s representative require permission to proceed within 28 days. If permission is not granted within that time, the contractor may treat the suspension as an omission of the affected part of the works. If such suspension affects the whole of the works, the institute (NIPER) may terminate his awarded work under relevant clause of tender.
8.10 **Resumption of Work**

After receipt of permission or of any instruction to proceed, the contractor shall, after notice to the employer’s representative, and together with the employer’s representative, examine the works and the plant and materials affected by the suspension. The contractor shall make good any deterioration or defect in or loss of the works or plant or materials, which has occurred during the suspension.

If the employer has taken over risk and responsibility for the suspended works, risk and responsibility shall revert to the contract 14 days after receipt of the permission or instruction to proceed.

9. **Tests on Completion**

9.1 **Contractor’s Obligations**

The contractor shall carry out the Tests on completion in accordance with this relevant clause and after providing the documents. The contractor shall give, to the Employer’s representative, 21 days notice of the date after which the contractor will be ready to carry out the tests on completion. Unless otherwise agreed, such tests shall be carried out within 14 days this date, on such day or days as the employer’s representative shall instruct.

In contractor the results of the Tests on completion, the employer’s representative shall make allowance for the effect of any use of the works by the employer on the performance or other characteristics of the works. As soon as the works, or a section, have passed the tests on completion, the contractor shall provide the employer’s representative and the employer with a certified report of the results of all such tests.

9.2 **Delayed Tests**

If the tests on completion are being unduly delayed by the contractor, the employer’s representative may be notice require the contractor to carry out such tests on such day or days within that period as the contractor may fix and of which he shall give notice to the employer’s representative.

9.3 **Retesting**

If the works, or a section, fail to pass the tests on completion, relevant clause of tender shall apply, and the employer’s representative or the contractor may require such failed tests, and the tests on completion on any related work, to be repeated under the same terms & conditions.

9.4 **Failure to Pass Tests on Completion**

If the works, or a section, fail to pass the Tests on completion, the employer’s representative shall be entitled to:

(a) Order further repetition of tests on completion;
(b) Reject the works or section (as the case may be), in which event the employer shall have the same remedies against the contractor; or
(c) Issue a taking-over certificate, if the employer so requires, the contract price shall then be reduced by such amount as may be agreed by the employer and the contractor (in full satisfaction of such failure only), and the contractor shall then proceed in accordance with his other obligations under the contract.
10. Completion of Work

10.1 Taking-Over Certificate
The works shall be taken over by the employer when they have been completed in accordance with the contract (except as described in paragraph (a) below), have passed the tests on completion and a taking-over certificate for the works has been issued, or has deemed to have been issued in accordance with this sub-Clause. If the works are divided into sections, the contractor shall be entitled to apply for a taking over certificate for each section.

The contractor may apply by notice to the employer’s representative for a taking over certificate not earlier than 28 days before the works or section (as the case may be) will, in the contractor’s opinion, be complete and ready for taking over. The employer’s representative shall, within 28 days after the receipt of Contractor’s application.

(a) Issue the taking-over certificate to the contractor, stating the date on which the works or section were completed in accordance with the contract (except for minor outstanding work that does not affect the use of the works or section for their intended purpose) including passing the Tests on completion; or
(b) Reject the application, giving his reasons and specifying the work required to be done by the contractor to enable the taking over certificate to be issued; the contractor shall then complete such work before issuing a further notice this sub-clause.

10.2 Use by Employer
The Employer shall not use any part of the works unless the employer’s representative has been issued for any part of the works (other than a section), the liquidated damages for delay in completion of the remainder of the works (and of the section of which it forms apart) shall, for any period of delay after the date stated in such taking-over certificate, be reduced in the proportion which the value of the part so certified bears to the value of the works or section (as the case may be); such values shall be determined by the employer’s representative in accordance with the relevant clause. The provisions of this paragraph shall only apply to the rate of liquidated damages and shall not affect the limit of such damages.

10.3 Interference with Test on Completion
If the contractor is prevented from carrying out the Tests on completion by a cause for which the employer (or another contractor employed by the employer) is responsible, the employer shall be deemed to have taken over the works or section (as the case may be) on the date when the tests on completion would otherwise have been completed. The employer’s representative shall then issue a taking over certificate accordingly, and the contractor shall carry out the tests on completion as soon as practicable, before the expiry of the contract period.

The employer’s representative shall require the Tests on completion to be carried out by 28 days’ notice and in accordance with the relevant provisions of the contract. If the contractor incurs additional cost as a result of this delay in carrying out the Tests on completion. Such cost shall be borne by the contractor.

11. Performance Tests

11.1 Employer’s Obligations
If Performance Tests are specified in the contract, this Clause shall provide the necessary labour, material, electricity, fuel and water, and shall carry out the Performance Tests in accordance with the
manuals provided by the Contractor and such guidance as the contractor may be required to give during the course of such tests.

Unless otherwise agreed, such Tests shall be carried out within 30 days after this date, on the day or days determined by the Employer. If the contractor does not attend at the time and place agreed, the employer may proceed with the Performance Tests, which shall be deemed to have been made in the contractor’s presence, and the contractor shall accept the readings as accurate.

The results of the Performance Tests shall be complied and evaluated by the Employer. Any effect on the results of the Performance Tests which can reasonably be shown to be due to the prior use of the works by the employer shall be taken into account in assessing such results.

11.2 Retesting
If the works, or a section, fail to pass the Performance Tests, the Employer may require such failed tests, and the Performance Tests on any related work, to be repeated under same terms and conditions, if such failure and retesting result from a default of the contractor and cause the employer to incur additional costs, such cost shall be recoverable from any monies due, or to become due, to the contractor.

11.3 Failure to Pass Performance Tests
If the following conditions apply, namely:
(a) The works, or a section fail to pass any or all of the Performance Tests,
(b) The relevant sum payable a liquidated damages for such failure is stated (or its method of calculation is defined, and
(c) The contractor pays such relevant sum to the NIPER, during the contract period.

Then the works or such section shall be deemed to have passed such Performance Tests.
If the works, or a section, fail to pass a Performance Test and the contractor is consequences proposes to make any adjustment or modification thereto, the Employer’s representative may instruct the contractor that the Employer does not wish such adjustment or modification to be made until a time that is convenient to the employer. In such event, the contractor shall remain liable to carry out the adjustment or modification, and to satisfy such Test within a reasonable time of being notified to do so by the Employer’s Representative.

12. Defect Liability

12.1 Completion of Outstanding Works and Remedial Defects
In order that the construction documents and the works shall be in the condition required by the Contract (fair wear and tear excepted) at, or as soon as practicable after, the expiry of the contract period, the contractor shall:

(a) Complete any work which is outstanding on the date stated in a Taking-Over Certificate, as soon as practicable after such date,
(b) Execute all works of amendment, reconstruction, and remedying defects or damage, as may be instructed by the Employer or the Employer’s Representative during the contract period.

If any such defect appears or damage occurs, the Employer or the Employer’s Representative shall promptly notify the contractor in writing.

12.2 Cost of Remedial Defects
All work shall be executed by the contractor at his own cost, if the necessity for such work is due to:
(a) The design of the works.
(b) Plant, materials or workmanship not being in accordance with the contract or
(c) Failure by the contractor to employ with any of his other obligations.

12.3 Failure to Remedy Defects
If the contractor fails to remedy any defect or damage within a reasonable time, the Employer’s Representative may fix a date on or by which to remedy the defect or damage, and give the contractor reasonable notice of such date. If the contractor fails to remedy the defect or damage by such date, the employer may (at his sole discretion):

(a) Carry out the work himself or by other, in a reasonable manner and at the contractor’s risk and cost, but the contractor’s shall have no responsibility for such work: the costs properly incurred by the Employer in remedying the defect or damage shall be recoverable from the Contractor by the Employer;

(b) require the Employer’s Representative to determine and certify a reasonable reduction in the contract price; or

(c) if the defect or damage is such that the Employer has been deprived of substantially the whole of the benefit of the works or parts of the works, terminate the contract in respect of such parts of the works, terminate the contract in respect of such parts of the works as can not be put the intended use: the Employer shall then be entitled to recover all sums paid for such parts of the works together with the cost of dismantling the same, clearing the site and returning plant and materials to the contractor, or otherwise disposing of them in accordance with the contractor’s instructions.

12.4 Removal of Defective Work
If the defect or damage is such that it cannot be remedied expeditiously on the site, the contractor may, with the consent of the Employer’s Representative or the Employer, remove from the site for the purposes of repair any part of the works which is defective or damaged.

12.5 Further Tests
If the rectification of any defect or damage is such that it may affect the performance of the works, the Employer may require that Tests on Completion or Performance Test, or both, be repeated to the extent necessary. The requirement shall be made by notice within 28 days after the replacement or renewal.

12.6 Right Access
Until the Performance Certificate has been issued, the Contractor shall have the right of access to all parts of the works and to records of the working and performance of the works, except as may be inconsistent with any reasonable security restrictions by the organizations responsible for operating the works.

12.7 Unfulfilled obligation
After the Performance Certificate has been issued, the contractor and the Employer shall remain liable for the fulfillment of any obligation, which remains unperformed at that time. For the purposes of determining the nature and extent of any such obligation, the contract shall be deemed to remain in force.

13. Contract Price and Payment

13.1 The Contract Price
(a) payment for the works shall be made as per payment terms applicable
(b) the Contract Price shall not be adjusted for changes in the cost of labour, materials or other matters;
(c) the contractor shall pay all duties and taxes in consequence of his obligation under the contract, and the Contract Price shall not be adjusted for such costs.

(d) any quantities, which may be set out in a Schedule are only estimated quantities and are not to be taken as the actual and correct quantities of the works to be executed by the contractor in fulfilling of his obligations under the contract; and

(e) any quantities, prices or rates of payment per unit quantity which may be set in a Schedule are only to be used for the purpose stated in such schedule.

If any part of the works is to be paid according to quantity supplied or work done, the provisions for measurement and valuation shall be as stated in Part II (Special Conditions)

13.2. Advance Payments

No advance payment shall be applicable in any case. eligible contractor shall be awarded LOI/order for the tendered works.

14. Variation Procedure

14.1 The contractor shall submit, after having received a request from the employer’s representative prior to any variation being instructed:

(a) A description of the proposed design and/ or work to be performed and a programme for its execution.

(b) The contractor’s proposal for any necessary modifications to the programme, and

(c) The contractor’s proposal for adjustment to the contract price, time for completion and/ or modification to the contract.

After receipt of such proposal the employer’s representative shall respond with his approval, rejection or comments. If a variation is to be carried out, the employer’s representative shall proceed in accordance with relevant clause to agree or determine adjustments to the contract price, time for completion and schedule of payments.

14.2 Payments currency:

The payment to the contractor shall be in Indian rupee only. Foreign currency /exchange options are not acceptable.

15 Default of Contractor

15.1 Notice to Correct

If the contractor fails to carry out any of his obligations, or if the contractor is not executing the works in accordance with the contract, the employer’s representative may give notice to the contractor requiring him to make good such failure and remedy the same.

15.2 Termination

If the contractor:

(a) Fails to comply within a reasonable time,

(b) Abandons or repudiates the contract:

(c) Without reasonable excuse fails:

   (i) To commence the works promptly,

   (ii) To proceed with the works in accordance with Clause 8, or

   (iii) To demonstrate that sufficient design capability is employed in the design of the works to achieve completion within the time for completion.
(iv) Becomes bankrupt or insolvent, goes into liquidation, has a receiving or administration order made against him, compounds with his creditors, or carries on business under a receiver, trustee or manager for the benefit of his creditors, or if any act is done or event occurs which (under any applicable law) has a similar effect to any of these acts or events.

(v) Fails to comply with a notice issued as per relevant clause within 28 days after having received it, or

(vi) Assigns the contract or subcontracts the works without the required consent.

Then the employer may, after having given 14 days’s notice to the contractor, terminate the contractor’s employment under the contract and expel him from the site. The contractor shall then deliver all construction documents, and other design documents made by or for him, to the employer’s representative. The contractor shall not be released from any of his obligations or liabilities under the contract. The rights and authorities conferred on the employer and the employer’s representative by the contract shall not be affected.

The employer may upon such termination complete the works himself and/ or by any other contractor. The employers or such other contractor may use for such completion so much of the construction documents, other design documents made by or on behalf of the contractor, contractor’s equipments, temporary works, plant and materials as he or they may think proper. Upon completion of the works, or at such earlier date as the employer’s representative thinks appropriate, the employer’s representative shall given notice that the contractor’s equipment and temporary works will be released to the contractor at or near the site. The contractor shall remove or arrange removal of the same from such place without delay and at his cost.

If it is found that the employer was not entitled to termination under this sub clause, the contractor shall be deemed to have been terminated as per relevant clause.

16. **Rights, Remedies and Powers**

**Determination of contract due to Contractor’s Default:**

If the Contractor:

16.1 Abandons the Contract.

16.2 At any time defaults in proceeding with the works with due diligence and continues to do so after a notice in writing of 7 days from the Engineer-in-charge/ authorized officials; or

16.3 Commits default in complying with any of the terms and conditions of the Contract and does not remedy it or take effective steps to remedy it within 7 days after a notice in writing is given to him in that behalf by the Engineer; or

16.4 Persistently disregards the instructions of the Engineer-in-charge / authorized officials or contravenes any provision of the Contract; or

16.5 Fails to remove materials from the Site or to pull down and redo the work after receiving from the Engineer notice to the effect that the said materials or works have been rejected; or

16.6 Fails to complete with work on or before the stipulated date (s) of completion and does not complete them within the period specified in a notice given in writing in that behalf by the Engineer; or

16.7 Offers or gives or agrees to give to any person in the NIPER’s service or to any other person on this behalf, any gift or consideration of any kind as an inducement or reward for doing or forbearing to do or for having done or forborne to do any act in relation to the obtaining or execution of this or any other Contract for the NIPER; or

16.8 Shall enter into a contract with the NIPER in connection with which commission has been paid or agreed to be paid by him or to his knowledge unless the particulars of any such commission and the terms of payment thereof have previously been disclosed in writing to the NIPER/Engineer-in-Charge.
16.9 Shall obtain a Contract with the Company as a result of ring tendering or other non-bonafide methods of competitive tendering; or
16.10 Being an individual or if a firm, any partner thereof, shall at any time be adjudged insolvent or have a receiving order for administration of his estate mad against him or shall take any proceedings for liquidation or composition (other than a voluntary liquidation for the purpose of amalgamation or reconstruction) under any Insolvency Act for the time being in force or make any conveyance or assignment of his effects or composition or arrangement for the benefit of his creditors purport so to do, or if any application be made under any Insolvency Act for the time being in force for the sequestration of his estates or if a trust deed be executed by him for benefit of his creditors; or
16.11 Being a NIPER, shall pass a resolution or the Court shall make an order for liquidation of its affairs, or a receiver or manager on behalf of the debenture holders shall be appointed or circumstances shall arise which entitle the Court or debenture holders to appoint a receiver or manager; or
16.12 Shall suffer an execution being levied on his goods and allow it to be continued for a period of 21 days; or
16.13 Assigns, transfers, sub-lets (engagement of labour on a price-work basis or of labour with materials not to be incorporated in the work, shall not be deemed to be subletting) or attempts to assign, transfer or sub-let the entire works or any portion thereof without the prior written approval of the NIPER; the NIPER may, without prejudice to any other right or remedy which shall have accrued or shall accrue thereafter to the NIPER by written notice determine the contract either as a whole or in part.
16.14 Upon such determination of the Contract either in whole or in part, the Security Deposit with the NIPER in respect of the Contract shall stand forfeited to the NIPER without in any way affecting the Rights of the NIPER under clause indicated below.

