SBI INFRA MANAGEMENT SOLUTIONS PVT. LTD.

(A WHOLLY OWNED SUBSIDIARY OF SBI)

E-TENDER DOCUMENT

FOR

FIRE SAFETY ARRANGEMENT RELATED WORKS,
YARD HYDRANT & AUTOMATION OF EXISTING FIRE
HYDRANT SYSTEM

AT

STATE BANK OF INDIA,
LOCAL HEAD OFFICE,
11-PARLIAMENT STREET,
NEW DELHI - 110001.
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## NOTICE INVITING TENDERS

1. **NOTICE INVITING E-TENDERS**

SBI Infra Management Solutions Pvt. Ltd. (SBIIMS) invites e-tenders on behalf of State Bank of India (SBI) for Fire safety arrangements related works, Yard Hydrant and Automation of existing Fire Hydrant system at State Bank of India, Local Head Office, 11-Parliament Street, New Delhi-110001., as per following schedule.

<table>
<thead>
<tr>
<th></th>
<th>NAME OF WORK</th>
<th>Fire safety arrangements related works, Yard Hydrant and Automation of existing Fire Hydrant system at State Bank of India, Local Head Office, 11-Parliament Street, New Delhi-110001.</th>
</tr>
</thead>
<tbody>
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<td>2</td>
<td>EARNEST MONEY DEPOSIT</td>
<td><strong>Rs. 27,000.00 (Rs. Twenty Seven Thousand only)</strong> in the form of Demand Draft/ Banker’s Cheque issued by any nationalized /scheduled Bank drawn in favour of State Bank of India payable at New Delhi, which shall be converted into interest free security deposit for successful contractor, whose tender is accepted.</td>
</tr>
<tr>
<td>3</td>
<td>SECURITY DEPOSIT</td>
<td>Balance interest free amount to make a total of 5% of tender amount (annual value) into Security Deposit in the form of Demand Draft/ Banker’s Cheque issued by any nationalized /scheduled Bank drawn in favour of State Bank of India payable at New Delhi or Bank Guarantee (BG) of equivalent amount issued by any nationalized /scheduled bank.</td>
</tr>
<tr>
<td>4</td>
<td>PROCESSING FEES</td>
<td><strong>Rs. 3000/- (Rupees Three Thousand only)</strong> (non refundable) shall be submitted through State Bank Collect, by selecting proper tender number and details reflected in the drop down menu with final submission and generating the journal slip for the same, <em>(Tender Id:-DEL202005009).</em></td>
</tr>
</tbody>
</table>
| 5 | ADDRESS AT WHICH THE TENDERS ARE TO BE SUBMITTED | Technical Bid (along with EMD and State Bank Collect):
SBI Infra Management Solutions Pvt. Ltd. 5th Floor, D-Block, 11, Parliament Street, New Delhi- 110001.

Price Bid: Online at e-tendering portal of our service provider, M/s Antares Systems Ltd.

For any assistance and accessing the tender document you may contact:

M/s ANTARES SYSTEMS LIMITED

Contact Person: Mr. Pushpraj,

e-Mail Id: pushpraj@antaressystems.com,

Contact Number: 7503347659 |
<p>| 6 | LAST DATE &amp; TIME FOR | <strong>22.06.2020.</strong>, upto 3.00 pm. |</p>
<table>
<thead>
<tr>
<th>SUBMISSION OF E-TENDERS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DATE AND TIME OF OPENING OF E-TENDERS</strong></td>
<td><strong>22.06.2020</strong> at 3.30 pm.</td>
</tr>
<tr>
<td><strong>VALIDITY FOR OFFER</strong></td>
<td>3 (three) months from the date of opening of tender.</td>
</tr>
<tr>
<td><strong>COMMENCEMENT OF WORK</strong></td>
<td>Within 07 days from the date of issuance of work order.</td>
</tr>
<tr>
<td><strong>PENALTY</strong></td>
<td>As per relevant clause of tender document.</td>
</tr>
<tr>
<td><strong>PERIOD OF HONORING PAYMENT CERTIFICATE</strong></td>
<td>15 days after receipt of bill.</td>
</tr>
<tr>
<td><strong>INSURANCE</strong></td>
<td>As per relevant clause of tender document.</td>
</tr>
<tr>
<td><strong>WORKING SCHEDULE</strong></td>
<td>In co-ordination with all the other agencies without disturbing the functioning of the office.</td>
</tr>
<tr>
<td><strong>PRE-BID MEETING</strong></td>
<td><strong>15.06.2020.</strong>, at 3:30pm, Office of AGM (P&amp;E), SBI LHO New Delhi.</td>
</tr>
<tr>
<td><strong>REJECTION OF TENDER/S, IN CASE.</strong></td>
<td>a- Incomplete document submission (technical bid and/or financial bid), b- Delay in Tender submission, c- Non-payment of Fee and mentioned EMD deposit, d- Non-adherence to laid down norms/criteria stated in tender document.</td>
</tr>
</tbody>
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In case the date of opening of tenders is declared as a holiday, the tenders will be opened on the next working day at the same time.

SBIIMS reserves its rights to accept/reject any/all tender, without assigning any reason what so ever.

**Vice President & Circle Head**  
SBIIMS, New Delhi
2. AGREEMENT

This agreement made on the __________day of __________ Two Thousand _____
BETWEEN State Bank of India a corporation constructed under the State Bank of India
Act, 1955 and having its Local Head Office at New Delhi and many other places,
(hereinafter called “the Employer”) of the one part and M/s __________________________
through its __________________ having its registered office at
_______________________________________ (hereinafter called “the Contractor”) of the
other part.

WHEREAS the Employer is desirous of executing Certain Works to be carried out “Fire
safety arrangements related works, Yard Hydrant and Automation of existing Fire
Hydrant system at State Bank of India, Local Head Office, 11-Parliament Street, New
Delhi-110001”, as per Schedule-I, to this agreement and has caused Drawings, Bills of
Quantities and Specification describing the work to be done,
AND WHEREAS the said Drawings, the Bills of Quantities (Separate Price bid as Annex-I)
marked pages _____ to ____ (inclusive) and the Specifications as stated have been signed
by or on behalf of the parties hereto:

AND WHEREAS the Contractor has agreed to execute the work upon the Conditions of
Tender and the Conditions of Contract and further subject to the Special Conditions set forth
in Schedule-II hereto attached (hereinafter collectively referred to as “the said Conditions”)
as per the said Drawings and as described in the said Specification and included in the said
Bills of Quantities for the sum of Rupees _____________________

NOW IT IS HEREBY AGREED AS FOLLOWS:

1. In consideration of the sum of Rupees _____________________ to be paid at the time and in the
manner set forth in the said Conditions, the Contractor shall upon and subject to the
said Drawings and described in the said Specification and Bills of Quantities.

2. The Employer shall pay to the Contractor the said sum of
Rs._______________________________

____________________ or such other sum as shall become payable hereunder at the times
and in the manner specified hereinafter.

3. The said Conditions, Specifications and Priced Bills of Quantities shall be read and
construed as forming part of this agreement, and the parties hereto shall respectively
abide by and submit themselves to the conditions and stipulations and perform the
agreement on their parts respectively in such Conditions, Specifications and Priced
Bills of Quantities contained.

4. This agreement is subject to jurisdiction of courts in Delhi only.

5. The AGM (P&E), SBI, LHO, New Delhi shall exercise powers
on behalf of the said Employer for the purpose of the Contract Agreement.

6. Whereas both the parties agree to sign the following annexure
Annexed to this Agreement in token of their acceptance.

(i) Agreement
5. The Bank shall pay the contractor such sum as shall become payable hereunder at the times and in the manner specified in the said Conditions mentioned in the General Conditions of Contract.

6. Whereas the Contractor hereby undertakes and agrees to carry out and complete the works within 60 days from the date of handing over site or 15 days from the date of issue of letter of acceptances, whichever is later. The Contractor agrees and has deposited the sum of Rs.________ by way of Initial Security Deposit for due fulfillment of this Contract for the Works. It is agreed that the Security Deposit shall be deducted from each running bills and refunded to the contractor as per clause 2 of the General Conditions of the Contract Annexed herewith.