17. Rights of the NIPER after determination of the Contract due to Contractor’s Default:
17.1.1 The Engineer-in-charge shall on such determination of the Contract have powers to:
17.1.2 Take possession of the site and any materials, spares, implements, stores etc., thereon; and/or
17.1.3 Carry out the incomplete work by any means at the risk and cost of the Contractor.
17.1.4 On determination of the Contract in full or in part; the Engineer shall determine the quantum of amount, if any, that is recoverable from the Contractor for completion of the works or part of the works or in case the works or part of the works is not to be completed, the loss or damage suffered by the NIPER. In determining the amount, credit shall be given to the Contractor for the value of the work executed by him upto the time of cancellation or the value of Contractor’s materials taken over and incorporated in the work. In order to measure the work completed fill the date of determination and the Contractor’s materials to be taken over, the Engineer-in-charge shall give 7 days notice to the Contractor requiring him to be present so as to record the details of work in his presence. If the Contractor fails to be present in response to the notice, the recording of the details of work shall be proceeded with ex-parte and the details of work as recorded shall be binding on the Contractor.
17.1.5 The NIPER shall have the right to use Contractor’s plant, machinery and material on the balance works but shall not in any way be responsible for any damage or loss of the same and the Contractor shall not be entitled to any compensation there for.
17.1.6 Any excess expenditure incurred or to be incurred by the NIPER in completing the works or part of the works or the excess loss or damages suffered or may be suffered by the NIPER as aforesaid after allowing necessary credits, shall be recovered from any moneys due to the Contractors on any account and if such moneys are not sufficient, the Contractor shall be called upon in writing to pay the same within 30 days.
17.1.7 If the Contractor shall fail to pay the required sum within the aforesaid period of 30 days, the Engineer-in-Charge shall have the right to sell any or all of the Contractor’s unused materials, machinery, implements, temporary storage area, spares etc., and apply the proceeds of sale thereof towards the satisfaction of any sums due from the Contractor under the Contract and if thereafter be any balance still outstanding from the Contractor, the Contractor shall, upon demand, pay the Company the money due and it shall be deemed as a debt due by the contractor to the NIPER and shall be recovered accordingly.

17.1.8 Any sums in excess of the amounts due to the NIPER and unsold materials, etc. shall be returned to the Contractor, it is always understood that if the actual cost of completion by the NIPER of the balance works or part of the work is less than the amount which the contractor would have become eligible had he completed the works or part of the works under the terms of contract, the contractor shall not be entitled to claim such benefit to his advantage.

18. Cancellation of Contract by the NIPER
18.1.1 If it is time after the commencement of work, the NIPER shall decide that the whole work or any specific part thereof is not required to be carried out, necessary notice in writing shall be given to the Contractor. The Contractor shall take immediate action to stop all activity relating to the cancelled work. The Contractor shall have no claim to any payment of compensation or otherwise whatsoever on account of any profit or advantage which he might have derived from the execution of work in full but which he did not derive in consequence of the foreclosure of the whole or part of the work.

18.1.2 The Contractor shall be paid at contract rates the full amount for the works executed at site (less any amount due to the NIPER) and, in addition, a reasonable amount to cover the cost incurred on materials which will not be of any alternative use to the Contractor (which shall then become the property of the NIPER), transportation costs in respect of the tools, spares, plant and materials retained by the Contractor from the work place to his permanent stores or any other works, whichever is less, and a reasonable proportion of the expenditure incurred on preliminary works such as spares, refrigerants, machinery etc. All payments other than at Contractor rates shall be based on a detailed claim to be submitted by the Contractor supported by cash vouchers or other documents covering the incurrence of such costs. If called upon by the Engineer-in-Charge, the Contractor shall also furnish his Books of Accounts and other documents which the Engineer-in-Charge may consider necessary to enable him to certify the reasonableness of the amount payable under this clause.

18.1.3 The materials supplied by the NIPER, which are rendered surplus on account of the cancellation, shall be returned promptly by the Contractor subject to normal wastages allowed under the Contract. He shall be debited with the losses due to any deterioration or damage, which might have been caused while the materials were in the custody of the Contractor. If so directed, he shall transport such materials to the NIPER stores and shall be paid for such transport at a reasonable compensation.

19. Settlement of Disputes
Decision by the NIPER and Engineer-in-Charge
19.1 To prevent disputes and litigations, it shall be accepted as an inseparable part of the Contract.
19.2 That in matters regarding materials, workmanship, removal of improper work, interpretation of Contract, drawings and specifications, mode of procedure and carrying out the work, the decision of the NIPER shall be final and binding on the Contractor and if any technical question which may arise touching the Contract, the Engineer-in-Charge’s decision shall be final and conclusive. The claim, if any, arising out of any decision given by the Engineer-in-Charge shall be sent in writing to the Engineer-in-Charge within 15 days from the date of such decision given by the Engineer-in-Charge and if the claim is not accepted and the Contractor is aggrieved by such non-acceptance, such dispute may be referred by him for Arbitration.
20. **Arbitration**

20.1.1 In case any dispute or difference shall arise between the NIPER (or the Engineer-in-Charge on their behalf) and the Contractor on any matter within the scope of this Contract except as to matters entirely left to the decision of the NIPER or the Engineer-in-Charge under the provisions of this Agreement, dispute or difference and such disputes or difference shall be referred to a sole Arbitrator to be selected by the Contractor from among the panel of three nominees to be indicated by the NIPER at the time of reference of the disputes to arbitration. The award of the Arbitrator shall be final and binding on both parties. The procedure laid down in Indian Arbitration Act of 1996 and the rules made there under from time to time shall apply in the matter of the reference. Only Courts at SAS Nagar (Mohali) shall have jurisdiction to entertain a claim or for enforcement of the award.

20.1.2 Notwithstanding reference of any matter for arbitration, the Contractor shall continue to execute the Contractor in all respects except to the extent such execution itself is the subject matter for the arbitration.

20.1.3 It is a term of the Contract that the party invoking arbitration shall specify the dispute or dispute to be referred to arbitration under this clause together with the amount or amounts claimed in respect of each such dispute.

20.1.4 It is also a term of the Contract that if the Contractor does not make any demand for Arbitrator in respect of any claim(s) in writing within 90 days of receiving the intimation from the NIPER that the bill is ready for payment, the claim of the Contractor will be deemed to have been waived and absolutely barred and the NIPER shall be discharged and released of all liabilities under the Contract in respect of the claims.

20.1.5 If the Contractor fails to perform the Contract or fails to carry out the Contract to the satisfaction of the NIPER, within the period fixed for the purpose or at any time repudiates the Contract before the expiry of such period, The Director, NIPER or any other officer from NIPER, so authorised, may (without prejudice to the right of the NIPER), recover from the Contractor, damages for the breach of Contract, terminate the Contract as a whole or terminate a part of Contract at the risk and cost of the Contractor, without prior notice and get the balance work executed through some other Agency and hold the Contractor liable for all losses for all losses and expenses incurred by the NIPER.

20.1.6 In case of omission of any conditions in this tender documents, the standard govt. rules and regulations shall invariably come into force. However, the decision of The Director, NIPER, S.A.S Nagar shall be final in all the matters concerning with this contract and binding on the Contractor.

20.1.7 The contractor shall fulfill and diligently comply with all the directions in general or specific orders given by NIPER from time to time and all such orders will comprise part of the agreement.

20.1.8 If during the period of contract the contractor is found to be indulging in illegal activities/fraudently handling the records /misbehaving with the Staff of NIPER or not performing the assigned tasks as deemed fit by Engineer-in-charge within the time frame allotted, the contractor shall be debarred with immediate effect from executing the awarded contract at NIPER without giving any notice. The Director NIPER/Engineer-in-charge reserves right to Black List the Contractor from NIPER.

21. **The Bidder should furnish the Certificate.** That I/We hereby declare that I/We have not been blacklisted, debarred/suspended by any Govt./Semi/Corporation/ Pvt. Organisation during the last five years.
And Further that
“I/We undertake and confirm that eligible similar work(s) has/have not been executed through another contractor on back to back basis. Further that, if such a violation comes to the notice of Department then I/We shall be debarred for tendering in NIPER in future forever. Also, if such a violation comes to the notice of Department before date of start of work, The Director, NIPER/ Engineer-in-Charge shall be free to forfeit the entire amount of Earnest Money Deposit/Performance Guarantee”.

(Signatures of Tenderer)
**SECTION IX**

**SPECIAL CONDITIONS OF CONTRACT**

**Special Conditions of Contract**

1. These special conditions shall be read in conjunction with the General Conditions of Contract. In the event of conflict between them, the Special Conditions shall prevail.

**Order of Precedence**

2. In case of any ambiguity or discrepancy the following order of precedence shall be observed.

   (a) Schedule of Quantities.
   (b) Technical Specifications.
   (c) Special Conditions of Contract.
   (d) Drawings.
   (e) General Conditions of Contract.

**Site Particulars**

3. The intending tenderer/contractor shall be deemed to have visited the site and familiarized himself thoroughly with the site conditions before submitting the tender or before signing the contract. Non-familiarity with the site conditions will not be considered a reason either for extra claims or for not carrying out the work in strict conformity with the drawings and specifications.

**Site Office & Storage**

4. Immediately on award of the contract/ LOI, the contractor should within 5 days give a tentative plan and area of requirement for maintaining his office and stores. The contractor may be allowed to construct a site office-cum-stores at the designated place at the discretion of Employer. The cost of such construction and maintenance of the place shall be borne by the contractor. All material issued by the Employer from time to time should be neatly arranged/stacked in the stores. A daily register must be maintained by the contractor in which the daily issue and consumption of materials shall be recorded.

5. The contractor shall be solely responsible for safe custody of the materials. If any damage/ loss/ theft, etc., occurs during the storage, the contractor that shall be recovered from him by the Employer.

6. On completion of the contract, the contractor shall return back all the balance material to the Employer. Any damaged material would not be taken back by the Employer and Employer may recover the cost of the damaged material from the contractor.

7. After the contract is completed, the contractor shall demolish the site office and stores, and clear the place of all debris at no extra cost. However, if required the Employer can retain the site office cum stores for his own use and the contractor shall not ask for any compensation for retaining the premises by the Employer.

**Prices**

8. The prices to be quoted by the intending tenderer/ contractor shall include the installation, testing and commissioning at the site, of all materials and other items (provided by Employer) whatsoever required for carrying out the job to fulfill the intent and purposes as laid down in the specifications and/ or the drawings.

9. The tenderer’s price shall be deemed to include all tax, octroi, works contract Tax, Service Tax and VAT etc that are legally leviable on erection and installation work. Failure to include all leviable taxes and duties will not entitle the contractor to any extra claims from Employer. The contractor’s rate shall remain firm and fixed during the currency of the contract.

**CO-ORDINATION WITH OTHER AGENCIES**

10. The work shall be carried out in such a manner that the work of other agencies operating at the site is not hampered due to any action of the contractor. Proper co-ordination with other agencies will be contractor’s responsibility. Contractor shall ensure that the works of other contractors are not held up due to non-completion of his part of work. In case of any dispute, the decision of Employer’s Representative shall be final and binding on the contractor.
WORKING DOCUMENTS
11. Prior to the completion of the work the contractor shall furnish 4 sets of the following documents:
   (a) Test Certificate.
   (b) Commissioning and testing reports.

MATERIAL & EQUIPMENT
12. The contractor shall be fully responsible for any damage, non performance of equipments/ materials at site till successful completion of works upto contract period and warranty wherever applicable.

ERECTION AND COMMISSIONING
13. The contractor shall carry out the complete erection and commissioning. The contractor shall move all the materials from the place of storage to the site into the plant. All erection tools and tackles as and when required to suit the erection programme shall be provided by the contractor.

TESTING
14. The contractor shall carry out all type of routine tests as per relevant IS and other applicable codes. The representative of Employer shall be free to witness any or all tests if he so desires.
15. On the completion of the installation, the contractors shall arrange to carry out hydro-tests and mechanical trials to the complete satisfaction of the representative of Employer. Any defects or shortcomings found during the tests shall be speedily rectified or made good by the contractor at his own expenses. The final tests reports shall be submitted to the Employer or Employer’s representative.
16. The contractor shall provide all necessary tools, instruments, gauges etc as may be required for conducting the tests. However, Employer shall provide water and power for the tests.
17. If the contractor fails to remedy any defect or damage within a reasonable time, employer’s representative may fix a date on or by which to remedy the defect or damage, and give the contractor reasonable notice of such date. If the contractor fails to remedy the defect or damage by such date, client may (at their sole discretion):
   (a) Carry out the work themselves or by others, in a reasonable manner and at the contractor’s risk and cost, but the contractor shall have no responsibility for such work; The costs properly incurred by Employer or in remedying the defect or damage shall be recoverable from the Employer’s contractor by Employer.
   (b) Require Employer’s Representative to determine and certify a reasonably reduction in the contract price; or
   (c) If the defect or damage is such that Employer have been deprived of substantially the whole of the benefit of the works or parts or the works, terminate the contract in respect of such parts of the works as can not be put to the intended use; Employer shall then be entitled to recover all sums paid for such parts of the works together with the cost of dismantling the same.

18. The Employer reserves the right to operate the complete system, whether or not the plant is taken over after the initial test and commissioning. Any defects found during the initial or running tests shall be removed at a suitable time by the contractor without any extra cost as decided upon by the Employer or the representative of Employer.

GUARANTEE
19. The contractor shall guarantee that all the fabrication and installation work done by him shall be perform satisfactorily. In case of any defect, the contractor shall do necessary correction at no extra cost or alternatively. Employer/ Engineer in charge NIPER shall be entitled to deduct a proportionate amount from payments due to the contractor.

PAYMENT TERMS
20. The payment shall be on running bill basis as per progress of work. Maximum of 4 bills shall be accepted in total during the period of contract. Final bill will be accepted only after final completion of work awarded.
22. Against successful installations at respective locations : balance 20 % of the awarded value on successful installation at site taken on individual basis for each Part-A1, Part A and Part B.
23. Against successful commissioning & Testing at site - Balance 5% of the awarded value taken on individual basis for each Part-A1, Part A and Part B.
24. Against complete submission of test certificates, test reports, performance reports completion reports etc. as per tender –Balance 5% of the awarded value

The Decision of the DIRECTOR, NIPER SAS Nagar shall be final in all matters i.e financial, administrative, Legal etc concerning the contract awarded to agency/contractor.
### SECTION X

#### APPENDIX TO TENDER

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Possession of Site</td>
</tr>
<tr>
<td>2.</td>
<td>Date of Commencement</td>
</tr>
<tr>
<td>3.</td>
<td>Time of completion</td>
</tr>
<tr>
<td>4.</td>
<td>Penalty/ Liquidated damages</td>
</tr>
<tr>
<td>5.</td>
<td>Maximum period for payment</td>
</tr>
<tr>
<td>6.</td>
<td>Period of submitting Final Bills</td>
</tr>
<tr>
<td>7.</td>
<td>Release of retention Money</td>
</tr>
<tr>
<td>8.</td>
<td>Defects liability period</td>
</tr>
<tr>
<td>9.</td>
<td>Performance Security</td>
</tr>
<tr>
<td>10.</td>
<td>Recovery towards of Electricity/ water</td>
</tr>
<tr>
<td>11.</td>
<td>Currency</td>
</tr>
<tr>
<td>12.</td>
<td>Court Jurisdiction</td>
</tr>
<tr>
<td>13.</td>
<td>Language of Contract</td>
</tr>
<tr>
<td>14.</td>
<td>Program</td>
</tr>
<tr>
<td>15.</td>
<td>Insurance for Design</td>
</tr>
</tbody>
</table>
SOQ PART: A 1
SPECIFICATION FOR DEMINERALISED WATER PLANT INCLUDING SAND FILTRATION UNIT

1. SCOPE
This specification covers
a) Design, layout preparation, approval of drawing, fabrication, inspection and testing at delivery site as per the stages of work.
b) The contractor /Agency to submit following reports as per actuals status:
   (i) proposed layout drawings for approval as required at site after award of order within one month.
   (ii) Completion drawings after installation and testing of DM water plant including distribution complete in all respects as per Schedule of quantity.
c) Erection, testing, commissioning with performance guarantee, Warranty and relevant documentation like test reports for filters, resin details, rubber lining certifications, test certificates of all materials/machinery, water quality certificates for filtration unit, DM, Soft water, MB output quality etc for proper records for reference and safe, trouble free and continuous operation of DM water and Soft water plant.
   DM water plant shall comprise of the following hardware components and the initial charge of filtering media and resin:
   a) Raw water pumping system comprising of centrifugal pump, drive- motor & starter to maximum flow required by the system
   b) Mixed Media Sand Filter with internals and piping
   c) Activated Carbon Filter with internals and piping
   d) Strong Acid Cation (SAC) Exchange Column with internals and piping
   e) Strong Base Anion (SBA) Exchange Column with internals and piping
   f) Mixed Bed Polisher Column with internals and piping
   g) Degasser tower with internals
   h) Regeneration system with mode of acid and alkali injection and associates storage tanks for acid and alkali required for regeneration
   i) Instrumentation and control system
   j) Initial charge of resin and filter media.