7. Whereas it is agreed that the earnest money amounting to Rs.27,000/- (Rupees Twenty Seven Thousand only) deposited by the Contractor in the form of Demand Draft along with the tender shall be forfeited in full in case the Contractor does not remit the Initial Security Deposit within the stipulated period of the start of the works by the stipulated date mentioned in the award letter.

8. Whereas Shri _______________ is the accredited representative(s) of the Contractor who would be responsible for taking instructions from the Employer in relation to the Works. The Contractor agrees to pay Sales Tax or any other Tax on material or finished works like Works Contract Tax, Turnover Tax etc. including Income Tax in respect of this Contract of the Works and the Employer will not entertain any claim whatsoever in this report nor the Employer shall be responsible to pay any Tax as mentioned above. If due to non-payment of any of the aforesaid Tax or other Taxes connected with the Works, the Contractor suffers any loss or damages occurred to the Contractor and the Employer will be entitled to claim damages from the contractor for non-completion of the Work within 12 calendar months stipulated in tender,

9. Whereas the Contractor hereby declares the list of all the relative working with the Employer which is annexed herewith.

OR

Whereas the Contractor declares that none of his relative is working with the Employer.

OR

Whereas the Contractor declares that he has associated himself with the agencies of the appropriate classes of person for Sanitary and Water Supply Installation etc. or any other specialized job to complete the works.

The Plans, Drawings, Specifications, Contract Documents and the Documents above
mentioned shall form basis of this Contract and the decision of Vice President & Circle Head, SBI Infra Management Solutions Pvt. Ltd., 5th Floor, D- Block, 11, Parliament Street, New Delhi- 110001 for the time being as mentioned in the Conditions of Contract in reference to all matters of dispute as to material, workmanship or account and as to the intended interpretation of the clauses of the Agreement or any of the document attached hereto shall be final and binding on both parties and may be made rule of the court.

10. The work comprises of the “Fire safety arrangements related works, Yard Hydrant and Automation of existing Fire Hydrant system at State Bank of India, Local Head Office, 11-Parliament Street, New Delhi-110001”.

11. As mentioned above and all subsidiary and other works connected therewith on the same site as may be ordered to be done from time to time by Vice President & Circle Head, SBI Infra Management Solutions Pvt. Ltd., 5th Floor, D- Block, 11, Parliament Street, New Delhi- 110001 for the time being even though such works may not have been shown on the Plans or described in the said Specifications or Schedule of Quantities of various classes of Work to be done.

12. The Employer through the Vice President & Circle Head, SBI Infra Management Solutions Pvt. Ltd., 5th Floor, D- Block, 11, Parliament Street, New Delhi- 11000, reserves himself the right of altering the Plans, Drawings and nature of Work of adding to or omitting any items of work or having portions of the same carried out departmentally or otherwise and such alterations or variations shall be carried out without prejudice to this Contract.

13. All disputes arising out of or in any way connected with this agreement shall be deemed to have arisen in Delhi and only the courts of Delhi shall have jurisdiction to determine the same.

14. The several parts of this Contract have been read to us and fully understood by us.

In Witness whereof the parties above named have executed these presents today and year first here-in-above written.

Signed, Sealed and Delivered by:

Authorized Representative of Employer                 Authorized Representative of Contractor
3. **INSTRUCTIONS TO TENDERERS**

SBI Infra Management Solutions Pvt. Ltd. (SBIIMS) invites e-tenders on behalf of State Bank of India (SBI) for Fire safety arrangements related works, Yard Hydrant and Automation of existing Fire Hydrant system at State Bank of India, Local Head Office, 11-Parliament Street, New Delhi-110001.

Any further information will be provided to all bidders through e-mails or telephone or online through e-tendering service provider.

1. **EMD and Processing Fees:** Processing Fees of **Rs. 3,000/- (Rs. Three Thousand Only)** through State Bank Collect, (Tender Id: - **DEL202005009** ) (non-refundable) and EMD of Rs. 27,000/- (Twenty Seven Thousand Only), will in the form of Demand Draft or Banker’s Cheque issued by any nationalized/scheduled Bank drawn in favour of SBI Infra Management Solutions Pvt. Ltd and State Bank of India respectively and both payable at New Delhi. **Processing Fees (only through State Bank Collect, (Tender Id:-DEL202005009 ) and EMD in the form of Demand Draft or Bankers' Cheque shall be submitted to Vice President, SBI INFRA MANAGEMENT SOLUTIONS PVT. LTD. Delhi Circle Office, 5th floor, State Bank of India, Local Head Office Building, 11-Parliament Street, New Delhi-110001**, in separate sealed envelopes, along with technical bid, in person on or before **22.06.2020, up to 03:00 pm.**

2. **Eligibility Criteria:**

Tenderers who are empanelled with SBI, LHO, New Delhi under category “Fire Suppression system/Wet riser system/ Down comor system/Total flooding for Bank's Offices, Residential Premises, Transit Houses and SBLC's are only eligible for participation.

   a) **Information relating to submission of Bid:**

Bidder needs to submit their price bid proposal through e-Tendering portal, hard copy submission will not be accepted.

**Technical Bid:** Notice inviting tender, guidelines for bidders, schedule-I, terms and conditions, scope of work, annexes etc. Each page of technical bid shall be signed and duly stamped by an authorized person and DD/ Banker's Cheque of requisite amounts for EMD and Tender Cost to be enclosed in separate sealed envelopes.

**Financial/ Price Bid:** The Financial/ Price Bid (schedule-II) should be submitted through e-Tendering portal maintained by **M/s ANTARES SYSTEMS LIMITED, BANGALORE** in respective tender section. No physical copy of financial bid will be accepted.

In the Price Bid the contractor should quote the rate both in figures and in words without any ambiguity, corrections and eraser shall have to be attested by Contractor. The rates quoted should be inclusive of all statutory obligations such as Minimum Basic Wages, ESI, EPF, Bonus, Leave Coverage etc. as applicable and all kind of taxes excluding GST. The offers / Bids of those prospective bidders which do not meet the statutory requirement are liable to be rejected. In case of change in statutory obligations like increase/ decrease in minimum wages/ GST, the Bank may consider for enhancement/ decrement to the extent of
change as and when there is change in statutory obligations like increase/ decrease in minimum wages/ GST on production of documentary proof of such change by the Contractor.

4. EMD

The tenders without EMD will be rejected. EMD may be forfeited in the event of withdrawal of the bid during the period of bid validity or if successful bidder fails to sign the contract in accordance with the term and conditions & other requirements, specified in tender document. No interest is payable on the amount of EMD. EMD of the unsuccessful bidders will be returned as early as possible.

5. The Courts in Delhi / New Delhi alone shall have the jurisdiction in respect of any or all matters relating to or connected with the tender.

6. The Bank does not bind itself to accept the lowest tender and reserves the right to reject any or all the tenders received without assigning any reason (in case rates are unreasonable/ unjustified, a justification will be called against the tender quoted failing to which, may lead to rejection of bid and cancellation of tender).

7. Final award of the contract for Fire Fighting and related works, will be subject to the approval of the Competent Authority in the Bank.

8. The specification, duration of the work and the terms & conditions under which the contract is required to be performed and also the rights and obligations of the person/s whose tender is accepted shall be under an Agreement to be executed in the form, enclosed. The person submitting the Tender shall have read the same and is always deemed to have read and understood the same before submitting his tender. However, Bank reserves the right to add / delete any other clauses in the agreement.

9. The Contractor shall have to execute an agreement as per the enclosed format within seven days from the date he has been advised to do so, failing which his tender will be rejected and EMD will be forfeited. The Contractor shall bear all the costs and expenses in respect of all charges, stamp duties etc. of the agreement. All the terms and conditions will also form a part of the Agreement.

10. Authorized Signatory / Signing of Tender: Individual signing the Tender / Contract must specify whether he signs as:

a) A “Sole Proprietor” of the concern or constituted attorney of such sole proprietor.

b) All the partners of the firm, if it be a partnership firm & in absence of any partner, shall be signed by Power of Attorney holder, in which he must have authority to execute contracts on behalf of the firm either by virtue of partnership agreement or by power of attorney duly executed by the partners of the firm in his / her favour authorizing to sign on behalf of the firm.

c) Authorized officer, if it is a company and authorized by the Board of Directors to submit /sign the bid. A person signing the tender form or any documents forming part of the contract on behalf of another shall be deemed to consider that the person so signing has authority to sign, and if, on enquiry, it appears that the person has no authority to do so, the
Bank without prejudice to other civil and criminal remedies, will cancel the contract and hold the signatory responsible for all costs and damages.

11. The contractor who committed / commits any breach of the contract awarded / to be awarded by the Bank, shall be disqualified from participation in future tender process if any to be initiated by the Bank for similar work.

12. The contractor shall indemnify and keep indemnified the Bank against all losses and claims, damages or compensation for breach of any provisions of the Payment of Wages Act, 1936, Minimum Wages Act, 1948, Contract Labour (Regulation and Abolition) Act, 1970 and any other law/statute in force in this regard.

13. Termination:

(I) The Bank may, without prejudice to any other remedy for breach of contract, may terminate the contract / agreement by one month's notice in the event of unsatisfactory performance or on breach of any stipulated conditions or qualitative dimensions of the various services specified/agreed upon by the Contractor, or the engagement is not in the interest of the Bank or the Bank no more requires any such service.

(II) Other grounds for termination: The Bank is entitled to terminate this contract/agreement for any reason at its absolute discretion forthwith without notice, without any reason and without payment of any compensation, in the following cases:

(i) The Contractor is adjudicated insolvent by a Competent Court or files for insolvency or if the hirer being a company is ordered to be wound up by a Court of competent jurisdiction.
(ii) If any charge sheet is filed by a competent authority of the Government against the Agency/Company, or the vendor is convicted by a criminal court on grounds of moral turpitude.

1. For any reason whatsoever, the Contractor becomes dis-entitled in law to perform obligations under this agreement.
2. If there is a change in the name or constitution of the Contractor arising out of merging with some other company or collaboration with some other company or for any other reason or, if any changes take place in the proprietorship or partnership or the company, the Bank should be intimated within 30 (thirty) days of such changes, failing which all payments will be withheld and Bank may terminate the hire agreement as may be deemed necessary. Whatever be the reason of changes, the subject agreement at the same rates, terms and conditions laid down herein. The Contractor shall refund the excess money paid for the term for which the agreement / arrangement has run.
3. In the event of failure of the Contractor to provide the services or part thereof, as mentioned in the agreement/tender document for any reasons whatsoever, the Bank shall be entitled to procure services from other sources and the Contractor shall be liable to pay to the Bank, the difference of payments/excess payment made for such other services, besides damages for the period of failure in providing the services or part thereof.
4. In the event Bank terminates the Contract, the Bank shall be entitled to procure services from other vendor/contractor as it deems appropriate, and the Contractor shall be liable to compensate the Bank for loss if any suffered on account of difference in rates payable to him and to the alternate Vendor/Contractor.
5. In the event of termination of the contract for any reason whatsoever, the Contractor/or persons employed by him or his agents shall not be entitled for any sum or sums whatsoever from the Bank by way of compensation, damages or otherwise.
4. SPECIAL INSTRUCTIONS TO TENDERERS

1. The tender form must be filled in English and all entries must be made by hand and written in ink (incase and wherever applicable).

2. Each and every page of the tender document including drawings / layout etc. must be signed by an authorized person/ representative of the firm.

3. The tenders must be submitted in the prescribed format only. The tenderer’s must quote the rates in the schedule of Quantities, and amount. The rates should be written both in words and figures without any creatures and alterations.

   However if errors are made, the wrong figures or words must be neatly scored out under full signature of the tenderer and the correct figures and words neatly rewritten ( in case of Hardcopy of bids submission). Over writing is not permitted.

4. Errors in the schedule of quantities, rates and amount shall be dealt with in the following manner:
   
   a) In the event of any discrepancy between the rates quoted in words and the rates in figures, the quotient of the total amount divided by the quantity shall be taken into consideration.
   
   b) In the event of an error occurring in the amount columns as a result of wrong multiplication and extension of unit rate and quantities, the unit shall be regarded as firm and the amount shall be amended accordingly.
   
   c) All errors in totaling in the amount column and in carrying forward, the totals shall be corrected.
   
   d) When the amount of an item is not worked out by the contractor or it does not correspond with the rate written in figures or in words, then the rate quoted by the contractors in words shall be taken as correct.
   
   e) When the rate quoted by the contractor in figures and in words tallies but the amount is not worked out correctly the rate quoted by the contractor shall be taken as correct and not the amount.

5. The quantities indicated in the schedule are only probable quantities and are liable to alteration by omission reduction or addition. Payment shall be made on the basis of actual quantities of work done at the accepted rates.

6. No alteration which are made by the tenderer in the drawings, specifications or in probable quantities accompanying the tender will be recognized and, if any alterations are made the tender is likely to be invalidated.
7. The tenderer must obtain for himself in his own responsibility and at his own expenses all the information necessary for the purpose of filling this tender and to enter into a contract with the bank he must examine the drawings, specifications, conditions etc., and must inspect the site of work and must acquaint himself with all local conditions and matters pertaining there to.

8. The tenderer shall also bear all expenses in connection with the preparation and submission of this tender.

9. **EARNEST MONEY DEPOSIT (EMD)**

   a) The tenderer shall deposit required EMD in the form of a draft drawn on any Schedule Bank in favour of the State Bank of India, Payable at New Delhi, at the time of submission of the tender as Earnest Money SBI is not liable to pay any interest on Earnest Money.

   b) The successful tenderer will have to pay further sum equivalent to 2% of this contract value, less EMD already paid an initial security deposit by mean of D.D. in favour of the State Bank of India, Payable at New Delhi, within 14 days. The EMD and Security Deposit thus paid shall be held by the SBI as Security Deposit, for due execution and fulfillment of the contract till the completion of the work and shall not bear any interest.

   c) The EMD of unsuccessful tenderers shall be refunded to them without any interest after the decision to award the work is taken. The EMD of the successful tenderer shall be retained as part of Security Deposit and for the due fulfillment of the contract.

10. **SECURITY DEPOSIT (SD):**

    Apart from Earnest Money Deposit made as above, Security Deposit shall be deducted from running / progressive bills of the contractor @ 10% of the gross value of each bill until the total security deposit including EMD equals to 5% of the accepted value of the tender.

11. **COMPLETION PERIOD:**

    The time is the essence of contract. The entire work shall be completed by the contractor within **2 Months** from date of commencement of the work at site or issue of LOI, whichever is earlier. The work shall be commenced immediately at the site. The date of commencement of work at site shall be within seven days from the date of issue of the work order.

    The work is of urgent nature and the completion time schedule should be strictly adhered to by the contractor.
12. The tenders submitted shall remain valid for acceptance for a period of One Hundred Twenty Days from the date of their opening. Should any tenderer withdraw his tender before the expiry of the said period or makes any modification to his tender, the tender shall be treated as having been rejected or abandoned and his EMD will be forfeited.

13. The Bank does not bind itself to accept the lowest tender and reserves to itself the right to reject any or all of the tenders received without assigning of reasons thereof. Further, the Bank reserve the right to award any portion of the work to different tenderers or to award the entire work to one tenderer.

14. The tenderer whose tender is accepted is bound to execute a formal agreement with the Bank in accordance with the draft agreement which will include the notice inviting tender, tender conditions, other papers herein, special conditions if any, drawings and specifications etc. But his liability can commence from the due date of the written acceptance of his tender whether the formal agreement is drawn or not.

The contractor shall bear all expenses in connection with the execution of the said agreement including fees for stamps and registration of documents as required.

15. The compensation or other sums of money payable by the contractor to the Bank under the terms of contract may be deducted from his EMD/SD if the amount so permits and the contractor shall unless such deposits has become otherwise payable, within ten days after such deductions make good in cash the amount so deducted.

16. The work shall be carried out under the directions and supervision of and subject to the approval in all respects by the Consultants / Bank.

17. On acceptance of the tender the contractor shall in writing inform the Bank and the Consultants the names of his accredited representatives who will be responsible to take instructions from the Consultants/ Bank.