2. DESIGN BASIS
The design basis for the DM water plant will be based on the following:
Plant capacity:
The table below shows details for the DMW Plant

<table>
<thead>
<tr>
<th>Maximum flow rate</th>
<th>10 m³/h</th>
</tr>
</thead>
<tbody>
<tr>
<td>DMW output per regeneration of Cation exchange and Anion exchange column</td>
<td>200 m³</td>
</tr>
<tr>
<td>DMW output per regeneration of Mixed Bed Unit column (200 m³ X 3 =)</td>
<td>600 m³</td>
</tr>
</tbody>
</table>

Raw water to be treated:
Pallar water / MAPS Reservoir
# WATER ANALYSIS

## RAW WATER ANALYSIS

<table>
<thead>
<tr>
<th>SL NO.</th>
<th>PARAMETER</th>
<th>PALLAR WATER</th>
<th>MAPS RESERVOIR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Colour</td>
<td>*</td>
<td>&lt;10% change euphotic depth</td>
</tr>
<tr>
<td>2.</td>
<td>Odour</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>3.</td>
<td>pH</td>
<td>8.1</td>
<td>8.6</td>
</tr>
<tr>
<td>4.</td>
<td>Electrical Conductivity at 20°C µS/cm</td>
<td>389</td>
<td>295</td>
</tr>
<tr>
<td>5.</td>
<td>Turbidity NTU</td>
<td>*</td>
<td>2.0 – 5.0</td>
</tr>
<tr>
<td>6.</td>
<td>Total dissolved solids mg/lit</td>
<td>256</td>
<td>198</td>
</tr>
<tr>
<td>7.</td>
<td>Total suspended solids mg/lit</td>
<td>0.9</td>
<td>3.5</td>
</tr>
<tr>
<td>8.</td>
<td>Total hardness (as CaCO3) mg/lit</td>
<td>108</td>
<td>94</td>
</tr>
<tr>
<td>9.</td>
<td>Calcium hardness (as CaCO3) mg/lit</td>
<td>58</td>
<td>54</td>
</tr>
<tr>
<td>10.</td>
<td>a) Magnesium hardness (as CaCO3)mg/lit</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>11.</td>
<td>b) Chlorides (as Cl) mg/lit</td>
<td>48</td>
<td>52</td>
</tr>
<tr>
<td>12.</td>
<td>c) Sulphates (as SO4) mg/lit</td>
<td>6.7</td>
<td>10.6</td>
</tr>
<tr>
<td>13.</td>
<td>d) Total alkalinity (as CaCO3) mg/lit</td>
<td>130</td>
<td>124</td>
</tr>
<tr>
<td>14.</td>
<td>e) m-alkalinity (as CaCO3) mg/lit</td>
<td>130</td>
<td>116</td>
</tr>
<tr>
<td>15.</td>
<td>f) p-alkalinity (as CaCO3) mg/lit</td>
<td>0</td>
<td>8.0</td>
</tr>
<tr>
<td>16.</td>
<td>g) Nitrate (as NO3) mg/lit</td>
<td>0.181</td>
<td>0.046</td>
</tr>
<tr>
<td>17.</td>
<td>h) Nitrite (as NO2) mg/lit</td>
<td>0.0065</td>
<td>0.0084</td>
</tr>
<tr>
<td>18.</td>
<td>Biological oxygen demand mg/lit</td>
<td>2.1</td>
<td>3.5</td>
</tr>
<tr>
<td>19.</td>
<td>Chemical oxygen demand mg/lit</td>
<td>1.1</td>
<td>3.0</td>
</tr>
<tr>
<td>20.</td>
<td>Silica dissolved mg/lit</td>
<td>3.9</td>
<td>4.1</td>
</tr>
<tr>
<td>21.</td>
<td>Iron dissolved (as Fe) mg/lit</td>
<td>*</td>
<td>0.1 – 0.4</td>
</tr>
<tr>
<td>22.</td>
<td>Dissolved oxygen mg/lit</td>
<td>3.4</td>
<td>6.4 – 9.2</td>
</tr>
<tr>
<td>23.</td>
<td>Coliforms organisms/100ml</td>
<td>*</td>
<td>150</td>
</tr>
<tr>
<td>24.</td>
<td>Plankton count cells/ml</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>25.</td>
<td>Phosphate mg/lit</td>
<td>0.048</td>
<td>0.025</td>
</tr>
<tr>
<td>26.</td>
<td>Chlorine demand mg/lit</td>
<td>0.8</td>
<td>1.0</td>
</tr>
<tr>
<td>27.</td>
<td>☐ - emitters /ml (4mBq)/l</td>
<td>NIL</td>
<td>&lt;1.08x10^-4</td>
</tr>
<tr>
<td>28.</td>
<td>☐ - emitters /ml (14mBq)/l</td>
<td>NIL</td>
<td>&lt;3.78x10^-4</td>
</tr>
</tbody>
</table>

The above Raw water analysis is indicative and Supplier has to get the actual raw water analysis for design purpose.

**Required output water quality:**

<table>
<thead>
<tr>
<th>No.</th>
<th>Parameter</th>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Electrical Conductivity at 20°C µS/cm2</td>
<td>&lt; 1</td>
</tr>
<tr>
<td>2</td>
<td>Silica as SiO₂ (mg/l)</td>
<td>&lt; 0.05</td>
</tr>
<tr>
<td>3</td>
<td>pH</td>
<td>Neutral (6.8 to 7.2)</td>
</tr>
<tr>
<td>4</td>
<td>Total Dissolve Solids (mg/l)</td>
<td>&lt; 1</td>
</tr>
<tr>
<td>5</td>
<td>Turbidity (ppb)</td>
<td>&lt; 50</td>
</tr>
</tbody>
</table>
Services available at Site:
Oil free compressed air at 6.0 kg/cm². Power supply at 3Φ, 440 V, Civil building for locating the plant: Refer Figure-2: Area layout available for locating DMW unit.

Regeneration chemicals:
DMW plant shall be designed for the regeneration of Cation/Anion resin by the following chemicals.

HNO₃ for Strong Acid Cation Exchange
NaOH for Strong Base Anion Exchanger

Mode of operation:
The DMW plant shall be designed for manual operation.

Description of the system:
The DMW plant of maximum generation rate of 10m³/h is provided for preparation of various chemicals required for the continuous operation of Uranium Oxide Facility (UOF) and for process cooling. Raw water required for the plant shall be supplied from over head raw water storage tank. Treated water from MBU will be stored in DMW storage tank (01 no new of SS 1cum & 01 no existing HDPE tank of 5 cum ) of total cap 6 m³ located in the same area as shown in the area layout. The effluent (regenerant chemicals, rinse and back water etc.) will be collected in the Effluent storage area.

3. SCOPE OF SUPPLY
The scope of supply shall cover following hardware components and the initial charge of filtering media and resin for the DMW plant.
The table below list the hardware required for the DMW plant

<table>
<thead>
<tr>
<th>S No</th>
<th>Item</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1</td>
<td>Raw water pumping system comprising of centrifugal pump, drive-motor &amp; starter to provide maximum flow required by the system.</td>
<td>2 (one working + on stand-by)</td>
</tr>
<tr>
<td></td>
<td><strong>Preferred Make</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pump: Kirloskar Brothers / Johnson/ Grundfos equivalent</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Motor: Kirloskar/Siemens/Crompton/Johnson/Grundfos equivalent</td>
<td></td>
</tr>
<tr>
<td>3.2</td>
<td>Multigrade sand filter with internals, associated piping, valves and initial charge of media.</td>
<td>1</td>
</tr>
<tr>
<td>3.3</td>
<td>Activated Carbon Filter with internals, frontal piping, valves and initial charge of filtering media (Granular Activated Carbon)</td>
<td>1</td>
</tr>
<tr>
<td>3.4</td>
<td>Strong Acid Cation (SAC) Exchange Column with internals associated piping, valves. First charge of SAC resin.</td>
<td>1 Charge</td>
</tr>
<tr>
<td>3.5</td>
<td>Degasser Tower (Air Blower, Packing material and DG water transfer Pump)</td>
<td>1</td>
</tr>
<tr>
<td>3.5</td>
<td>Strong Base Anion (SBA) Exchange Column with internals associated piping, valves. First charge of SBA resin.</td>
<td>1 Charge</td>
</tr>
<tr>
<td>3.6</td>
<td>Mixed bed polished column with internals, associated piping, valves. First charge of Cation resin First charge of Anion resin</td>
<td>1 Charge 1 Charge 1 Charge</td>
</tr>
</tbody>
</table>
### 3.7 Regeneration system
- Acid measuring tank for SAC Exchange: 1
- Column Mixed bed polishing system: 1
- Acid Ejectors: 2
- Caustic measuring tank for SBA Exchange: 1
- Column Mixed Bed polishing Column: 1
- Caustic Ejectors: 2

### 3.8 Maintenance tool kit
1 Set

### 3.9 Interconnecting piping, fittings, valves, accessories, structural pipe, supports etc.
1 Set

### 3.10 Any other equipment or accessories which the supplier feels necessary for the satisfactory performance of the system

<table>
<thead>
<tr>
<th>Instrumentation and Controls * (Refer Figure – I)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>3.11 Pressure gauge range 0 – 7kg/cm²</td>
<td>9 Nos.</td>
</tr>
<tr>
<td>3.12 Differential pressure transmitter</td>
<td>2 nos.</td>
</tr>
<tr>
<td>3.13 Flow totalizer (magnetic and vortex type)</td>
<td>1 each</td>
</tr>
<tr>
<td>3.14 Flow Meter with local display</td>
<td>2 Nos</td>
</tr>
<tr>
<td>3.15 On line pH meter with transmitter (4 – 20 mA) having local display</td>
<td>2 sets</td>
</tr>
<tr>
<td>3.16 Online Conductivity meter with transmitter (4 – 20 mA) having local display.</td>
<td>2 Sets</td>
</tr>
<tr>
<td>3.17 Level gauges</td>
<td>5 Nos.</td>
</tr>
<tr>
<td>3.18 Differential Pressure Gauges</td>
<td>2 Nos.</td>
</tr>
<tr>
<td>3.19 Fully enclosed epoxy painted Instrument panel (floor standing) to house all the above instruments.</td>
<td>1 Nos.</td>
</tr>
<tr>
<td>3.20 Any additional instrumentation required which the supplier feels necessary for the satisfactory performance of the system.</td>
<td></td>
</tr>
<tr>
<td>3.21 MCC panel (3 starter and power for instruments)</td>
<td>1 Nos.</td>
</tr>
</tbody>
</table>

### 4. MATERIAL OF CONSTRUCTION
Material of Construction for SAC, SBA, MB, piping, accessories etc. shall be made of MS pipe lined with virgin grade Rubber lining. The material of construction for Sand bed filter and activated charcoal filter shall be made of MSEP.

### 5. LAYOUT CONSIDERATIONS
The plant is proposed to be located outdoors in an area of 8 m x 5 m (approx.). Bidder has to prepare the layout to fit in the available space.

### 6. DRAWINGS
After placement of Purchase Order the supplier has to submit detailed flow sheet (with stream flow rates, pressure etc.), P&ID (showing all equipment, pipe sizes, MOC details, instrumentation and controls and interlocks), and fabrication drawings indicating Equipment details, SOQ. The same shall be approved by the Niper, SAS Nagar for execution /manufacturing and installation by agency.

### 7. SCHEDULES
The supplier shall clearly indicate a firm time schedule immediately after receiving the purchase order giving the break-up of different activities (as mentioned below) for the job execution from the date of receipt of purchase order.
- Preparation of GA, equipment & piping drawings.
- Submission of these drawings for approval at different stages of fabrication and inspection of equipment / vessel.
- Procurement of raw material / resins, valves, instruments etc.
- Assembly of equipment at supplier place.
- Delivery at site and commissioning.

8. APPROVAL OF FABRICATION DRAWINGS:
Within 30 days from the receipt of order and before proceeding with fabrication, supplier shall submit 3 (Three) copies of fully dimensioned drawings and bill of materials with the following information:
- Specific materials specification from among the tender specification or equivalent
- The welding procedure indicating details of base metal, welding electrodes, joint penetration with dimensions, cleaning methods, number of plates, welding current etc. shall be submitted for purchaser approval.
- Hydrostatic Test pressure based on the design pressure and the specific codes of construction of tank.
- Dimensions and fix up tolerances.
- A design pressure and major structural loading.
- These drawings when approved in writing shall form part of this specification. No fabrication shall commence until the drawings are approved. Any deviation shall be communicated to the purchaser for acceptance / clearance before incorporation of the same in the equipment during the manufacture.

9. APPLICABLE CODES AND STANDARDS
Design, fabrication & installation of the equipment and piping shall be done in accordance with the latest versions of the relevant standards including the following codes:
- No deviations from the specifications or in the applicable standards shall be allowed after placing the purchase order.

10. Pressure vessels and storage tanks:
  a) Design, fabrication and testing of metallic pressure vessels shall confirm to IS- 2825/ ASME Boiler & Pressure Vessel Code Section VIII Div.1, Section IX and Section V.
  b) Pressure vessels shall be designed for at least at pressure equal to the maximum shut-off head of preceding pump plus total suction head of the same pump. Pressure vessels shall also be designed for full vacuum. Test pressure shall be as per applicable design code.
  c) Corrosion allowance shall be 3 mm for unlined vessels and vessels with internal painting.
  d) Minimum nominal thickness of shell, bottom and roof including corrosion allowance shall be 6 mm. Minimum nominal thickness of vessel dished end after forming and including corrosion allowance shall be 6 mm.
  e) Vessels and equipment of inside diameter less than 1 metre shall be provided with girth flanges designed as per code.
  f) All storage tanks shall be provided with drain valve and piping and overflow piping and the same shall be led to the nearest drain sump.
  g) Vessels, tanks and equipment of inside diameter larger than 0.5 metres or height more than 2 metres with design as deemed fit by Engineer-in-charge and as applicable as per site shall be provided with approach ladder to reach the top, handrail at the top and suitable operating platforms for access to manholes, inspection openings and operations and maintenance of valves, instruments etc.
  h) Overflow nozzle size shall be at least one size larger than that of the inlet nozzle.
  i) All equipment shall be skid mounted.

Centrifugal pump and motor:
  a) Raw water feed pump shall be of centrifugal type and shall conform to the requirements of IS-5120.
  b) The pump shall be capable of developing the required total head at rated capacity for continuous operation. The pumps shall operate satisfactorily at any point on the H-Q characteristic curve over a range of 50% to 130% capacity or capacity corresponding to 75% of the total head whichever is lower.
  c) The total head capacity curve shall preferably be continuously rising towards the shut off. In case of unstable (drooping) characteristic the duty point shall be well away from the unstable region. The shut off head shall be at least 110% of the total head.
  d) Pumps shall run smooth without undue noise and vibration. The velocity of vibration shall be within...
4.5 mm / sec. The noise level shall be limited to 85 dBA at a distance of 1.8 M.
e) Impeller shall be made in one piece and securely keyed to the shaft. Means shall be provided to prevent loosening during operation including rotation in reverse direction.
f) The first critical speed of the pump motor shall be at least 30 percent above the operating speed.
g) Replaceable shaft sleeves shall be provided to protect the shaft where it passes through stuffing boxes.
h) Stuffing boxes shall be of such design that they can be repacked without removing any part other than the gland and lantern ring.
i) Pump shall be furnished complete with flexible coupling. Back-pull out pump shall be provided with spacer type coupling.
j) All incidental piping (including valves) required for sealing, lubrication and cooling for stuffing box packing and / or bearing of pump shall be furnished.
k) A directly coupled 3-phase induction motor conforming to the requirements of IS-325 shall drive the pump. The motor shall have suitable degree of protection as IS-4691.
l) Motor shall be sized with motor rating at least 15% higher than the maximum input rating of the driven equipment.
m) Drive motors shall be continuously rated and suitable for working under humid and gaseous conditions. All electrical gadgets, fittings, connections shall be provided as required at site by contractor.
n) Pump and motor shall be mounted on a common base plate.