18. The work or any part of it shall not be transferred / assigned or sublet without the consent of the Bank.

19. The contractor shall be required to co-operate and work in accordance with and afford reasonable facilities for such other agencies / specialists as may be employed by the Consultants / Bank on other works / sub works in connection with the work.

20. The contractor will be required to insure the work and keep it insured until one month after the date of taking over the works by the Bank or otherwise as per the terms of the contract, against loss or damage by fire and other usual risks other than the risks accepted in the terms of the contract with an approved insurance company.
21. The contractor is required to comply with all acts of Govt. relating to labour and the rules and regulations made in the tender from time to time and submit at the proper times all particulars and statements required to be furnished to the labour authorities.

22. For all the items of work executed by him, the contractor will be required to supply at his own expenses, to the consultants, copies of post card size photographs in triplicate each of the works from two approved portions of each item of work at intervals of not more than one month during the progress of the work and also at every important stage of the work or as directed by the Consultants/ Bank.

23. In carrying out the work the contractor shall comply with the provisions of the safety code, annexed to these papers.

24. The contractor shall provide all the relevant IS codes at the site for ready reference.

25. It is the responsibility of the contractors to get all the necessary approvals from the various agencies like, electrical inspectorate, Municipal and any other agencies. statutory bodies etc. as required for getting the power supply/occupancy to the building. No separate payments shall be released to the contractors or this payment shall be released to the contractor for this other than the statutory payments to be made to the agencies.
4. FORM OF TENDER FOR WORKS

To
The Vice President & Circle Head
SBIIMS, 5th Floor, SBI,
LHO-Building,
11-Parliament Street
New Delhi-110001.

Dear Sir

Sub:- FIRE SAFETY ARRANGEMENT RELATED WORKS for Yard Hydrant and automation of existing fire hydrant system of State Bank of India, Local Head Office, 11- Parliament street, New Delhi -110001.

Having duly examined the tender documents including the drawings, specifications, designs, schedule of quantities relating to the works specified in the underwritten memorandum and having visited the site of the said work and having acquired all the requisite information relating thereto as affecting this tender. I/We hereby offer to execute the works specified in the underwritten memorandum within the time specified therein at the rates specified in the schedule of quantities and in accordance, in all respects with the specifications, designs, drawings and instructions in writing referred to in the conditions of the tender, the Articles of Agreement, Special conditions of the contract and with such materials as are specified, by an in all other respects in accordance with such conditions in the schedule of quantities and conditions of contract as applicable.

Should this tender be accepted, in whole or in part, I/we hereby agree to abide by and fulfill all the terms and provisions of the said conditions if the contract annexed hereto and the conditions of the tender as applicable or in default thereof to forfeit and pay to above address. the sums of money mentioned in the said conditions.

A mentioned EMD is hereby enclosed as Earnest Money Deposit in the form of Demand Draft drawn in favour of SBSC. Hyderabad. I/We agree (i) that should I/we fail to commence the work specified in the above mentioned memorandum the Bank shall without prejudice to any other right or remedy be at liberty to forfeit the Earnest Money otherwise the said Earnest Money shall be retained by Bank towards security deposit mentioned in the above memorandum, (iii) to execute all the works referred to in the tender document upon the terms and conditions contained for referred therein and to carry out authorized variations as directed by consultants / Bank and as per said conditions of the .

Our Bankers are:

1.

2.
The name of the Proprietor / Partners / Directors of our firm are:

1.
2.
3.
4.
5.

Signature of tenderer with seal

Dated the ........ (Month date) Day of ................... (month), 2020
6. GENERAL CONDITIONS OF CONTRACT

1.a) Definition & Interpretations:

i) In constructing these conditions, the specifications, schedule of quantities and contract agreement, the following words shall have the meanings herein assigned to them except where the subject or context otherwise requires.

ii) Headings and marginal notes to the conditions of contract shall be deemed to form part thereof or be taken into consideration in the interpretation or construction thereof or of the contract.

iii) Where the context so requires (i) words importing persons include firms and corporations and (ii) words importing the singular only also include in plural and vice versa.

b.i) Employer shall mean the Asstt. General Manager, Premises & Estate Department, State Bank of India, 5th Floor, SBI, LHO building, 11-Parliament street, New Delhi.

ii) Contractor shall mean ________________________________________________

________________________________________________________________

and include his / their legal representatives, permitted assigns, or successors.

c) Site: The site shall mean the site where the works are to be executed as shown within boundary in red border on the site plan including any building and erections thereon allotted by the Employer for the contractor's use.

The Contractor of this Contract shall mean the tender documents comprising the notice inviting tender, form of tender, the tender conditions, the drawings and priced bills of quantities with their preambles, the acceptance thereof, and the articles of agreement, together with the conditions, if any, the specifications referred to in the conditions, designs, drawings and instructions issued from time to time by the Consultant / Bank and all these documents taken together are deemed to form one contract and shall be complementary to one another.

d) Bills of quantities variously also termed priced bills of quantities, schedule of rates, shall mean the schedule of quantities originally furnished with the notice inviting tender, duly priced in by the tenderer and accepted by the employer for inclusion as a part of the contract for determining the consideration payable to the contractor for executing the work and as part of the contract agreement it is also refereed to as the contract schedule.

e) Notice in writing or written notice shall mean a notice in written, typed or printed characters sent (unless delivered personally or otherwise proved to have been received) by registered post to the last known private or business address or to the registered office of the addresses and shall be deemed to have been received when in the ordinary course of post it would have been delivered.
f) Act of Insolvency shall mean any Act of Insolvency as defined by the presidency Towns Insolvency Act. or the provincial Insolvency Act or any amending such original Act.

g) **Net Prices:** If in arriving at the contract amount the contractor shall have added to or deducted from the total of the items in the Tender any sum, either as a percentage or otherwise, then the net price of any item in the tender shall be the sum arrived at by adding to or deducting from the actual figure appearing in a tender as the price provided always that in determining the percentage or proportion of the sum so added or deducted by the contractor, the total amount of any price cost items and provisional sums of money shall be deducted from the total amount of the tender the expression 'Net rates' or 'Net Prices' when used with reference to the contract or accounts shall be held to mean rates or prices so arrived at.

h) The works (or the work) shall unless there by something either in the subject or context repugnant to such construction, be considered and taken to mean the works by or by virtue of the contract contracted to be executed whether temporary or permanent, and whether original, altered, substituted or addition. Where the word 'works' is used it shall cover 'installation' also under the same definition.

j) Executed risks are risks due to riots (other than among contractor's employees) and civil commotion (in so far as both these are un-insurable) war (whether declared or not) invasion act of foreign enemies, civil ware rebellion, revolution, insurrection, military or usurped power any revolution, insurrection, military or usurped power any acts of Government damage from air craft, acts of God such as earthquake, lightening and unprecedented floods and other causes over which the contractor has no control and accepted as which by the employer or causes solely due to use of occupation in a manner for which the works / installations in respects of which a certificate of completion has been issued or a cause solely due to faulty design of work.

k) Provisional items shall mean items for which duly very approximate quantities have been included in the tender documents.

l) Virtual completion of works / installations shall mean the substantial completion of the works / installations in accordance with the contract enabling the Employer to take over the same.

2. **Consultant / Bank instructions:** The contractor shall execute the whole and even, part of the work in the substantial and workman into manner and both as required materials and otherwise in every respect in strict accordance with the specifications, conforming exactness fully and faithfully, to the designs, drawings and instructions in respect of the work given by the consultant / Bank and under the directions of and under the supervision of and subject to the approved in all respects by the Consultant / Bank who may in the discretion and from time to time issue further drawings, directions and / or written instructions, details and explanations which are hereafter collectively referred to as Consultant / Bank is regard to:
a) Variation or modification of the design quality or quantity or works of the addition or omission or substitution of any work.

b) Any discrepancy in the drawings or between the schedule of quantities and or drawings and / or specifications,

c) The removal from the site of any materials brought thereon by the Contractor and the substitution of any other materials thereof

d) The dismissal from the work of any persons employed there upon

e) The opening up for inspection of any work covered up.

f) The amending and making good of defects under clause 19

g) The removal and / or re-execution of any works executed by the contractors, on account of defects, under clause 18.

The contractor shall forthwith comply with an duly execute any work comprised in such Consultant / Bank instructions provided always that verbal instructions, directions and explanations given to the contractor or his representative upon the works by the Consultant / Bank shall if involving a variation, be confirmed in writing by the contractor within seven days and if not dissented from in writing within a further seven days by the Consultant / Bank such shall be deemed to be Consultant / Bank instructions within the scope of the contract.

**Manner of execution of work:** The consultant / Bank shall be entitled to direct at what point or points and in what manner the works are to be commenced and from time to time carried on.

**Variation to be approved by Employer:** Not withstanding anything herein contained, the consultant / Bank or his representative shall not without the prior concurrence in writing which will result in the Bank having to pay the contractor an additional sum greater than Rs……………….. and all such instructions issued to the contractor should forth with be brought to the notice of the employer. The contractor shall submit through the consultant / Bank a statement of analysis of rates, vouchers, etc. The rates on scrutiny and final acceptance of the employer under the terms and clause 16 hereof shall form a supplementary schedule of quantities.

3. **Agreement copies to be supplied:** The contract Document shall remain in the custody of the consultant / Bank (Employer) and shall be produced by him at his office as and when required by the Employer / Consultant / Bank or the contractor. The Contractor on the signing hereof shall be furnished by the Consultant / Bank (Employer) free of cost with a certified copy of the agreement and one copy of each of the said drawings issued during the progress of the works. Any further copies of such drawings required by the contractor shall be paid for by him. The contractor shall keep one copy each of all drawings on the works and the Consultant / Bank or his representatives shall at all reasonable times have access to the same before the issue of the final certificate to the contractor he shall, if so required, forthwith return to the Consultant / Bank all drawings and specifications.
4. **The Contractor to provide everything necessary**: The contractor shall be deemed to have satisfied himself before tendering as to the correctness and sufficiency of his tender for the works and of the rates and amounts stated in the schedule of quantities and / or the schedule of rates and amounts which rates and amounts shall expect as otherwise provided cover all his obligations under the contract and all matters and things necessary for the proper completion of the works.

The Contractor shall provide at his own cost all materials (except such materials if any, as may in accordance with the contract be supplied by the Employer) machinery, plant, tools, appliances, implements, ladders, cartage, tackle scaffolding, in fact everything necessary or proper for the proper execution of the work, whether original, altered or substituted according to the true, intent and meaning of the or substituted taken together whether the same may or may not be particularly shown or described therein provided that the same may be reasonably inferred there from, and if the contractor finds any discrepancy in the drawings of between the drawings, schedule of quantities and specification, or between the drawings, schedule of quantities and specifications, he shall immediately and in writing refer to the Consultant / Bank who shall decide which is to be followed subject to:

5. Anything shown or contained in any one or other of (a) the drawings, (b) specifications and (c) the contract schedule and not shown in the others shall be equally binding as if it were contained in each of them.

i. Figured dimensions are to be followed in preference to the scale and large scale details in preference to small scale drawings.

iii. The following order of preference shall apply:

a) The drawings, (b) specifications, covered by bills of quantities (c) Technical specifications.

6. a) **Contractor to conform to legal Regulations**: The contractor shall conform to the provisions of any Act of the Legislature relating to the works and to the Regulations and Bye-laws of any Authority and of any water, lighting and other Companies and / or authorities with whose system the structure is proposed to be connected, and shall, before making any variations from the drawings or specifications they may be necessitated by so conforming, to be made and the reason for it, and apply for instructions thereon. In case the contractor shall not within ten days receive such instructions shall proceed with the work, conforming to the provisions, Regulations, or bye-laws in question and any variation so necessitated shall be dealt with under clause Nos 12 & 16.

The contractor shall bring to the attention of the Consultant / Bank all notices required by the said acts, regulations or by-laws to be given to any authority and pay to such authority or to any public office all fees that may be properly chargeable in respect of the works and pledge the receipts with the Consultant / Bank
The contractor shall indemnify the Employer against all claims in respect of patent rights and shall defend all actions arising from such claims and shall himself pay all royalties, license fee, damage, cost and charges of all and every sort that may legitimately be incurred in respect thereof.

The Employer is entitled to deduct all taxes and rates as per existing laws and rules, from any moneys due or that may become due to the Contractor.

b) The contractor shall indemnify the Employer from and against all claims, demands, proceedings damages, cost and expenses which may be brought or made against the Employer or to which it may be put by reason of the contractor not conforming to or complying with any of the provisions or requirements of any Act or sections, Central of State Rules, regulations, Bye-laws of local authorities Panchayat, Collector or any other companies relating to or in water, light or amenities at the site.

7. **Contractor responsible for setting our work:** The contractor shall on the basis of dimensioned drawings and information necessary for the purpose, furnished by the Consultant / Bank se tout the works on site at his own expense and be responsible for the correctness of the positions, levels, dimensions and alignment of all parts thereof. The checking of any setting out by the representative of the Consultant or of the Employer shall not in any way relieve the contractor of the responsibility for the correctness thereof and he shall amend his own cost and to the satisfaction of the Consultant / Bank any error in the setting out or consequential to wrong setting out, found at any stage during the progress of the work or during the defects liability period after completion of the work.

8. **MAINTAINING REGISTERS:**

8.1 The contractor shall maintain at the site comprehensive registers, posted up-to-date, showing the nature of the materials / articles / goods their identification marks, dates and the results of the tests. Such registers shall be got countersigned by the representatives of the Consultant / Employer at site and extracts from the registers shall regularly be posted to the Consultant and the Employer. The form of the registers shall be mutually settled.

8.2 The costs of the tests and of the materials and labour and equipment if any involved in the testing operations shall be borne by the contractor in all cases except as otherwise provided for in the contract.

9. **Supervision by Contractor:** The Contractor shall give all necessary personal superintendence during the execution of works and as long thereafter as the Consultant / Bank, may consider necessary until the expiration of the 'Defects Liability Period' satisfied in clause 19 herein. The contractor shall also during the whole time the works are in progress, employ a competent and qualified representative whose name shall be approved by the Consultant / Bank and who shall be constantly in attendance at the works while the men are at work. Any directions, explanations, instructions, or notices given by the Consultant / Bank to such representative shall be held to have been given to the contractor.
If the contractor fails to appoint and keep on the works a competent and qualified representative as aforesaid the consultant / Bank shall have powers to suspend the works till such time a competent qualified representative as aforesaid is posted and the contractor shall not be entitled to claim extension of time on the pleas of such suspension of the works.

a. **Dismissal of workmen**: The contractor shall on the request of the Consultant / Employer immediately dismiss from the works any person employed thereon by him who may, in the opinion of the Consultant / Employer be incompetent or misconduct himself and such persons shall not be again employed on the works without the permission of the Consultant / Employer.

10. **Access to works**: The employer, the consultant and his respective representative shall at all reasonable times have free access to the works and / or to the workshops, factories or other places where materials are lying or from which they are being obtained and the contractor shall give the employer, the consultant and his respective representative, all reasonable facilities necessary for inspection and examination and tests of the materials and workmanship. No person unauthorized by the Employer or the Consultant except the representatives of Public Authorities shall be allowed on the works at any time.

11. **Work not to be sublet**: The whole of the works included in the contract shall be executed by the contractor who shall not directly or indirectly transfer, assign or undulate the contract or any part share thereof or interest therein without the written consent of the employer, and no undertaking shall relieve the contractor from the full and entire responsibility of the contract or from active superintendence of the works during their progress.

12. **VARIATIONS**:

12.1 **Variation not to vitiate the contract**: No alteration, omission or variation shall vitiate this contract but in case the Consultant / Bank thinks proper at any time during the progress of the works to make any alterations in or additions to or omissions from or substitutions for the original drawings, specifications, designs and instructions, or any alterations in the kind or quality of the materials to be used in the work and shall give notice thereof to the contractor, in writing substitute for as the case may require, in accordance with such notice and carry out the amended work on the same conditions in all respects on which he agreed to do the main work, but the contractor shall not do any work extra to or make any alterations or additions to or omissions from or substitutions in the works or any deviation from any of the provisions of the contract stipulations, specifications or contract drawings without the previous consent in writing of the Architect / Bank and the value of such extra, alterations, additions or omissions or substitutions shall in all cases be determined by, the Consultant / Bank with the prior provisions of clause 16 hereof, and shall be added to or deducted from the contract amount accordingly.