Piping:
a) The piping design shall satisfy the requirements of applicable section of ASME-ANSI B 31.3.
b) Structural steel for pipe supports and other requirements shall conform to IS 2062.
c) Flanges shall be of 150 # pressure rating as per ANSI B-16.5. Pipe threads shall generally be to ANSI B 2.1 / IS-554. Threaded of pipes shall be done after any bending operations.
d) Pipe lines shall be of MS with corrosive protective coating with Rubber lined as per BS 6374 part V.
e) Where both the internal and external surfaces of the pipe comes in contact with corrosive fluid the piping shall be of MS rubber lined.
f) Velocities in pressurised lines shall not exceed 2.4 metres/second. In pump suction line velocities shall not exceed 1 metre/second.
g) Piping shall be routed to avoid interferences. If interferences are noticed at site, piping shall be suitably modified and rectified by the contractor at no extra cost to the purchaser. Layout shall follow good engineering practice.
h) Effective precautions such as capping or sealing shall be taken to protect ends of all pipes, fittings, valves against ingress of dirt and damage during transit or storage. Flange gasket contact surfaces shall be suitably protected against damage.
i) All piping shall be cleaned and purged with air blast or flushed with water to remove all rust, mill scale etc from inner surface. Rotary wire brush may be used for cleaning of unlined pipes of sizes above 300 mm. The method of cleaning shall be such that no material is left on the inner surface, which may affect the serviceability of the pipe.
j) Piping shall be routed in a manner so as to avoid hindrance of movement of men and materials.
k) Pipeline shall be routed in a manner that it is short and with minimum bends, in plumb when vertical or parallel to walls when horizontal; with necessary slope (1:100 minimum) to avoid any hold up of liquid, as well as to avoid any interference with other piping, equipment and structure.
l) All valves and on-line indicator type instruments shall be located at a height so that they can be conveniently operated or observed. In case the same is not feasible necessary platforms with ladders shall be fabricated and installed by the contractor.

Welding:
a) All SS plates, piping & structural members shall be welded using full Shielded Metal arc welding (SMAW) process.
b) All welding procedures shall be approved by the Engineer prior to start of any welding activity (prefabrication or installation) covered under those procedures. The information contained in each welding procedure specification (WPS) and procedure qualification record (PQR) shall include, but
This requirement is intended to be at least 3:1 taper by grinding. For each procedure will be used, shall be submitted to the Engineer along with the WPS and PQR documents for each equipment and piping system.

c) All welding including tack, temporary and repair welds shall be carried out only by qualified welders.

d) The test records of all welders and welding operators shall be available at all times at the work location for review by the Engineer. Engineer shall have the right to retest of any welder at any time.

e) All intersecting and abutting parts to be welded shall be joined by full penetration groove welds.

f) Welding shall not be done when surfaces are wet or damp exposed to rain or snow or when the welders are exposed to inclement conditions. Any wet damp surfaces shall be dried by heating and shall be warm to the hand before welding.

i) Weld faces shall be cleaned by acetone prior to root pass and after every pass.

j) All joints and faying surfaces shall be seal welded by a continuous fillet weld, unless specified otherwise.

k) Pressure-retaining welds shall be separated from other (pressure or no pressure) welds by no less than 20 mm or three times the joint thickness, whichever is greater. This requirement is intended specifically for nozzles and other attachments that are added onto or adjacent to an existing joint.

l) When the inside surfaces of items are inaccessible for welding or fairing any offset within the tolerances provided shall be faired to at least 3:1 taper by grinding. For circumferential joint, the inside diameter shall match each other within 1.6mm. When the items are aligned concentrically, a uniform mismatch of 0.8 mm all around the joint.

m) All grinding wheels used shall be free from iron oxide, zinc and other harmful impurities and should not be based on carbide materials and shall be subject to the approval of the Engineer before being put to use.

n) The filler wire and welding electrodes shall be as per the following specifications:
   a) For welding MS materials: Filler wire: E 7018 (AWS/ASME A 5.1)
   b) Electrodes which have been exposed to rain or which have been otherwise exposed to water however shall be discarded. Re-baking of such contaminated electrode shall not be permitted.

Inspection & Testing:

a) The contractor shall provide all the testing and inspection services and facilities except where otherwise specified, for the inspection and testing requirements covered under the scope of this specification. Minimum inspection requirements shall be met as per code and these specifications.

b) Proforma for test and inspection on all materials and fabrication, erection shall be got approved by the engineer-in-charge, NIPER and all the records shall be maintained properly.

c) Inspection, testing and repair procedures, shall be got approved by the engineer-in-charge. Inspection by the engineer or his authorized representative shall not relieve the contractor of inspection and conformity to this specification. Engineer reserves the right to waive off, any inspection requirements.

d) All the materials procured by the contractor including weld materials, liquid penetrant material, etc., shall be tested as required by material designate standards and this specification. Proof in the form of manufacturer’s certificate is acceptable but if these are not available, the test shall be performed by the contractor at his cost.

e) Straightness of the pipes shall not deviate more than 3.0 mm in a length of 3 meter at any section of pipes.

f) All welds shall be LP examined after root and final pass as per ASTM E 165 (Standard Method for Liquid Penetrant Examination).

g) For the weld joints of size 50 mm NB and below no relevant indications of any size are permitted. The LPE materials shall be tested, as per ASTM for sulphur and halogen content and manufacturers test certificate shall be provided co-relating both. The sulphur content shall not exceed 1% by weight and halogen content shall be limited to 25 ppm.

h) All butt welds shall be subject to 10% radiography as per ASTM – E – 94 (Standard Guide for
Radiographic Testing) and ASTM – E – 142 (Standard Method for Controlling Quality of Radiographic Testing). The Engineer shall have right to reject any radiographic examinations not conforming with proper technique or processing.

i) Where 10% radiography is called for, this shall be spread uniformly over all diameters in a particular system. In diameters upto and including 400mm NB shall mean 10% of the joints in each pipe diameter encountered. In diameters above 400mm NB the 10% shall mean cumulative linear centimeters of all pipe circumferential joints. Selection of the joints or location shall be at the discretion of the Engineer.

j) Weld acceptance standards shall be as per ASME Section VIII Division 1. Radiographic film interpretation shall be done by personnel certified to ASNT level II, film interpreter or approved equivalent.

k) All vessels and equipment shall be tested hydrostatically at the shops where manufactured, to the approved test pressures as per code. All piping systems shall be tested hydrostatically after erection to the approved test pressures as per code. The test duration shall be two (2) hours or until all joints are examined, whichever is longer. In case of leakages, re-test shall be carried out for the same duration after rectification of defects.

l) Any deviations from the specifications / approved procedure shall be immediately reported to the Engineer and his decision obtained prior to proceeding with the next stage of the work.

Pressure Filters & Activated Carbon Filters:

a) Filter bed shall withstand the maximum pressure drop encountered during the operation, without breakdown of filter media.

b) Filter media shall be non-toxic and shall not impart colour, odour or taste to the water.

c) Unit shall normally be backwashed once a day only.

d) The inlet distribution system shall be designed to give uniform distribution of water over filter bed. The under-drain collection system shall be designed for uniform collection of filtered water and distribution of backwash water.

e) Provision shall be made for access to the internal surface of the bottom dished end i.e. below the bed supporting plate.

Ion Exchange Units:

f) Due consideration shall be given to minimum and maximum bed depths, minimum rising space for resins and surface flow rates while sizing the units.

g) One hand hole of 150 mm NB size shall be provided on the shell of the ion-exchange vessels.

h) One viewing port at normal bed depth level and another at expanded level during backwash shall be provided for all the units except the mixed bed unit.

i) For mixed bed units, three viewing ports, one at the resin interface after separation, the second at the normal bed depth and the third at the expanded level during backwash shall be provided.

j) Gross output of an exchanger unit shall be calculated as the sum of the productive output of the unit and the regeneration water requirement for self and/or downstream or upstream units.

k) Published catalogue and literature shall cover all design parameters without any need to extrapolate.

l) Mechanical de-rating factor on resin exchange capacity shall be considered as 10% of exchange capacity derived from published catalogue and literature.

11. INSTRUMENTATION

a) The contractor shall supply the instrumentation and other accessories (ref 3.13 of this section,) which is the minimum essential instrumentation for the plant. Over and above this, if the bidder provides additional items, it shall be assumed that these extra items are necessary for the satisfactory operation and maintenance of the plant and no credit shall be given for these items at the time of bid evaluation.

b) All instruments shall have permanent stainless steel tag plates, fixed on the body, indicating service. Calibration certificate of all instruments shall be provided by contractor.

CLEANING OF EQUIPMENT & PIPING

a) Equipment, pipes, fittings etc. shall be cleaned off mill scale, dirt, grease, foreign matter, paints etc. prior to fabrication and installation by using suitable chemical reagents/ metal brushes. Local passivation of stainless pipes/ components shall be carried out whenever these are mechanically worked or welded. Use of halogen free detergents could also be made for cleaning operations. Oil-free
compressed air shall be employed for cleaning of pipes.

b) Edge preparation shall be carried out in a manner so as to avoid filings falling inside the equipment.

c) Marking tape/crayon, and paint marks shall be cleared from surface. Acetone, diethyl ether or methyl alcohol are some of the solvents which could be used for this purpose.

d) All areas of installation as well as all equipment and piping shall be kept dust free. Pipelines shall be flushed of all of filings, dirt & dust etc. by using a dry and clean cotton liner.

e) As far as possible, all openings in equipment and piping shall be kept suitably closed by blind flanges or plugs.

f) The procedure for cleaning shall be submitted by the contractor for approval.

Special Conditions for supply and installation

DOCUMENTATION

Each System shall be supplied complete with two sets of full documentation covering:

a) The detailed plant piping layout including PFD and P&ID and their reproducible tracings.

b) The equipment drawing approved by the purchaser.

c) The installation, maintenance and operation manuals for the system with sufficient details.

d) Test report on the DP, hydrostatic, weld and spark tests carried out.

e) Material test certifications.

f) Test certificates and maintenance schedule for pumps, instrumentation etc.

g) Performance characteristics for pumps and motors.

h) Manufacturer’s literature on the operation and maintenance instructions for the bought out items.

Note: The supplier shall provide the AutoCAD drawings also on Re-writable / non rewritable Compact discs.

SHIPMENT

The supplier shall be fully responsible for protective measures to ensure the safe delivery of the equipment and associated components at site NIPER, SAS Nagar

GUARANTEE AND WARRANTY

The supplier shall guarantee that the goods furnished by him are in full accordance with the requirement of these specifications.

The supplier shall provide the warranty of 01 year from the date of installations for the goods being new and of quality meeting the standards / codes and constructional requirements are free from defects in design, material of workmanship or materials, the supplier shall at his own cost, take steps to carry out the repair or replacement of such goods or parts thereof after obtaining due approval of the purchaser.

INFORMATION TO ACCOMPANY THE OFFER:

The following information shall essentially be furnished along with the quotation to evaluate the offer. Failure to supply full information as asked for or supplying only part information will result in rejection of the offer without any further reference to bidder.

PFD, P&ID and equipment/piping layout drawings identifying all the major components offered under the scope of supply against each system.

Equipment drawing indicating diameter, height, thickness of the shell, lining and the dished ends, pressure rating for the vessels.

Material of Construction proposed for each component in the system. The MOC and equipment lining must be compatible with chemicals used during regeneration.

The standards / codes for design, fabrication, MOC and performance testing as applicable.

Guarantee performance of the system regarding the water quality at the inlet and exit of each exchanger units.

The type, manufacturer, model and other technical specification and details for all the items under the scope of supply and bought out items.
Resin proposed to be utilized for each system with following information:

a) Type
b) Trade name & alternate source of availability
c) Technical literature on performance, capacity etc.
d) Quality used for each bed.
e) Time for regeneration
   Following details regarding schemes for each exchanger in a system.
f) Type of regeneration
g) Chemicals used, their quantities and concentrations
h) Means of injecting chemicals into the beds.
i) Regeneration levels achieved.
j) Time taken for regeneration of each bed
k) Total regeneration cycle time.
l) Flow rates required.

Calculation /design basis details for the resin quantities used for each bed.
Total waste volumes generated per bed regeneration and their average compositions.

PRICE:
The price quoted shall be separately for each item (Sr No) as mentioned in PRICE BID which shall include design, preparation, approval of drawings, fabrication, supply. Installation of all equipments, centralized wired instrument panel, piping, tubing, power, control and signal cabling, testing, commissioning and handing over with performance guarantee and relevant documentation of the filtration unit, DMW and soft water plant in complete as per site requirement to the satisfaction of the engineer-in-charge, NIPER.

PERFORMANCE GUARANTEE:
The unit shall be guaranteed to give trouble free performance for one year from the date of commissioning and testing.

TIME SCHEDULE:
The offer shall include the detailed time schedule giving the break-up of different activities (like Design, Layout preparation, approval of drawing, fabrication, installation, testing and commissioning of DMW plant etc.) to be followed during execution of the purchase order /

QUALITY ASSURANCE PLAN:
The offer shall include the detailed quality assurance plan to be followed during execution of the purchase order.

1. VENDOR EVALUATION CRITERIA
   The bidder shall be reputed & regular manufacturer of DMW/soft water plants/utility services of similar nature and should have experience in supply of said works of comparable capacity to Govt deptt’s/PSU’s/reputed pharmaceutical companies (with one work in govt deptt).
   The bidder shall have separate departments for design, drafting, procurement, manufacture, QA, erection and commissioning.

2. THE ENCLOSED FIGURES
   Contractor shall provide the general guidelines for designing the DMW plant. Kindly note that these drawings are indicative only.
   Figure 1: P&ID- DMW Plant.
   Figure 2: Area layout plan – DMW plant

3. SCOPE OF THE NIPER
   Provision of the Civil building and connection for electricity meter. Electricity meter approved and in working condition to be installed by Contractor and get the meter reading certified by engineer-in-charge/authorized representative after installations. reading shall be checked on monthly basis.
4. **SPECIFIC REQUIREMENT & INSTRUCTION TO THE CONTRACTOR**

Capacities of all equipment should meet guarantee requirements and should be substantiated by calculations.

- Effluents generated shall be discharged into the storm water drain designated by BARC.
- Power Cabling supply and erection from the MCC panel up to the individual points, supply and erection for instrumentation are in the contractor’s scope.

5. **Documents to be Enclosed**

Following Technical Data sheet duly filled up and enclosed with the Tender Documents.