12.2 The supply and execution of any part of the carrying out of any works incidental to the execution of any item or class of work shown in the schedule of quantities shall not constitute a variation entitling the contractor to extra paying, provided that the said item or class of work cannot be executed satisfactorily according to the true intent and meaning of the drawings and specifications without the said part thereof or the said work incidental thereto whether the same may or may not be particularly
shown or described in the drawings, specifications and scheduled of quantities and provided the same may be reasonable inferred therefore.

12.2.1 The time for completion of work shall, in the event authorised variations result in an addition to the contract sum in excess of 10% be extended on payment by the contractor as follows:

i) In the proportion which the total executed contract value including authorised variations bears to the original contract value, the certificate of the consultant / Bank being conclusive as to such proportion plus.

ii) 25% of the additional time calculated way of (i) above of such further time as may be considered to be reasonable by the Consultant / Bank.

12.3 Similarly the changing of the position of the work from one to another or to a more difficult position than that shown in the drawings or described in the specifications or the contract schedule or the carrying out of work under circumstances not contemplated in the specifications or the contract schedule shall not constitute a variation entitling the contractor to extra payment.

13. CURTAILMENT OF WORK:

13. a) No Compensation for alteration in or restriction of work:

If at any time after the commencement of the work the Bank for any reason whatsoever does not require the whole or part or parts thereof as specified in the tender to be carried out, the Consultant / Bank shall give notice in writing of the fact to the contractor who shall have no claim for any compensation whatsoever on account of any profit which he might have derived from the execution of the work in full, but which he did not derive in consequence of the full amount of the work not having been carried out. Nor shall he have any claim for compensation by reason of any alterations having been made in the original specifications, drawings, designs and instructions which shall involve curtailment of the work originally contemplated.

b) Schedule of Quantities based on standard measurement:

The schedule of quantities unless otherwise stated shall be deemed to have been prepared in accordance with the Bureau of Indian Standards Method of Measurement.

14. Errors in Bills of Quantities:

No error in description or quantity or by way of omission of items from the schedule of quantities shall vitiate this contract but shall be rectified and the value thereof as ascertained under clause 16 herein shall be added to or deducted (as the case may be) from the contract amount provided that there shall be no rectification of errors in the contractor's schedule of rates.
Measurement of Works: The Consultant / Bank may from time to time intimate to the contractor that he required the works to be measured, the contractor shall forthwith attend or send a qualified agent to assist the Consultant / Bank or the Consultant / Bank representative in taking such measurements and calculations and to furnish all particulars or to give all assistance required by either of them.

Provided that the contractor shall give notice of not less than ten clear days to the Consultant / Bank or his representative in charge of the work before covering up or placing beyond the reach of measurement any work in order that the same may be measured and correct dimensions thereof the taken before the same is covered up or placed beyond the reach of measurement any work without the consent of the Consultant / Bank and his representative in charge of the work who shall within the aforesaid period of ten days inspect the work and cause the measurements to be made if any work be so covered up without the consent of the Consultant / Bank or his representative in charge of the work the same shall be uncovered at the contractor's expense or in default thereof no payment of allowance shall made for such work or materials with which the same was executed.

Should the contractor not attend or neglect or omit to send such agent then the measurements taken by the Consultant / Bank or a person approved by him shall be taken to be correct measurement of the works. Such measurements shall be taken in accordance with the Indian Standard Method of Measurement unless otherwise provided for elsewhere in this contract.

The contractor or his agent may at the time of measurement taken such notes and details as he may require.

All authorised extra works, omissions and all variations made without the Consultant / Bank knowledge, if subsequently sanctioned by him in writing (with the prior approval in writing of the Employer) shall be included in such measurement.

Price of Variation:

The rates for additional, altered, substituted work shall arrived at in accordance with the following rules:

i) The net rates or prices in the contract schedule shall determine the valuation of (the rates for) the extra works (items) where such extra work is of similar character and is executed under similar conditions as the work priced therein.

ii) If the rates for the extra, altered or substituted (deviated) work are not provided for (available) in the contract schedule, they shall to the extent possible be dived out of the rates given in that schedule for similar or near similar items. For the purpose of such derivation, where necessary and when so directed, the contractor shall furnish detailed analysis for the said similar or near similar items in the contract schedule.

For such portions of the analysis for the extra altered or substituted (deviated) work for which prices cannot be abstracted from the corresponding analysis of rates for the said similar or near substantiated by
purchase bills / vouchers shall be adopted. Using factors and constants for quantums of materials labour T & P and sundries from NBP/CPWD, Standard PWD data/analysis in the order thus written adding 15% over towards profits and overheads. When called upon to do so the contractor shall submit the required purchase bills / vouchers.

iii) In respect of a contract which incorporates more than one schedule the rate applicable in case (i) above if not provided for in the schedule pertaining to the work in which the addition alteration or substitution (deviation) occurs, shall be taken as the lowest applicable rate in the other schedule. Similarly, in case (ii) above, if similar or near similar items cannot be found in the schedule pertaining to the work which the addition, alteration or substitutions (deviation) occurs, similar or near similar items from the other schedules shall be adopted.

iv. In the case of additional, altered or substituted (deviated) work for which rates cannot reasonably be derived as at (ii) and (iii) above, the rates shall be worked out adopting market prices, substantiated by purchase bills / vouchers, using factors and constants for quantums of material, labour T & P and sundries from NBO/CPWD/Standard PWD / Data analysis in the order thus written, adding 15% towards profits and overheads, when called upon to do so, the contractor shall submit purchases bills / vouchers to the consultant / Bank

v) The question as to what particular items, being similar or near similar to the additional, altered or substituted (deviated) work in the contract schedule are to be adopted for derivation of rates for the additions, alterations or substituted (deviated) work and whether the said rates cannot be derived from similar or near similar items in the contract schedule will be decided by the Consultant / Bank

vi) In case (ii) to (iv) the contractor is required to submit his analysis of rates adopting the principles communicated and consultant / Bank after scrutinizing the analysis and other papers furnished will allow such rates as he considers reasonable.

vii) Where extra work is of such a nature that it cannot be properly measured or valued the contractor shall be allowed day work prices at the net rates stated in the tender or the priced schedule of quantities, not so stated then in accordance with the minimum local day work rates and wages for the district, notified by the concerned authority provided that in either case if required by the consultant / Bank vouchers, master rolls and other documents required for proper verification of the labour employed and the materials deployed on the said work and the costs thereof be delivered to the Consultant / Bank or his representative at or before the end of the week following that in which the work has been executed.

The question as to whether extra work is of such nature that it cannot be properly measured or valued will be decided by the Consultant / Bank.
margin to be allowed on actual costs to the contractor towards profits and overheads shall be 15%.

viii) **Deviation limit:** It is the value of which the total executed contract value including authorised variation in excess of original contract value expressed as a percentage and shall be adjudged on the sum total of all additions, omissions, reductions, alterations or substitutions (deviations) covered by authorised variations under clause 2 & 13 of the conditions of contract. The values of prime cost sums shall not be included in calculating the above percentage.

1. **Unfixed Materials:** Wherein any certificate (of which the contractor has received payment) the Consultant / Bank has included the value of any unfixed materials intended for and / or placed on or adjacent to the works such materials shall become the property of the Employer and they shall not be removed except for use upon the works, without the written authority of the Consultant / Bank. The contractor shall be liable for any loss or damage to such materials.

17. **Removal of improper work, material, etc.:** The Consultant / Bank shall, during the progress of the work, have full powers to order in writing from time to time removal from the works within such reasonable time or times as may be specified in the order, or any materials which in the opinion specified in the order, or any materials which in the opinion of the Consultant / Bank are not in accordance with the specifications or the instructions of the Consultant / Bank or do not conform to approved samples, the substitution of the rejected materials by proper other materials, and the removal and proper execution of any work executed with unsound imperfect or unskilled workmanship or with materials not in accordance with the contract, notwithstanding that the same may have been passed or certified or and paid for and the contractor shall forthwith carryout such order at his own cost.