(a) Technical Data Sheet as per Annexure-I. (Table I – DM Water Plant)
(b) Technical Data Sheet as per Annexure-II. (Table I – Filtration Unit)
(c) Technical Data Sheet as per Annexure-II. (Table II – Soft Water Plant)
### TECHNICAL DATA PROFORMA
(To be filled in and submitted along with the offer)

**Table: 1 sample**

<table>
<thead>
<tr>
<th>Description</th>
<th>As Specified</th>
<th>Yes /No</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Design Basis</strong></td>
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<td></td>
</tr>
<tr>
<td>Water Source</td>
<td>PALLAR WATER/MAPS RESERVOIR</td>
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<tr>
<td>Normal Flow</td>
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<td>Maximum Flow</td>
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<tr>
<td>Capacity per regeneration for Cation / Anion Exchanger</td>
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</tr>
<tr>
<td>Capacity per regeneration for Mixed Bed Exchanger</td>
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<td></td>
</tr>
<tr>
<td><strong>DM Water Quality</strong></td>
<td></td>
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<tr>
<td>pH</td>
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<tr>
<td>TDS</td>
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</tr>
<tr>
<td>Dissolved Silica</td>
<td>&lt;</td>
<td></td>
</tr>
<tr>
<td>Electrical Conductivity at 20°C</td>
<td>&lt; 1 µs / cm²</td>
<td></td>
</tr>
<tr>
<td><strong>Applicable Codes &amp; Standards</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Design &amp; Fabrication</td>
<td>BS- 6374 PART V</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ASME Section VIII Div.1, Section IX and Section V.</td>
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<tr>
<td>MOC for equipment</td>
<td>MS (Rubber lined)</td>
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</tr>
<tr>
<td>MOC for Strainer</td>
<td>MS (Rubber lined)</td>
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</tr>
<tr>
<td>MOC pipeline</td>
<td>MS (Rubber lined)</td>
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</tr>
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<td>MS (Rubber lined)</td>
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<td>Valve, MOC / type</td>
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</tr>
<tr>
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<td><strong>Feed Pumps</strong></td>
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<tr>
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</tr>
<tr>
<td>MOC</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>Flow Rate</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>Discharge Head</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>Motor HP / RPM</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>Starter, Motor included</td>
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<td></td>
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<tr>
<td><strong>Sand Filter (Filtration Unit)</strong></td>
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<tr>
<td>Media</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td><strong>Capacity: Normal / Max.</strong></td>
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<td></td>
</tr>
<tr>
<td><strong>Pressure: Normal / Max./ Design</strong></td>
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</tr>
<tr>
<td><strong>Media Volume</strong></td>
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</tr>
<tr>
<td><strong>Shell: dia. / height / thickness</strong></td>
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<td></td>
</tr>
<tr>
<td><strong>Dish thickness</strong></td>
<td>---</td>
<td></td>
</tr>
<tr>
<td><strong>MOC</strong></td>
<td>---</td>
<td></td>
</tr>
<tr>
<td><strong>Piping and valves size</strong></td>
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<td></td>
</tr>
<tr>
<td><strong>Service cycle</strong></td>
<td>---</td>
<td></td>
</tr>
<tr>
<td><strong>Backwash Flow Rate</strong></td>
<td>---</td>
<td></td>
</tr>
<tr>
<td><strong>Back wash frequency</strong></td>
<td>---</td>
<td></td>
</tr>
<tr>
<td><strong>Backwash time</strong></td>
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</tr>
</tbody>
</table>

**Activated Carbon Filter**

| Media | Granular Activated Carbon |
| **Capacity: Normal / Max.** | --- |
| **Pressure: Normal / Max. / Design** | --- |
| **Media Volume** | --- |
| **Shell: dia. / height / thickness** | --- |
| **Dish thickness** | --- |
| **MOC** | --- |
| **Piping and valves size** | --- |
| **Service cycle** | --- |
| **Backwash Flow Rate** | --- |
| **Back wash frequency** | --- |
| **Backwash time** | --- |

**Cation Exchanger**

| Capacity: Normal / Max/ Min | --- |
| **Regeneration Capacity** | 200 m³ |
| **Pressure: Normal / Max./ Design** | --- |
| **Material of construction** | --- |
| **Shell: dia / height/ thickness** | --- |
| **Dish Thickness** | --- |
| **Piping and valves size** | --- |
| **Resin type Make** | --- |
| **Trade Name** | --- |
| **Resin Quantity** | --- |
| **Regeneration Chemical** | HNO₃ |
| **Regeneration Flow Rate** | --- |
| **Regeneration Frequency** | --- |
| **Regeneration time** | --- |
| **Regeneration tank:** | --- |
| Capacity/MOC/Make | |

**Degasser Tower**

| **Size** | |
| **MOC** | |
| **Packing Material** | |
| Flowrate | 10m³ |

**Air Blower**

| **Water Column** | |
| **Air Temperature** | |
| **Air Flowrate** | |

**Deg Water Transfer Pump (special type for Low Ph handling)**

| **Quantity** | 01 No. |
| **Capacity** | |
| **Head** | |
| **MOC** | |

**Anion Exchanger**

<p>| <strong>Capacity:</strong> Normal / Max/ Min | --- |
| <strong>Regeneration Capacity</strong> | 200 m³ |
| <strong>Pressure:</strong> Normal / Max./ Design | --- |
| <strong>Material of construction</strong> | --- |
| <strong>Lining thickness</strong> | --- |
| <strong>Shell dia / height/ thickness</strong> | --- |
| <strong>Dish Thickness</strong> | --- |
| <strong>Piping and valves size</strong> | --- |
| <strong>Resin type</strong> | --- |
| <strong>Make</strong> | --- |
| <strong>Trade Name</strong> | |
| <strong>Resin Quantity</strong> | --- |
| <strong>Regeneration Chemical</strong> | NaOH |
| <strong>Regeneration Flow Rate</strong> | --- |
| <strong>Regeneration Frequency</strong> | --- |
| <strong>Regeneration time</strong> | --- |
| <strong>Regeneration tank:</strong> | --- |
| Capacity/MOC/Make | |</p>
<table>
<thead>
<tr>
<th><strong>Mixed Bed Exchanger</strong></th>
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<tr>
<td>Capacity: Normal / Max/ Min</td>
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<tr>
<td>Regeneration Capacity</td>
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<tr>
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</tr>
<tr>
<td>Material of construction</td>
<td>---</td>
</tr>
<tr>
<td>Lining thickness</td>
<td>---</td>
</tr>
<tr>
<td>Shell dia / height/ thickness</td>
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</tr>
<tr>
<td>Dish Thickness</td>
<td>---</td>
</tr>
<tr>
<td>Piping and valves size</td>
<td>---</td>
</tr>
<tr>
<td><strong>Resin type: Cation</strong></td>
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</tr>
<tr>
<td>Make</td>
<td>---</td>
</tr>
<tr>
<td>Trade</td>
<td>---</td>
</tr>
<tr>
<td>Name</td>
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</tr>
<tr>
<td>Regeneration Chemical</td>
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<tr>
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<tr>
<td>Regeneration Chemical</td>
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<td><strong>Regeneration Flow Rate</strong></td>
<td>---</td>
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<tr>
<td><strong>Regeneration Frequency</strong></td>
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</tr>
<tr>
<td><strong>Regeneration time</strong></td>
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<tr>
<td><strong>Regeneration tank: Capacity/MOC/Make</strong></td>
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<td><strong>Cation Bed</strong></td>
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<tr>
<td><strong>Type</strong></td>
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<tr>
<td>Resin Quantity</td>
<td>---</td>
</tr>
<tr>
<td>Chemical Used</td>
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<tr>
<td>Ch Quantity (100%)</td>
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<tr>
<td>Regenerant Tank</td>
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<tr>
<td>Material</td>
<td>---</td>
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<tr>
<td><strong>Anion Bed</strong></td>
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</tr>
<tr>
<td><strong>Type</strong></td>
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<tr>
<td>Resin Quantity</td>
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<td>Chemical Used</td>
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<td>Ch Quantity (100%)</td>
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<td>Regenerant Tank</td>
<td>---</td>
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<tr>
<td>Material</td>
<td>---</td>
</tr>
<tr>
<td><strong>Mixed Bed Unit</strong></td>
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<td><strong>Type</strong></td>
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<tr>
<td>CX: Resin Quantity</td>
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<tr>
<td>Chemical Used</td>
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<tr>
<td>Ch Quantity</td>
<td>---</td>
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<tr>
<td>Regenerant Tank Volume</td>
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<tr>
<td>Material</td>
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</tr>
<tr>
<td>AX: Resin Quantity</td>
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<td>Chemical Used</td>
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<tr>
<td>Ch Quantity</td>
<td>---</td>
</tr>
<tr>
<td>Regenerant Tank Volume</td>
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<tr>
<td>Material</td>
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**Instrumentation**

<table>
<thead>
<tr>
<th>Description</th>
<th>Details</th>
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</thead>
<tbody>
<tr>
<td>Pressure gauge</td>
<td>9 Nos.</td>
</tr>
<tr>
<td>Flow Totalizer (magnetic and vortex type)</td>
<td>1 each. Rosemount / ABB Kent Taylor / Forbes Marshall / J.N. Marshall/ Equivalent</td>
</tr>
<tr>
<td>Level gauges</td>
<td>5 Nos.</td>
</tr>
<tr>
<td>Differential Pressure Gauges</td>
<td>2 Nos.</td>
</tr>
<tr>
<td>Fully enclosed epoxy painted Instrument panel (floor standing) to house all the above instruments.</td>
<td>1 Nos.</td>
</tr>
<tr>
<td>MCC panel (3 starter and power for instruments)</td>
<td>1 Nos.</td>
</tr>
<tr>
<td>Any additional instrumentation required which the supplier feels necessary for the satisfactory performance of the system (list the items).</td>
<td></td>
</tr>
</tbody>
</table>

**Note:**
1. Refer SOQ for parameters not indicated.
2. Agency may mention specific value as per their designs in the respective columns.
### 3 HP centrifugal Monoblock Pump Set

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Description</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Pumps</td>
<td></td>
</tr>
<tr>
<td>i)</td>
<td>Pump conforming to</td>
<td>ISI Mark (IS 9642-1980 or 9079-1989).</td>
</tr>
<tr>
<td>ii)</td>
<td>Suction and Delivery</td>
<td>65 mm x 50 mm</td>
</tr>
<tr>
<td>iii)</td>
<td>Rate of Discharge</td>
<td>348 litres per minute</td>
</tr>
<tr>
<td>iv)</td>
<td>Specified head</td>
<td>25 Meters</td>
</tr>
<tr>
<td>v)</td>
<td>Mounting</td>
<td>The Pedestal bracket to permit the pump set to be removed without damaging to the foundation.</td>
</tr>
<tr>
<td>II</td>
<td>A.C. Motor</td>
<td></td>
</tr>
<tr>
<td>i)</td>
<td>Induction Motor</td>
<td>IS 325-1975</td>
</tr>
<tr>
<td>ii)</td>
<td>Rated Capacity</td>
<td>3 HP / 2.2 KW</td>
</tr>
<tr>
<td>iii)</td>
<td>Voltage</td>
<td>440 Volts, 3 Phase, 50 Hz</td>
</tr>
<tr>
<td>iv)</td>
<td>Insulation of winding</td>
<td>B Class</td>
</tr>
<tr>
<td>v)</td>
<td>Speed</td>
<td>2800-3000 RPM</td>
</tr>
<tr>
<td>vi)</td>
<td>Type of Enclosure</td>
<td>Totally enclosed Fan Cooled (TEFC) Enclosure.</td>
</tr>
<tr>
<td>vii)</td>
<td>Brand</td>
<td>Kirloskar - KDS 325 ++ Jyoti/IMP - 50 UL 63 0 or Equivalent.</td>
</tr>
</tbody>
</table>

**Note:**

1) The supplied pump shall be provided with name plate specifying detail such as Model No. name of the manufacturer, rated capacity etc.

2) Considering the changes being made by the manufactures for improvement in their products, the pump with minor upward changes in the above specification shall be put up by the tenderer for approval of the Engineer-in-charge NIPER, SAS Nagar.
SECTION IX

TECHNICAL SPECIFICATIONS
Soft Water Plant

Soft water generation plant : (SOQ PART A2)

RAW WATER ANALYSIS

We have designed the Water Softner with reference to the Raw Water Hardness = 250 ppm

QUALITY OF TREATED WATER

As per your requirement, we have designed the plant to provide water, which is having following characteristics:

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Parameter</th>
<th>After Softning</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Total Hardness</td>
<td>&lt; 5 ppm</td>
</tr>
</tbody>
</table>

SPECIFICATIONS OF WATER SOFTNER

One : Raw Water Pump (CI) 25 Meter Head
One : MS Rubber lined Vessel for Softner Unit
      With Top Distribution and Bottom Collection unit.
One : Brine measuring Tank cap 200 Litres, PVC
One : Set of Cation Exchange Resins
One : Regeneration Assembly
One : MS rubber lined frontal Pipe Work with MPV
One : Hardness Test Kit

Technical Data :

<table>
<thead>
<tr>
<th>Description</th>
<th>Filter</th>
<th>Softner</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit Offered</td>
<td>One</td>
<td>One</td>
</tr>
<tr>
<td>Mode of Flow</td>
<td>D/ Flow</td>
<td>Up Flow</td>
</tr>
<tr>
<td>Unit Diameter</td>
<td>800 mm</td>
<td>600 mm</td>
</tr>
<tr>
<td>Unit HOS</td>
<td>2500 mm</td>
<td>2500 mm</td>
</tr>
<tr>
<td>MOC</td>
<td>FRP</td>
<td>FRP</td>
</tr>
<tr>
<td>Flow Rate</td>
<td>12 m3/Hr</td>
<td>12 m3/Hr</td>
</tr>
<tr>
<td>Working Pressure (Min)</td>
<td>2.00 Kg/cm²</td>
<td>2.00 Kg/cm²</td>
</tr>
<tr>
<td>Working Pressure (Max)</td>
<td>3.0 Kg/Cm²</td>
<td>3.0 Kg/Cm²</td>
</tr>
<tr>
<td>Type of Media/Resin</td>
<td>Sand Media</td>
<td>Cation Exchange</td>
</tr>
<tr>
<td>Quantity of Media/Resin</td>
<td>500 Kg Min</td>
<td>400 Ltrs Min</td>
</tr>
<tr>
<td>Regeneration Chemicals</td>
<td>---</td>
<td>Salt</td>
</tr>
<tr>
<td>Quantity of Salt/Reg.</td>
<td>--</td>
<td>72 Kg</td>
</tr>
<tr>
<td>Output per Regeneration</td>
<td>--</td>
<td>100 m³</td>
</tr>
<tr>
<td>Inlet/Outlet Connections</td>
<td>40/ 50 mm</td>
<td>40/ 50 mm</td>
</tr>
<tr>
<td>Raw Water Hardness</td>
<td>--</td>
<td>250 ppm</td>
</tr>
<tr>
<td>Treated water Hardness</td>
<td>--</td>
<td>Less than 5 ppm</td>
</tr>
</tbody>
</table>
TECHNICAL DATA PROFORMA  
(Filtration Unit)  
(To be filled in and submitted along with the offer)

**Annexure-II**

**Table: 1 sample**

<table>
<thead>
<tr>
<th>Description</th>
<th>Filtration Unit</th>
<th>Yes/ No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit Offered</td>
<td>One</td>
<td></td>
</tr>
<tr>
<td>Mode of Flow</td>
<td>D/ Flow</td>
<td></td>
</tr>
<tr>
<td>Unit Diameter</td>
<td>800 mm</td>
<td></td>
</tr>
<tr>
<td>Unit HOS</td>
<td>2500 mm</td>
<td></td>
</tr>
<tr>
<td>MOC</td>
<td>FRP</td>
<td></td>
</tr>
<tr>
<td>Flow Rate</td>
<td>12 m³/hr</td>
<td></td>
</tr>
<tr>
<td>Working Pressure (Min)</td>
<td>2.00 Kg/cm²</td>
<td></td>
</tr>
<tr>
<td>Working Pressure (Max)</td>
<td>3.0 Kg/Cm²</td>
<td></td>
</tr>
<tr>
<td>Type of Media/Resin</td>
<td>Sand Media</td>
<td></td>
</tr>
<tr>
<td>Quantity of Media/Resin</td>
<td>500 Kg Min</td>
<td></td>
</tr>
<tr>
<td>Regeneration Chemicals</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>Quantity of Salt/Reg.</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>Output per Regeneration</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>Inlet/Outlet Connections</td>
<td>40 / 50 mm</td>
<td></td>
</tr>
<tr>
<td>Raw Water Hardness</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>Treated water Hardness</td>
<td>---</td>
<td></td>
</tr>
</tbody>
</table>

(Soft Water Plant)  
**Table: 2 sample**

<table>
<thead>
<tr>
<th>Description</th>
<th>Softner</th>
<th>Yes/ No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit Offered</td>
<td>One</td>
<td></td>
</tr>
<tr>
<td>Mode of Flow</td>
<td>Up Flow</td>
<td></td>
</tr>
<tr>
<td>Unit Diameter</td>
<td>600 mm</td>
<td></td>
</tr>
<tr>
<td>Unit HOS</td>
<td>2500 mm</td>
<td></td>
</tr>
<tr>
<td>MOC</td>
<td>FRP</td>
<td></td>
</tr>
<tr>
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<td>12 m³/hr</td>
<td></td>
</tr>
<tr>
<td>Working Pressure (Min)</td>
<td>2.00 Kg/cm²</td>
<td></td>
</tr>
<tr>
<td>Working Pressure (Max)</td>
<td>3.0 Kg/Cm²</td>
<td></td>
</tr>
<tr>
<td>Type of Media/Resin</td>
<td>Cation Exchange</td>
<td></td>
</tr>
<tr>
<td>Quantity of Media/Resin</td>
<td>400 Ltrs min</td>
<td></td>
</tr>
<tr>
<td>Regeneration Chemicals</td>
<td>Salt</td>
<td></td>
</tr>
<tr>
<td>Quantity of Salt/Reg.</td>
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<td></td>
</tr>
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<td></td>
</tr>
<tr>
<td>Inlet/Outlet Connections</td>
<td>40/ 50 mm</td>
<td></td>
</tr>
<tr>
<td>Raw Water Hardness</td>
<td>250 ppm</td>
<td></td>
</tr>
<tr>
<td>Treated water Hardness</td>
<td>Less than 5 ppm</td>
<td></td>
</tr>
</tbody>
</table>

The design, fabrication conditions applicable for piping and pressure vessels shall be similar as mentioned under at S, No 9 above.