In case of default on the part of the contractor to carry out such order the Employer shall have the power to being answerable or accountable for any loss or damage that may happen or arise to such materials removed and all expenses consequent on or incidental thereto as certified by the Consultant / Bank shall be borne by the Contractor or may be deducted by the Employer from any money due or that may become due to the contractor.

In lieu of re-execution of any work not in accordance with the contractor of Consultant / Bank may in their option allow it to remain but will allow for such work reduced rates. The decision of the Consultant / Bank to exercise his option in this regard and the quantum of reduction to be made in the rate for the item in question shall be final and binding on the contractor.

(i) **Defects Liability Period:** Any defect, shrinkage, settlement or other faults which may appear within the 'Defects Liability Period' stated in the appendix hereto or if none so stated, then within 12months after the virtual completion of the works arising in the opinion of the Consultant / Bank from materials or workmanship not in accordance with the contract, shall on demand which shall
be made within the defects liability period, in writing by the Architect / Bank and within such reasonable time as shall be stated therein specifying the work, materials or articles complied of not withstanding that the same may have been passed or / and certified, paid for, be amended and made good by the contractor, at his own proper charges and cost and in case of default, amend and make good such defects, shrinkage, settlements or other faults and all damages, loss and expenses consequent thereon or incidental thereto shall be made good and borne by the contractor and such damages loss and expenses shall upon their consultant / Bank certificate in writing, be recoverable from the contractor by the Bank or may be deducted by the Bank from any money due or that may become due to the contractor or the Bank may in lieu of such amending and making and by the contractor deduct contractor a sum to be determined by the consultant / Bank equivalent to the cost of the amending and making good such work and in the event of the amount retained being insufficient, recover the balance from the contractor, together with any expenses the Bank may have incurred in connection therewith, should any defective work have been done or material supplied by any subcontractor employed on the works who has been nominated or approved by the Consultant / Bank as provided in Clause 11 the contractor shall be liable to make good in the same manner as if such work or material had been done of supplied by the contractor himself and been subject to the provisions of Clause 2 thereof. The contractor shall remain liable under the provisions of this clause not withstanding the signing by the Consultant / Bank of any certificate including the final certificate, or the passing of any accounts.

18. **Completion Certificate:** The works shall not be considered as completed until the Consultant / Bank has certified in writing that they have been virtually completed and the defects liability period shall commence from such certified date of virtual completion of work. Within ten days of the completion of work, the contractor shall give notice of such completion to the Consultant / Bank shall inspect the work and if there is no defect in the work shall furnish the contractor with certificate of completion otherwise a provisional certificate of completion indicated defects (a) to be rectified by the contractor and / or (b) for which payment will be made at reduced rates shall be issued but no certificate of shall the work considered to be completed until the work as executed all scaffolding, surplus materials, rubbish and cleaned off the dirt from all woodwork, doors, windows, walls, floors or other parts of any building in upon or about which the work was executed or of which he may have had possession for the purpose of the execution thereof, and not until the work shall have been measured by the Consultant / Bank. If the contractor shall fail to comply with the requirements of this clause as to removal of scaffolding, surplus materials and rubbish, as aforesaid and cleaning off dirt on or before the date fixed for the completions of the work original or extended in terms of clause 25 herein the employer after issuing due notice, may at the expense of the contractor remove such scaffolding, surplus materials rubbish etc. and dispose of the same as he thinks fit and clean of the same as he thinks fit and clean off such dirt as aforesaid and the contractor shall have no claim in respect of any such scaffolding or surplus materials as aforesaid except for any sum actually realized by the sale
thereof and the expense, if any, so incurred may be recovered from any money due or that may become due to the contractor by the Employer.

19. **Contractor Liable for damage done:**

19.1 The contractor shall be responsible for all injury to persons, animals or things and for all structural and decorative damage to property which may arise from the operation or neglect of himself or if any nominated sub-contractor's employee whether such injury of damage arises from carelessness, accident or any other cause whatever in any way connected with carrying out of the contract. This clause shall be held to include, inter-alia any damage to building, whether immediately adjacent or otherwise and any damage to roads, streets, foot-paths, bridges, or ways as all damage caused to the buildings and works forming the subject of the contract by frost or other inclemency of weather. The contractor shall indemnify the employer and hold him harmless in respect of all and any expenses arising from any such injury or damage under any acts of Government or otherwise and also in respect of any awards of compensation damages consequent upon such claims.

19.2 The Contractor shall reinstate all damage of every work mentioned in the clause so as to delivery up the whole of the contract works complete and perfect in every respect and so as to make good or otherwise satisfy all claims for damage to the property of third party.

The contractor shall indemnify the employer against all claims which may be made against the employer by any member of the public or other third party in respect of anything which may arise in respect of the works or in consequence thereof and shall at his own expense arrange to effect and maintain until the virtual completion of the contract, with an approved insurer an policy of insurance in the joint names of the employer and contractor against such risks and deposit such policy or policies with the employer from time to time during the currency of this contract. The contractor shall also similarly indemnify the employer against all claims which may be made upon the employer whether under the workmen's compensation act or any other stature in force during the currency of this contract or at common law in respect of any employee of the contractor or sub-contractor and shall at his own expenses effect and maintain until the virtual completion of the contract with an approved insurer a policy of insurance in the joint names of the employer and the contractor against such risks and deposit such policy or policies with the employer from time to time during the currency of the contract.

The contractor shall be responsible for anything which may be excluded from the insurance policies above referred to and also for all other damages to any property arising our of and incidental to the negligent or defective carrying out of this contract. He shall also indemnify the employer in respect of any costs, charges or expenses arising out of claim or proceedings and also in respect of award of compensation for damage arising there from.

The Employer with the concurrence of the Consultant / Bank shall be at liberty and is hereby empowered to deduct the amount of any damage, compensation, costs, charges and expense arising or accruing from or in respect of any such claims of damage from any or all sums due or to become due to the contractor.
20. **Responsibility for safety of building**: The contractor shall be responsible for the safety of the works (including the materials, temporary buildings and plants) until they are taken over by the Employer and they shall stand at their risk and be in the sole charge of the contractor, who shall be responsible for and must with all possible speed make good all damage from whatever cause.

21. **Insurance of the works**:

The contractor shall within 7 days from the date of commencement of the work insure the works at his cost and keep them insured until one month after the works are taken over the Bank or three months after the date of completion whichever is earlier, against loss or damage by fire and usual risks other than fire against which insured generally provided cover in a CONTRACTOR’S **ALL RISK POLICY**, with names of the Bank and Contractor (the name of the former being placed first in the Policy), for the full amount of the contract. Such policy shall cover the property of the Bank only and Consultant and surveyor’s fees for assessing the claim and in connection with his services generally in re-instatement subcontractor or employee. The contractor shall deposit the policy and receipts for the premium paid with the consultant within a week of the date of commencement of the work unless otherwise instructed by the Consultant / Bank. In default of the contractor insuring as provided above, the employer or the Consultant on his behalf may be due or that may become due to the contractor.

The contractor shall as soon as the claim under the policy is settled, or the work reinstated by the insurers should they elect to do so, proceed with all due diligences with the completion of the works in the same manner as though the fire or other such risk had not occurred and in all respects under the same conditions of contract.

The Contractor in case of rebuilding or reinstatement after fire or other such usual risk shall be entitled to such extension of time for completion as the consultancy Bank.

22. **Liquidated damages**:

If the contractor fails to complete the works by the date stated in the Appendix or within any extended time under clause 25 herein below the contractor shall pay or allow to the Bank the sum named in the Appendix as 'Liquidated Damages' for the period during which the said works shall so remain incomplete by the date or completion of the work as defined in the contract, and the employer may deduct such damages from any moneys due or that may become due to the contractor.