**Note:**
1. Any Agency having any additional facility and performance parameters may provide the same without any extra cost to NIPER.
2. Output quality parameters must be achieved on additional facilities provided, if any.
SECTION IX

TECHNICAL SPECIFICATIONS
Utility Service Lines/ Storage & Distribution

SPECIFICATION OF ITEMS REQUIRED IN UTILITY SERVICE LINES (STORAGE AND DISTRIBUTION - (SOQ : PART No. B)

SCOPE

This specification covers
a). Design, layout preparation, approval of drawing, fabrication, inspection and testing at delivery site as per the stages of work.
b). The contractor /Agency to submit following reports as per actuals status
   (a) Layout drawings for approval as required at site after award of order within one month.
   (b) Completion drawings after installation and testing of utility pipeline service lines incomplete as per Schedule of quantity.
c). Erection, testing, commissioning with performance guarantee and relevant documentation like test reports, test certificates of all materials /machinery, water output quality at labs end point as specified for safe, trouble free and continuous distribution of DM water, soft water, raw water, etc

Specifications of materials of utility lines:

1) Pipeline – SS 304L
2) Ball valve – SS 304L
3) Flanges – SS304L
4) Angle frames – Mild Steel
5) Angle support –Mild Steel
6) Bolts- for flanges –SS304
7) Trench sheet metal cover – SS304 L
8) Gaskets – neo prene 99% pure

SOQ item No 1
DM water line
MoC : pipe: SS 304L , U clamps 80 mm, GI , supports : MS angle -40mm ,argon welding of joints , threading , pressure gauge: SS dia 50mm at required Range upto 10kg/cm2 approx . 6 points in complete layout etc pressure : suitable upto 15 Kgs/cm², Steaming to be done inside pipes for 2 days after installation .

SOQ item No 2
SS Ball Valves for DM Water
MOC : Ball valves made of Stainless Steel Grade 304L, ISI marked confirming to BS304S11 lever type complete with all fittings such as stub ends,nipples, flanges, neoprene gaskets etc pressure range : suitable to withstand upto15kg/cm².

SOQ item No 3
Lab Tap for DM Water
Lab tap MOC- Stainless Steel Grade 304L, swan neck single way, bench top mounted (200mm swan's distance) for DM water supply to labs complete with all accessories such as chuck nut ,gasket set, , cover plates,teflon tape, etc. Mirror finish (sample can be seen in institute )
SOQ item No 4
Soft Water Supply Line

MOC: Polyethylene-Aluminium- Polyethylene PE-AL-PE Composite Pressure Pipes conforming to IS - 15450-2004, U.V. stabilized with carbon black having thermal stability for hot & cold water supply, capable to withstand temperature up to 80°C, including all special fittings of composite material (engineering plastic blend) e.g. elbows, tees, reducers, couplers & connectors etc., with trenching, refilling and testing of joints in existing trenches etc. (sample available in the institute for reference if required)

SOQ item No 5
Ball Valves for Soft Water Supply

MOC: PP flanged/screwed lever type ball valves in existing trenches etc. conforming to ASTM standards /as per manufacturers specs complete in all respects to withstand the pressure of 15 Kg/cm². (sample available in the institute for reference if required)

SOQ item No 6
Raw Water Tap

MOC: Lab tap powder coated brass swan neck three way bench top mounted (200mm swan's distance) Powder coating: 150 micron (minimum). (Sample can be seen in the institute)

SOQ item No 7
Compressed Air

MOC: SS 304L seamless pipes conforming to IS specifications ASTM A312 complete with required all fittings confirming to ASTMA403 such as bends, unions, reducers, Tee, sockets, stub ends, dead plugs, Socket for Pressure guages – SS 304. Flange: suitable to withstand the air pressure of 15 Kgs/cm².

SOQ item No 8
Ball Valves for Compressed Air line

MOC: SS 304L SS ball flanged/threaded & lever type ball valves ISI marked and conforming to IS9890:1981, jointed with pipe lines at respective locations complete in all respects to withstand the air pressure of 15 Kg/cm² in existing trench as per site requirement.

SOQ item No 9
Vacuum line

MOC: GI pipes 'B' class ISI marked confirming to IS specifications complete with required all fittings such as elbow bends, unions, reducers, Tee, sockets, stop plugs, etc. Vacuum guages: SS dia 50mm - 2nos range upto 750 mm Hg etc in existing trenches to withstand the air pressure of 15 Kgs/cm².

SOQ item No 10
Ball valves for vacuum line

MOC: Gun metal ball valve of respective sizes internal threaded heavy duty ISI marked conforming to IS specifications, thread jointed with pipe lines complete in all respects to provide leak proof joints and to withstand the high vacuum pressure of 750mm Hg in existing trench as per site requirement. (sample to be put up by contractor for approval)

SOQ item No 11
Line supports in trenches

Made from MS material ISI marked conforming to IS 808(1989) cut to size, drilling of holes of size 15 mm including single coat primer and one coat black japan paint complete with clamping with U type GI clamps
50mmxdia 10mm x80mm (length) and fixing the same in trenches and allied areas with minor brick work and cement plaster wherever required to support utility service lines in trenches as per site requirement.

SOQ item No 12
Pressure regulator/moisture trap
Pressure regulator cum oil & moisture trap double cylinder type size 250mm, dia 100mm with accessories to withstand pressure of 15 kg/cm² in compressed air pipe line near the entrance of laboratories of Blocks-Teaching and Research mentioned in Layout drawing.
(sample to be put up by contractor for approval after award of order)

SOQ item No 13
DM water storage Tank
Sheet metal: SS 304L sheet 20 gauge, buffed to mirror finish
SS tubing: inlet 40mm, outlet 40mm
SS valves: lever type 40mm, full vertical length level
Sight glass tubing: dia 25mm covered with SS sheet cut to size for protection including fittings such as reducer, socket, bends, tee, tank nipples etc
SS rectangular pipe stand: 100 x 40mm x 600mm height-04 Nos from ground as required and installation of complete assembly on foundation with required supports
Capacity: 2000 litres

SOQ item No 14
Trench Covers
MOC: MS angle Size 40x40x5mm frame
Sheet Metal: SS 304L, 20 Guage confirming to IS5522:1992 for top
Machining: Cutting, bending, gas welding, screwed joints, bush hinge type dia 25mmx50mm length - 2 nos per cover.
Cover opening handle: 150mm length (Dia 10 mm MS rod), as per drawing
(similar design can be seen in the institute)

Specification of machinery /Equipment

SOQ item No_15: Air compressor
Type: 2 stage reciprocating V type, oil free
drive motor: 5 HP. 3 Ph
pressure switch: range upto 15 kg/cm² and auto functioning
pressure release valve:
drain valve: Gun metal dis ¾ “
belt driven:
cooling system: inbuilt
belt mesh cover: Mesh /sheet metal with frame (vibration proof)
storage tank: MS sheet 12 G duly powder coated
safety valve: upto 12 kg/cm²
trolley metal wheels: mild steel, size- dia 150mm
Capacity ≥10 CFM
working pressure range upto 10 bar,
piston displacement ≥ 500 litres/ min,
air receiver-cum-storage capacity ≥ 200 litres.

SOQ item No -16: Vacuum pump
Stages: double stage water ring vacuum pump
MOC: CI body, SS Impellers, SS 304 shaft (suitable for 20 HP Motor)
Electric drive: motor, coupling for pump & motor
Valves: NRV, Main ball valve lever type, drain valve 65mm dia
Base frame: MS channel 100x50mm, 1440 rpm, Vacuum cap required -720mmHg, LPM 20 liters,

**SOQ item No- 17 : Portable double stage vacuum pump**
Type: rotary type, oil based
Phase: single phase 220V, 50Hz complete with NRV, vacuum tubing, clamps, electric wire -2 metre with plug top.
Capacity: 12 CFM.

**SOQ No -18 : Brick work**
with common burnt clay machine molded perforated bricks of class designation 12.5 conforming to IS:2222 with F.P.S (non modular). (Refer DSR 2018 - 6.3.1).

**SOQ item No -19 : Buy back of old damaged MS pipe**
including dismantling, lifting, removal of existing pipe lines manually from trenches leading from Utility Section to respective blocks.
MOC = Mild steel pipelines.
Material shall be on as is where is basis.

**SOQ Item No -20 : Buy back of old damaged vacuum pump**
with C.I. housing and MS frame of capacity 400 cum/hr including dismantling and shifting from site without electric motor cap-20HP. Material shall be on as is where is basis.

---

**Technical specifications for installation/testing/ workmanship for utility service lines and equipment**

All piping work shall conform to relevant quality standards and IS codes. The specific reference to the standards according to which the various categories of fabrication and installation to be done are given in specifications and Bill of Quantities (SOQ).

1. **Fabrication Standards**
   Upon award of the contract, the contractor shall submit his welding procedures, welder’s qualification and experience for Employer’s/ Consultants approval.

   Surfaces to be welded shall be smooth, uniform and free from tears and other defects. Manual flame cut edges shall be ground and dressed to smooth finish. Arc shall be struck only on joints to be welded. Damage caused by striking arcs elsewhere on the work shall be duly repaired.

   All welding work, equipment for welding, heat treatment, other auxiliary functions and welding personnel shall meet the requirement of the latest edition of the following accepted standards and procedures.

   (b) Process piping - ASME B 31.3
   (c) Indian Boiler Regulations - I BR (if applicable)

   In addition, the following codes and specifications referred in the code of fabrication shall be followed for the welding specifications, consumable qualifications and non-destructive test procedures.
a) Welding and Brazing Qualifications ASME BPV Sec. IX.
b) Non-destructive examination ASME BPV Sec. V.
c) Material specifications: Welding rods, electrodes and filler metals ASME BPV Sec. II Part C.

6. Fabrications of Piping.

Welding Specifications for C.S. Welding. Arc welding with 6013 electrodes for all passes. Approved make of electrodes are Advani Orlikon, Essab, DNH or any other reputed make. Only rectifier/DC welding sets shall be used.

Welding for Austenitic SS Piping. TIG welding shall be employed for welding SS piping and shielding gas for TIG welding shall be Argon. Purge gas shall be nitrogen (95%) or pure nitrogen gas.

7. Following additional rules shall be followed for austenitic SS piping

1. Welding shall be done in separate areas/workshop. The material shall be protected against all kinds of impurities and particles from other metals.
2. The faces as well as material upto 50mm next to the weld shall be cleaned thoroughly with acetone or methyl ethyl ketone.
3. Tools made of S.S only shall be used. Tools to be used for fabrication of S.S piping must not be used for fabrication of non-SS piping.
4. Oxygen cutting and electrode cutting are not allowed for preparation of welding shapes.
5. Oxidation of metal surface during welding shall be prevented as much as possible by application of shielding and purge gas.
6. Oxy-acetylene welding of S.S. piping is not allowed.
7. All welds in the fabricated piping shall be pickled and passivated to restore corrosion resistance.
8. Heat input in the base materials is to be kept to minimum.
9. Dye Penetrant Test shall be conducted for all root passes.
10. Proper ‘V’ groove at an angle of 60° to 70° shall be made at the faces of two pipes before welding them together.

8. Cleaning of Piping

During all stages of prefabrication and erection, the contractor shall ensure that internal surfaces of all pipes shall be kept as clean as possible, to avoid foreign matter such as sand, soil, clay, lagging materials etc. entering the pipe during prefabrications, erection & commissioning of pipe work.

All the internal surfaces of pipe work during prefabrication stage shall be cleaned thoroughly by wire brushing and/or purging with an air blast to remove all scale or other foreign material from internal surfaces. The contractor shall ensure that the method adopted for cleaning shall not leave any materials on the internal or external surfaces that will effect the serviceability of the pipe.

The installed pipe work shall be thoroughly cleaned several times by flushing with water and/or blowing until and unless all muck, welding flux, etc., is removed from the pipe work and clear water is available at the drain points.

9. Buried Pipes

The following jobs shall be included in the scope of work of the contractor.

Excavation of trenches upto a depth of 1.5m with own staff, labour, tools & tackles. Providing a layer of sand 100mm thick below and around the pipe. Back filling by selected soft earth fill and compacting.
(If required at site with approval of Engineer-in–charge)

Where the underground pipes shall cross the road, Hume pipe sleeves shall be provided. These Hume pipe shall be arranged by the purchaser but laid by contractor’s own men. The external surfaces of underground steel pipes shall be protected generally as per IS-10221 Code of practice for coating and wrapping of under ground Mild steel pipelines. The top of the pipes shall be minimum 750mm below the ground level. Where this is not practical, permission of Engineer-in-Charge shall be obtained for burying the pipes at lesser depth. The pipes shall be surrounded on all sides by sand cushions of not less than 100mm. After the pipes have been laid and top sand cushions provided, the trench shall be refilled with the excavated soil, the contractor shall remove excess solid from the site of work.

Following are the materials used for coating and wrapping of buried pipes:

a) Primer.
b) Enamel
c) Wrapping material.

The ‘Primer’ used can be coal tar primer, Asphalactic primer or Synthetic primer. All these shall be properly blended materials and shall contain no toxic or highly volatile solvents. The prime must have good spraying, brushing & leveling properties. The blended material shall be allow applying it cold either by brushing or spraying and must posses good bonding characteristics with the pipe surface.

The ‘Enamel’ chosen must be compatible with the primer chosen. The enamel can be of coat tar or asphalt. Ideally the enamel and primer supplier must be the same. It must be ensured that the enamel is immune to calcium and magnesium attack and if sought by the manufacturer/ supplier, the Employer shall make the soil analysis report where the pipes are going to be buried available. Accordingly the supplier must choose suitable material for the given application.

The Wrapping material’ chosen shall be of glass fibre tissue. The tissue shall be a uniform mat with porous structure and must be compatible with the enamel used. The wrapping will be dual layered. The outer layer shall be of glass fibre tissue/ Asbestos felt/ Kraft paper. And the outer wrapping must have least water permeability and must withstand varying temperatures without cracking.

All primers and enamels used shall be supplied in tightly sealed containers and the materials shall not settle down in the container. However, the materials chosen for protecting and buried pipes must conform to the local safety standards/ codes.

10. Protection of Pipes and Structure
Coat of approved red oxide paint shall be applied on external surfaces of all fabricated structure and pipe work except SS and galvanized pipes after thorough cleaning the surfaces by wire brushing/ emery paper to minimize surface deterioration during transport. The paint shall be of reputed make (approved by Employer) and best quality, which shall be provided by contractor.

11. Pipe & Pipe Support Erection
All pipes shall be erected only after all the tests like hydro testing etc are performed and pipe erection shall be considered inclusive of any type of pipe support, clamps, nut bolts etc necessary for proper alignment/ slope of pipes.
No piping load should come on equipments. The pipe support arrangement should take care of entire piping load with no stress on connected equipments.
All condensate drainage shall be pitched in the directions of flow to ensure adequate drainage.
12. Pipe Supports
Pipe supports shall be adjustable for height and prime coated with rust preventive paint and finishes coated with black paint, both as approved by Engineer-in-Charge. The spacing of pipe supports shall not be more than that specified below:

<table>
<thead>
<tr>
<th>Nominal Bore size (mm)</th>
<th>Spacing Between supports (Minimum Meters)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 25</td>
<td>1.00</td>
</tr>
<tr>
<td>32 to 65</td>
<td>2.50</td>
</tr>
<tr>
<td>80 to 125</td>
<td>3.50</td>
</tr>
<tr>
<td>150 &amp; above</td>
<td>5.00</td>
</tr>
</tbody>
</table>

Extra support shall be provided at the bends and at heavy fittings like valves to avoid undue stresses on the pipes. Pipe hangers shall be fixed on walls and ceiling by means of metallic approved dash fasteners.

Insulated piping shall be supported in such a manner as not to put undue pressure on the insulation. Wooden blocks/ polyurethane Foam (PUF) support/ pipe shoe to be used for supporting insulated pipes. Where pipes are to be buried under ground, the pipes shall be surrounded on all sides by sand cushions of not less than 100mm.

Hangers & Supports
Hangers and supports shall be provided and installed for all piping wherever indicated, required or otherwise specified. Wherever necessary, additional hangers and supports shall be provided to prevent vibration or excessive deflection of piping and tubing.

All hangers and supports shall be made of steel or other durable and non-combustible galvanized or plated material. Wood wire or perforated strap iron shall not be used for supports.

Hangers shall be supported from structural steel, concrete inserts & pipe racks, as specifically approved. No hangers shall be secured to underside of lightweight roof decking and lightweight floor glass.

Drilling or punching of holes in steel joist members will not be permitted.

Where pipes pass through floors, walls, etc provided galvanised steel pipe sleeves 50mm larger than outside diameter of pipe. Where pipes are insulated, sleeves shall be large enough to allow clearance for insulation.

Where pipes pass through outside walls or foundations, the space between pipe and sleeve shall be caulked with lead wool and oakum.

The centre of pipes shall be in the centre of sleeves and sleeves shall be flushed with the finished surface.

Contractor to take care of pipe expansion and contraction by providing expansion loops.

The piping shall be installed in a uniform manner, parallel to or perpendicular to walls or ceiling and all changes in directions shall be made with fittings. The horizontal piping shall be run at right angles and shall not run diagonally across rooms or other piping. As far as possible all piping shall be arranged to provide maximum headroom.

The stresses in pipelines shall be guided and pipes shall be supported in such a manner that pipelines
shall not creep, sag or buckle. Anchors and supports shall be provided wherever necessary to prevent any misalignment or piping.

Small tubing gauges, controls or other equipment installed on any apparatus, shall not be coiled but shall be installed neatly, carefully bent at all changes in direction, secured in place and properly fastened to equipment at intervals to prevent sagging.

14. Pipe Rack Sealing at Wall
Any cutout or penetration through the wall shall be completely sealed with suitable fire-stop sealing materials.
The sealing material used for the above application must have the following specifications.
   a) Must have good adhesion properties to steel, concrete and masonry.
   b) Must facilitate permanent sealing to combustible/ non-combustible piping and cables/ cables trays etc.
   c) Inherently shall have quick setting and low shrinkage properties.
   d) Must be well suited for sealing smaller to larger openings in the walls made out of concrete/ mortar.

15. General Requirements.
   a) The sealing material shall satisfy the requirement of BS 476, ASTM E 814 and other international safety codes alike.
   b) The sealing material shall be supplied in all weather proof packing material and in case of any specific requirement by the Employer the sealing material shall be packed and supplied in the packing material as required by the Employer.
   c) The package must have all the relevant information marked on it; like source of manufacturer, dimensions, bulk density, batch number etc.
   d) Must possess fire integrity properties and the number of hours of integrity/ fire rating shall be clearly mentioned.
   e) Must be non-hazardous.

16. Painting
All pipes supports, hangers etc shall be given two coats of red oxide primer.
All uninsulated pipes shall be given two coats of red oxide primer followed by two coats of finish paint of a type and colour, as prescribed in the colour code standard IS-2379 – 1990.
The sections shall be cut using an oxy-acetylene flame to required sizes and shapes. The cut ends shall be neatly ground to remove burs, etc., from the cut surfaces. The cut sections shall be then welded/ bolted/ riveted to each other as per the approved drawings. Welding rods shall be used for all structural fabrications. In case of bolted/ riveted sections, the sections are drilled and then assembled with fasteners.

After fabrication and erection, the final structure should be given two coats of red oxide primer and one coat of synthetic enamel of approved make and shade.

17. Equipment Erection
The intent of equipment erection is to place the equipment in the proper location as per approved drawings taking adequate care to prevent the equipment from damage or mechanical shocks while positioning.
The scope of equipment erection would include the following but not necessarily limited to the ones as given under.
Unloading of the equipment and its sub parts from the truck and shifting to the storage area or directly to the place of installation, as instructed by the Employer.
Shifting from the warehouse/ store to the place of use, the main equipment (and its sub parts if any), using mechanical devices.
Removal of the packing of the equipment and its sub parts, and the disposal of waste at a designated place.
Lifting using mechanical devices on the foundation.
Proper alignment of the equipment on the foundation.
Assembling of loose parts, if any, to the equipment.
Fabrication and provision of proper support, working platforms, access ladders etc for the equipment as per the manufacturer’s/ Employers’s recommendations/ requirements.
Making any minor modification in the foundation/ structure/ walls etc (like small chipping/ cutting) to accommodate the equipment in position.
Welding of equipment components like exhaust pipes supports for components etc (that form a part of the equipment) as per the manufacturers’s recommendations.

18. Fabrication & Erection of Storage tanks and other Miscellaneous Vessels.

Stainless steel sheet grade 304L for fabrication of tanks shall conform to ASTM standards. The fabrication shall be inclusive of nozzles, dish ends etc as per approved drawings. The sections shall be cut using an oxy-acetylene flame to required sizes and shapes. Spinning method shall make dish ends. The cut ends shall be neatly ground to remove bur, etc from the cut surfaces. Argon gas welding shall be applied to leak proof joints and good finish. Buffing shall be done to give mirror finish. After complete fabrications, tanks shall be freed from any dirt/ scale using wired brush. Drawings shall be provided by the Contractor for the required size and capacity as per site conditions.

19. The output quality as per the desired targeted parameters of various services from the centralized utility section to the respective labs of the teaching and research Blocks should be achieved through the above service lines. There should be minimum losses on account of service lines.

20. A) For DM water – steaming of SS lines to achieve conductivity – 1-3 micro Siemens/cm²
    B) For soft water - 5-10 ppm
    C) For Vacuum - 650 – 700 mm Hg (after running of vacuum pump 1hr)
    D) For compressed Air – 6-7 Kg/cm² at Lab end point (when compressor is at 9 kg/cm²)

    The report indicating the actual readings observed should be submitted to Engineer-in-charge after Commissioning of the works.

Signature of the tenderer with stamp.
### List of acceptable makes of items for DM Water, Soft Water and Utility services / Lines for storage and distribution at NIPER

<table>
<thead>
<tr>
<th>Item</th>
<th>Make</th>
</tr>
</thead>
<tbody>
<tr>
<td>SS pipe</td>
<td>Jindal/Sail/metline/chandan</td>
</tr>
<tr>
<td>SS fittings</td>
<td>Shree/metline/indian/Vishal or equivalent</td>
</tr>
<tr>
<td>SS Ball Valves</td>
<td>Audco/L&amp;T/shenco/Zoloto or equivalent</td>
</tr>
<tr>
<td>lab tap SS swan neck single way</td>
<td>Satyam/karthik/onicor equivalent</td>
</tr>
<tr>
<td>PE-AL-PE composite pipe</td>
<td>Kitec/Nexgen or equivalent</td>
</tr>
<tr>
<td>PE-PE composite fittings</td>
<td>Kitec or equivalent</td>
</tr>
<tr>
<td>PP ball valve</td>
<td>Parthiv/Gokul/kaizen/rainbow</td>
</tr>
<tr>
<td>Lab tap powder coatswan neck type 3 way</td>
<td>Satyam/karthik/onicor equivalent</td>
</tr>
<tr>
<td>MS material Channels/angles</td>
<td>Tata/jindal/rathi</td>
</tr>
<tr>
<td>pressure regulator cum moisture trap</td>
<td>Akari/ Divya/delta or equivalent</td>
</tr>
<tr>
<td>SS tank - Sheet</td>
<td>fabricated item- (sheet- jindal/sail/posco/aperaam</td>
</tr>
<tr>
<td>SS sheet 304L</td>
<td>Jindal/sail/posco/aperaam</td>
</tr>
<tr>
<td>Air compressor oilfree/oil based</td>
<td>Indoair/Mac tech/Mohan/Ingresoll or equivalent</td>
</tr>
<tr>
<td>Vacuum pump</td>
<td>ppi/void/alpha/maida/shree or equivalent</td>
</tr>
<tr>
<td>portable vacuum pump</td>
<td>truvac/rex/robinaire</td>
</tr>
<tr>
<td>Cement</td>
<td>Acc/Bunger/Birla</td>
</tr>
<tr>
<td>DM storage Tank 50 Lx2 nos</td>
<td>fabricated item- (Sheet- jindal/sail/posco/aperaam</td>
</tr>
<tr>
<td>GI pipe</td>
<td>Jindal/TATA/Swastik</td>
</tr>
<tr>
<td>GI fittings</td>
<td>SVW/UNIK/Unique/Viking/Rex</td>
</tr>
<tr>
<td>GM ball valve</td>
<td>uttam/sant/zoloto</td>
</tr>
<tr>
<td>MS sheet</td>
<td>Tata, Jindal or Equivalent</td>
</tr>
<tr>
<td>Rubber lining</td>
<td>As per OEM (conforming to 6374 part IV )</td>
</tr>
<tr>
<td>Resin relevant grade</td>
<td>ION Exchange</td>
</tr>
<tr>
<td>MS Pipes</td>
<td>Jindal SAIL/Tata/Mikut</td>
</tr>
<tr>
<td>Centrifugal Pumps</td>
<td>Kirloskar/Mather &amp; Patt/Johnson</td>
</tr>
<tr>
<td>Diaphragm Valves (Rubber lined)</td>
<td>Emerald/Rapaid/or equivalent.</td>
</tr>
<tr>
<td>Relay</td>
<td>Siemens/L&amp;T/Schneider</td>
</tr>
<tr>
<td>Cable</td>
<td>Ecko/Finolex/Unistar</td>
</tr>
<tr>
<td>Paint enamel</td>
<td>Asian/Narolac/Berger</td>
</tr>
</tbody>
</table>

**Note:**

1. Equivalent mentioned in Makes above specifies w.r.t Performance, workmanship, useful life, durability and subject to complying with the testing parameters.

Signature of the tenderer with stamp.
### S/I/T/C of Centralized DM (Demineralized) Water Generation Plant at NIPER, S.A.S. Nagar

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Description of item</th>
<th>Qty</th>
<th>Unit</th>
<th>Rate</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>CATION VESSEL</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Providing/ Erection / Installation/ Commission and Testing at site, Vertical Cation Vessel comprising of MSRL shell internally rubber lining as per standard specification, complete with man hole cover, nozzles, complete set of rubber lined 40mm dia frontal piping with C.I. rubber lined diaphragm valve, strainers, ejector, strainer plate, shell dimension 400 dia mm, 1250 height mm, shell thickness 4mm, dishend thickness 5mm, externally enamel paint, Cation resin 125 litres, brine tank HDPE 200 litre to achieve an desired output quality parameter as mentioned in Technical Bid of Tender. Regeneration Capacity 9 cum/ hr of water</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td><strong>ANION VESSEL</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Providing/ Erection / Installation/ Commission and Testing of Vertical Cation Vessel. The Cation Vessel shall comprise of MSRL shell internally rubber lining as per standard specification applicable, complete with man hole cover, nozzles, complete set of 40mm dia frontal piping with C.I. rubber lined diaphragm Valve, strainers, ejector, strainer plate, with online conductivity meter, 400 dia mm, 1250 height mm, shell thickness 4mm, dishend thickness 5mm, externally enamel paint, Anion resin 125 litres, brine tank HDPE 200 litres to achieve desired output quality parameters as mentioned in Technical Bid of Tender. Regeneration Capacity 9 cum/ hr of water</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td><strong>MIX BED VESSEL</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Providing/ Erection / Installation/ Commission and Testing of vertical M.B. Vessel comprising of MSRL shell, internally rubber lining as per standard specifications applicable, complete with manhole cover, nozzles, 40mm dia frontal piping with C.I. rubber Lined Diaphragm Valve, strainers, strainer plate, online conductivity meter, air compressor (1.5 h.p.), 300 dia mm, 1500 height mm, shell thickness 4mm, dishened thickness 5mm, externally enamel paint granulated, Cation Resin 30 litres and Anion resin 45 litres, brine tank 200 litres to achieve desired output quality parameters as mentioned in Technical Bid of Tender. Regeneration Capacity 9 cum/ hr of water</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td><strong>INTERCONNECTING PIPES</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>----------------------------</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Providing, Errection, Installation, Commissioning and Testing of Interconnecting piping from Cation Vessel to Anion Vessel, Anion Vessel to M.B. Unit and M.B. Plant to storage Tanks shall be ISI marked PE-AL-PE composite pipe including all fittings such as couplers, bends, tees, MTC/FTC reducers, pipe plugs etc. with SS pump capacity 3 HP, 3 Phase, 2900 RPM, Head 15 m, flow rate 1 cum/hr approx as per site requirement as mentioned in Technical Bid of Tender.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>dia 4050 (50mm). - 25 metres</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>dia 3240 (40mm). - 6 metres</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>5</th>
<th><strong>Providing, Fixing, Testing, Commissioning of SS 304 company made storage tank with 03 legs stand, top cover lid &amp; with conical bottom and end valve connection. Capacity 2000 litres qty 01 No.</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>1 Job</td>
</tr>
</tbody>
</table>

**Total**

<table>
<thead>
<tr>
<th>6</th>
<th><strong>Buy Back including removal from site of old existing vessels - 03 Nos of DM water plant consisting of MS sheet metal, MS angle, MS flanges, CI diaphragm valves, MS pipes, old resin, rubber lining etc lying at site with tentative weight on as is where is basis. Size - 500 x 1480mm - 02 Nos and 300 x 1460mm - 01 No.</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>450 Kg</td>
</tr>
</tbody>
</table>

**Total**

Signature of the tenderer with stamp.
S/I/T/C of Centralized Soft Water Generation Plant at NIPER, S.A.S. Nagar

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Description of item</th>
<th>Qty</th>
<th>Unit</th>
<th>Rates</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><strong>MULTI GRADE SAND FILTER</strong> Providing/ Erection / Installation/ Commission and Testing of vertical down flow type multi grade sand filter comprising of M.S.E.P shell vessel complete with man hole cover, nozzle, frontle piping with C.I. diaphragm valves flanged type dia 40mm frontal piping, shell dia 800mm x 2500mm (height), shell thickness 5mm, dishend thickness 6mm, externally and internally 02 coats of expoxy painting with base putty treatment to give a good shine finish as per standard colour coding. Details as per Technical Bid.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td><strong>WATER SOFTENING PLANT</strong> Providing/ Erection / Installation/ Commission and Testing at site, vertical water softner comprising of MSRL shell, internally rubber lining, complete with man hole cover, nozzles, complete set of 40mm dia frontal piping with C.I. diaphragm valves, flanged shell 600 dia mm, 2500 height mm, shell thickness 5mm, dishend thickness 6mm, externally expoxy painted to give good shine finish, granulated softner resin 400 litres (Resin Make : Ion Exchange (I) Ltd.), water softner testing kit-02 sets, brine tank of 500 litre etc. to achieve an output quality of treated water ≤ 5ppm.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Raw Water Pump</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Model KDS 225</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Make Kirloskar</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Suction : 50mm</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Discharge : 40mm</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>H.P. 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Softening regeneration capacity 12 cum/ hr of water</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Interconnecting piping from filtration tank to soft water vessel Plant and to storage Tanks-02 Nos shall be PE-AL-PE composite pipe including all fittings such as couplers, bends, tees, MTC/ FTC reducers, pipe plugs etc. as per site requirement. dia 4050 (50mm). - 25 metres dia 3240 (40mm). - 6 metres</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Providing, Fixing, Testing, Commissioning of HDPE3 layered UV stabilized storage tank with threaded top cover lid complete with inlet and outlet as required at site. (Details as specified in Technical Bid of Tender). Capacity 5000 litres qty 01 No,</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Cost of Complete Job at mentioned above S. No. 01 to 04)</td>
<td>1</td>
<td>Job</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td><strong>(a) Buy Back of old damaged existing vessels - 02 Nos of Filtration and Soft water plant consisting of MS sheet metal, MS angle, MS flanges, CI diaphragm valves, MS pipes, old resin, rubber lining etc lying at site on as is where is basis. Size - 900 x 2250mm and 600 x 2500mm.</strong></td>
<td>1000</td>
<td>Kg</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>(b) Buy back including removal from site damaged polyethelene/plastic material storage tank lying at site with tentative weight on as is where is basis..</strong></td>
<td>90</td>
<td>Kg</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Cost of Complete Job at mentioned above S. No. 01 to 05)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
SITC of Centralized Storage/Generation and Distribution of Utility Services through Pipeline System at NIPER, S.A.S. Nagar.

<table>
<thead>
<tr>
<th>S. No.</th>
<th>DSR Ref</th>
<th>Description</th>
<th>Qty</th>
<th>Unit</th>
<th>Rates</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td><strong>DM Water Supply Line</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>NS</td>
<td>Supply laying Installation Testing and Commission of Stainless Steel Grade 304L seamless pipes confirming to Schedule 10 s, ASTM A312 complete with jointing of ends by argon welding/threading as required with SS fittings of grade confirming to ASTM A403 such as bends, flanges, unions, reducers, Tee, sockets, stub ends, dead/stop plugs, nipples, silicon gaskets 3mm thick, GI U clamps, supports &amp; pressure gauge dia 50mm at required 6 points in each size of pipes etc as required to supply the DM water to respective labs and to withstand the water pressure of 15 Kgs/cm². Details of the layout for the pipe lines shall be as per drawing and specifications as per technical bid of tender. The work should be completed to the satisfaction of Engineer-in-Charge. Sizes of pipes :-</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a</td>
<td>NS</td>
<td>32NB</td>
<td>185</td>
<td>Metre</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>NS</td>
<td>25NB</td>
<td>410</td>
<td>Metre</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>NS</td>
<td>15NB</td>
<td>360</td>
<td>Metre</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>SS Ball Valves for DM Water</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>NS</td>
<td>Supply laying Installation Testing and Commission of Ball valves made of Stainless Steel Grade 304L, ISI marked confirming to BS304S11 lever type complete with all fittings such as stub ends, nipples, flanges, neoprene gaskets etc to provide leakproof joints upto the water pressure of 15kg/cm². The works should be completed to the satisfaction of Engineer-in-Charge. Sizes of ball valves are :-</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a</td>
<td>NS</td>
<td>32NB mm(flanged)</td>
<td>6</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>NS</td>
<td>25NB mm(internal Threaded )</td>
<td>40</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>NS</td>
<td>15NB mm(internal Threaded )</td>
<td>50</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Lab Tap for DM Water</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Supply laying Installation Testing and Commission of lab tap MOC

Stainless Steel Grade 304L, swan neck single way, bench top mounted (200mm swan’s distance) for DM water supply to labs complete with all accessories such as chuck nut, gasket set, cover plates, teflon tape, as per drawing / sample at site. Detailed specification as per the technical bid of the tender. The works at site should be completed to the satisfaction of Engineer-in-Charge.

Size of taps:

| C | NS | 15NB | 20 | No |

#### Soft Water Supply Line

Providing and fixing Polyethelene- Aluminium-Polyethelene PE-AL-PE Composite Pressure Pipes conforming to IS - 15450-2004, U.V. stabilized with carbon black having thermal stability for hot & cold water supply, capable to withstand temperature up to 80°C, including all special fittings of composite material (engineering plastic blend) e.g. elbows, tees, reducers, couplers & connectors etc., with trenching, refilling and testing of joints in existing trenches etc complete as per technical bid of tender. The work should be completed to the satisfaction of Engineer-in-Charge.

Sizes of composite pipes:

<table>
<thead>
<tr>
<th></th>
<th>NS</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>NS</td>
<td>4050 (50mm OD)</td>
<td>185</td>
<td>Metre</td>
</tr>
<tr>
<td>B</td>
<td>NS</td>
<td>2532 (32mm OD)</td>
<td>410</td>
<td>Metre</td>
</tr>
<tr>
<td>C</td>
<td>NS</td>
<td>1620 (20mm OD)</td>
<td>200</td>
<td>Metre</td>
</tr>
</tbody>
</table>

#### Ball Valves for Soft Water Supply

Supply laying Installation Testing and Commission of PP flanged/screwed lever type ball valves in existing trenches etc conforming to ASTM standards /as per manufacturers specs complete in all respects to withstand the pressure of 15 Kg/ cm². The work should be completed to the satisfaction of Engineer-in-Charge.

Sizes of pipes:

<table>
<thead>
<tr>
<th></th>
<th>NS</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>NS</td>
<td>50mm dia NB</td>
<td>8</td>
<td>No</td>
</tr>
<tr>
<td>B</td>
<td>NS</td>
<td>32mm dia NB</td>
<td>30</td>
<td>No</td>
</tr>
<tr>
<td>C</td>
<td>NS</td>
<td>20mm dia NB</td>
<td>20</td>
<td>No</td>
</tr>
</tbody>
</table>

#### Raw Water Tap
Supply laying Installation Testing and Commission of lab tap powder coated brass swan neck three way bench top mounted (200mm swan's distance) in labs complete as per approved sample at site. Detailed specification as per the technical bid of the tender. The works at site should be completed to the satisfaction of Engineer-in-Charge. Sizes of taps are:

| C | NS | 15NB | 30 | No |

**Compressed Air**

Supplying Laying Installation Testing and Commissioning of SS 304L seamless pipes conforming to IS specifications ASTM A312 complete with required all fittings confirming to ASTMA403 such as bends, unions, reducers, Tee, sockets, stub ends, dead plugs, Socket for Pressure guages -15 nos etc in existing trenches as required to supply the compressed air to respective locations as per site and drawings. The flange connections shall be at T points complete in all respects to withstand the air pressure of 15 Kgs/cm². Details of the layout for the pipe lines as per drawing and specifications as per technical Bid of tender documents. The work should be completed to the satisfaction of Engineer-in-Charge. Sizes of pipes with wall thickness are:

| A | NS | 40mm NBx2.5mm | 185 Metre |
| B | NS | 25mm NBx2.5mm | 410 Metre |
| C | NS | 15mm NBx2.5mm | 200 Metre |

**Ball Valves for Compressed Air line**

Supply laying Installation Testing and Commission of SS 304L SS ball flanged/threaded & lever type ball valves ISI marked and conforming to IS9890:1981, jointed with pipe lines as respective locations complete in all respects to withstand the air pressure of 15 Kg/cm² in existing trench as per site requirement. The work should be completed to the satisfaction of Engineer-in-Charge. Sizes of ball valves for compressed air lines are:

| a | 32mm dia NB (flanged) | 6 | No |
| B | 25mm dia NB (internal threaded type) | 30 | No |
| C | 15mm dia NB (internal threaded type) | 20 | No |

**Vacuum line**
<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>9</strong></td>
<td>NS</td>
<td>Supplying Laying Installation Testing and Commissioning of GI pipes 'B' class ISI marked confirming to IS specifications complete with required all fittings such as elbow bends, unions, reducers, Tee, sockets, stop plugs, vacuum gauges dia 50mm - 2nos etc in existing trenches as required to supply the vacuum to respective locations as per site to withstand the air pressure of 15 Kgs/cm². Details of the layout for the pipe lines as per drawing and specifications as per technical Bid of tender documents. The works should be completed to the satisfaction of Engineer-in-Charge. Sizes of pipes:-</td>
</tr>
<tr>
<td>a</td>
<td>NS</td>
<td>25mm</td>
</tr>
<tr>
<td>B</td>
<td>NS</td>
<td>15mm</td>
</tr>
<tr>
<td><strong>Ball valves for vacuum line</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>10</strong></td>
<td>NS</td>
<td>Supply laying Installation Testing and Commission of Gun metal ball valve internal threaded heavy duty ISI marked conforming to IS specifications, thread jointed with pipe lines complete in all respects to provide leak proof joints and to withstand the vacuum pressure of 750mm Hg in existing trench as per site requirement. The work should be completed to the satisfaction of Engineer-in-Charge. Sizes of ball valves for vacuum lines are:-</td>
</tr>
<tr>
<td>a</td>
<td>NS</td>
<td>25mm</td>
</tr>
<tr>
<td>B</td>
<td>NS</td>
<td>15mm</td>
</tr>
<tr>
<td><strong>11</strong></td>
<td>NS</td>
<td>Supply laying and erection of MS material ISI marked conforming to IS 808(1989) cut to size, drilling of holes of size 15 mm including single coat primer and one coat black japan paint complete with clamping with U type GI clamps 50mmxdia 10mm x80mm (length) and fixing the same in trenches and allied areas with minor brick work and cement plaster wherever required to support utility service lines in trenches as per site requirement. Size of angles required :-</td>
</tr>
<tr>
<td>a</td>
<td>NS</td>
<td>MS Angle 40 x 40 x5 mm</td>
</tr>
<tr>
<td>b</td>
<td>NS</td>
<td>MS Channel 100x50 x 5mm</td>
</tr>
<tr>
<td><strong>Pressure regulator/moisture trap</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>12</strong></td>
<td>NS</td>
<td>Providing, fixing, installation and testing of pressure regulator cum oil &amp; moisture trap with accessories to withstand pressure of 15 kg/cm² in compressed air pipe line near the entrance of laboratories of blocks as mentioned in drawing. Details specifications as mentioned in technical bid of tender.</td>
</tr>
<tr>
<td>NS</td>
<td>Description</td>
<td>Quantity</td>
</tr>
<tr>
<td>----</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>----------</td>
</tr>
<tr>
<td>13</td>
<td>Supply, installation, testing, commissioning of DM water storage tank made from SS 304L sheet 20 gauge complete with SS tubing inlet 40mm, outlet 40mm SS valves lever type 40mm, full vertical length level sight glass tubing dia 25mm covered with SS sheet cut to size for protection including fittings such as reducer, socket, bends, tee, tank nipples etc with SS rectangular pipe stand 100 x 40mm x 600mm height-04 Nos from ground as required and installation of complete assembly on foundation with required supports to the satisfaction of Engineer-in-Charge. Details shall be as per Technical Bid of Tender Documents and Drawings.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>NS Capacity 2000 litres</td>
<td>1</td>
</tr>
<tr>
<td>14</td>
<td>Providing, Fixing, Installation and Testing of trench covers made from MS angle Size 40x40x5mm frame covered with SS 304L sheet metal 20 Gauge confirming to IS5522:1992 of various sizes complete with cutting, bending, gas welding, screwed joints, bush hinge type dia 25mmx50mm length -2 nos per cover. Cover opening handle 150mm length (Dia 10 mm MS rod), as per drawing with details specifications as mentioned in Technical bid of tender. (Rate of MS angle already covered in item no. 8).</td>
<td></td>
</tr>
<tr>
<td></td>
<td>NS Air Compressor i) Capacity ≥10 CFM, Motor 5 HP, 3 Ph, working pressure range upto 10 bar, oil free, piston displacement ≥ 500 litres / min, air receiver-cum-storage capacity ≥ 200 litres.</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>P/I/T/C of double stage water ring vacuum pump made from CI body, SS Impellers, SS 304 shaft (suitable for 20 HP Motor) without Electric drive motor, coupling for pump &amp; motor, NRV, Main ball valve lever type, drain valve 65mm dia, base frame MS channel 100x50mm, 1440 rpm, Vacuum cap required -720mmHg, LPM 20 liters</td>
<td></td>
</tr>
<tr>
<td></td>
<td>NS Suction Capacity-440m³/hr</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
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<tr>
<td>---</td>
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<td>---</td>
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<tr>
<td>17</td>
<td>NS</td>
<td>P/I/C/T of portable double stage vacuum pump rotary type, oil based, single phase 220V, 50Hz complete with NRV, vacuum tubing, clamps, electric wire with plug top</td>
</tr>
<tr>
<td></td>
<td>NS</td>
<td>cap 12 CFM</td>
</tr>
<tr>
<td>18</td>
<td>NS</td>
<td>Brick work with common burnt clay machine molded perforated bricks of class designation 12.5 conforming to IS:2222 with F.P.S (non modular). (Refer DSR 2018 - 6.3.1)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total Part-A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Buy Back</td>
</tr>
<tr>
<td>19</td>
<td>NS</td>
<td>Buy back of old damaged MS pipe including dismantling, lifting, removal of existing pipe lines manually from trenches leading from Utility Section to respective blocks. Details of works are mentioned in Technical Bid of Tender.</td>
</tr>
<tr>
<td>20</td>
<td>NS</td>
<td>Buy back of old damaged vacuum pump with C.I. housing and MS frame of capacity 400 cum/hr including dismantling and shifting from site without electric motor</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Net Total Part-A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Part B</td>
</tr>
<tr>
<td>DM Water Storage Tank</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>NS</td>
<td>Supply, installation, testing, commissioning of DM water storage tanks made from SS 304L sheet 22 gauge complete with SS tubing inlet 10mm, outlet 15mm SS valves 10mm, full length level sight glass tubing dia 25mm covered with SS sheet confirming to IS 5522:1992, including fittings such as reducer, socket, bends, tee, couplers etc as required and installation of complete assembly on walls with supports to the satisfaction of Engineer-in-Charge. Details shall be as per drawings and specifications as per Technical Bid of Tender Documents.</td>
</tr>
<tr>
<td></td>
<td>NS</td>
<td>Capacity 50 litres x 2 nos (100 litres)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total Part-B</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total Part-A + Part-B</td>
</tr>
<tr>
<td></td>
<td></td>
<td>G. Total</td>
</tr>
</tbody>
</table>

Signature of the tenderer with stamp.
**Annexure-A**

**COMBINED TOTAL OF THE THREE SOQ's OF THE TENDER :**  
(to be filled by the contractor)

<table>
<thead>
<tr>
<th>S. No</th>
<th>SOQ Part</th>
<th>Work details</th>
<th>Quoted Amount by contractor</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>PART A1</td>
<td>S/I/T/C of Centralized DM (Demineralized) Water Generation Plant</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>PART A2</td>
<td>S/I/T/C of Centralized Soft Water Generation Plant</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>PART B</td>
<td>S/I/T/C of Centralized Storage/Generation and Distribution of Utility Services through Pipeline System</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>GRAND TOTAL (In Fig)</th>
<th>GRAND TOTAL (In words)</th>
</tr>
</thead>
</table>

Signature of the tenderer with stamp

Name : ____________________  
Address : ____________________  
Mobile No : ____________________