23. **Extension of Time**:

If the contractor shall desire an extension of time for completion of the work on the grounds of his having been unavoidably hindered by such causes as (a) force majeure or (b) any exceptional inclement weather or (c) proceedings taken or threatened by or dispute with adjoining or neighbouring owners or public authorities arising otherwise than through the contractor's own defaults or (d) the work or delays of other contractors or tradesmen engaged or nominated by the Bank or the
Consultant and not referred to in the schedule of quantities and of specifications or (e) strike or lockout affecting any of the building trades or directly the work or (f) delays in the supply of materials stipulated to be supplied by the Bank or on any other valid ground, he shall apply in writing to the Consultant / Bank within 15 days of the date of such hindrances on account of which he desires such extension as aforesaid and the Consultant / Bank if in his opinion reasonable grounds have been shown therefore, may with the previous approval in writing of the Bank make a fair and reasonable extension of time, for completion of the contract works, but the contractor shall nevertheless constantly use his endeavours to prevent delay and shall do all that may reasonable be required of him to proceed with the work expeditiously provided.

a) That the contractor shall have no claim other than extension of time for the delay in completion of the work due to such hindrance and

b) That the contractor shall suspend the works whenever; called upon to do so in writing by the Consultant / Bank and shall be allowed reasonable extension of time for completion of work due to such suspension of work and nothing else.

24. **Termination of Contract by Employer:**

If the contractor being an individual or a firm commits any Act. of insolvency or shall be adjudged as insolvent or being an incorporated company shall have an order for winding up either compulsorily or voluntarily or be subject to the supervision of the court and of official assignee or the liquidator in such acts of insolvency or winding up as the case may be and shall be unable within 7 days after notice to him requiring him to do so, to show to the reasonable satisfaction of the Consultant / Bank that he is able to carry out and fulfill and contract and to give security therefore, if so required by the Consultant / Bank.

OR if the contractor (whether an individual, firm of incorporated company) shall suffer execution to be issued.

OR shall suffer any payment under this contract to be attached by or on behalf of any of the creditors of the contractor:

OR shall assign or sublet this contract without the consent in writing of the Bank first obtained:

OR shall charge or encumber this contract or any payments due or which may become due to the contractors thereunder:

OR if the Consultant / Bank shall certify in writing to the Bank that the Contractor.

i. Has abandoned the contract.

ii. Has failed to proceed with the works with such due diligence and failed to make such due progress as would enable the works to be completed within the time agreed upon or
iii. Has failed to commence the works, or has without any lawful excuse under these conditions suspend the progress of the works for 14 days after receiving the consultant / Employers notice to proceed or.

iv. Has filed to remove the materials from the site of to pull down and replace work for seven days after receiving from the Consultant / Bank written notice that the said materials or work were condemned and rejected by the Consultant / Bank under these conditions or

v. Has neglected or failed persistently to observe and perform all or any of the acts, matters or things by this contract to be observed and performed by the contractor for seven days after written notice shall have been given to the contractor requiring the contractor to observe or perform the same or

25. **Certificate and Payment:**

All bills in triplicate shall be submitted by the contractor along with detailed measurements of the work completed at site (including installation of equipment/machines), provided that at least value of 30% of the work of the accepted value of the tender has been completed at site by the contractor. The consultant shall check/take the measurements or cause the measurements to be checked/taken for the purpose of having the same to be verified and to the extent work has been executed in accordance with the contract issue interim certificate and the employer shall make payment, to the contractor on the basis of such certificates within the period specified for honouring interim certificates (in the appendix to the conditions of the contract) subject to retention of SD at the percentage marked in the said appendix till the whole SD is collected.

26. **Security Deposit / Retention Moneys bear no interest:**

Retention money / Security Deposit or the balance of it available with the Bank, shall be refunded to the contractor in the conditions of contract and shall bear no interest whatsoever until the date of its return, not withstanding any provision to the contrary elsewhere in this contract.

27. **Matters excepted from Arbitration:**

The decision opinion direction and certificates (except for payment) with respect to all or any of the matters under clauses 2, 4, 7, 9, 12, 16, 18, 19, 25, 26 hereof (which matters are herein referred to as the expected matters) shall be final and conclusive and binding on the parties hereto and shall be without appeal. Any other decision opinion direction certificate or valuation of the Consultant / Bank or any refusal of the Consultant / Bank to give any of the same shall be subject to the right of Arbitration and review in the same way in all respect including the provision (s) as to opening the reference as if it were a decision of the Consultant / Bank under the following clause.

28. **Arbitration Clause:**
i. All disputes or differences of any kind whatsoever which shall at any time arise between the parties hereto touching or concerning the works or the execution or maintenance thereof that this contract or the rights touching or concerning the works or the execution or maintenance operation of effect thereof or to the rights or liabilities of the parties or arising out of or in relation thereto whether during (other than those in respect of which the decision of any person is by the contract expressed to be final and binding) shall after written notice by either party to the contract or after determination foreclosure or breach of the contract to the either of them and to the appointing authority who shall be appointed for this purpose by the Bank be referred for adjudication to a sole arbitrator to be appointed as herein after provided.

ii. For the purpose of appointing the sole arbitrator referred to above the appointment authority will send within thirty days of receipt by him of the written notice aforesaid to the contractor a panel of three names of persons who shall be presently unconnected with the organization for which the work is executed.

iii. The contractor shall on receipt by him of the names as aforesaid select any one of the persons named to be appointed as a sole arbitrator and communicate his name to the appointing authority within thirty days of receipt of the names. The appointing authority shall thereupon without any delay appoint the said person and the sole arbitrator. If the contractor fails to communicate such selection as provided above within the period specified, the appointing authority shall make the selection and appoint the selected person as the sole arbitrator.

iv. If the appointing authority fails to send to the contractor the panel of three names as aforesaid within the period specified, the contractor shall send to the appointing authority a panel of three names of persons who shall all be unconnected with either party. The appointing authority shall on receipt by him of the names as aforesaid select any one of the persons named and appoint him as the sole person and appoint him as the sole and inform the contractor.

v. Accordingly, the contractor shall be entitled to appoint one of the persons from the panel as the sole arbitrator and communicate his name to the appointing authority.

vi. If the Arbitrator so appointed is unable or unwilling to act or resign his appointment or vacates his office due to any reason whatsoever another sole arbitrator shall be appointed as aforesaid.

vi. The work under the contract shall however, continue during the arbitration proceedings and no payment due or payable to the contractor shall be withheld on account of such proceeding.

vii. The Arbitrator shall be deemed to have entered on the reference on the date he issues notice to both the parties fixing the date of the first hearing.
viii. The Arbitrator shall give a separate award in respect of each dispute or difference referred to him. The arbitrator shall decide each dispute in accordance with the terms of the contract and give a reasoned award. The venue of arbitrator shall be such place as may be fixed by the Arbitrator in his sole discretion.

ix. The Arbitrator may from time to time with the consent of the parties, enlarge the time for making and publish in the award.

x. The fees if any, of the Arbitrator shall, if required to be paid before the award is made and published be paid half by each of the parties. The costs of the reference and of the award including the fees, if any of the Arbitrator who may direct to and by whom and in what manner such costs or any part thereof shall be paid and may fix or settle the amount of costs to be so paid.

xi. The award of the arbitrator shall be final and binding both the parties.

Subject to aforesaid the provisions of the Arbitration Act 1940 of any statutory modification or re-enactment thereof and the rules made there under and for the time being in force shall apply to the arbitration proceeding under this clause.

29. **Labour Laws / Regulations:**

The Contractor shall employ labour in sufficient numbers directly through sub-contractors to maintain throughout the period of the contract the rate of progress required according to the approved program of work and if quality to ensure proper workmanship in accordance with the specifications and drawings and the Consultant / Bank Instructions.

35. **SAFETY CODE:**

All precautions and safety measured as required by Indian Labour Act and Relevant Bureau of Indian Standards (BIS) Codes shall be taken by the contractor.
7. **APPENDIX TO CONDITIONS OF CONTRACT**

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<table>
<thead>
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<tbody>
<tr>
<td>1</td>
<td>Name of the project : Fire safety arrangement related works for Yard Hydrant &amp; Automation of existing Fire Hydrant System at SBI, LHO building, 11, Parliament Street New Delhi.</td>
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<tr>
<td>2</td>
<td>Estimated cost : Rs.27.00 lacs (Approx)</td>
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<td>3</td>
<td>Earnest Money Deposit : Rs 27,000/-</td>
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<tr>
<td>4</td>
<td>Initial Security Deposit : 2% of the contract value less EMD</td>
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<tr>
<td>5</td>
<td>Date of commencement of work : Within seven days from the date of issue of the work order</td>
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<td>6</td>
<td>Period of completion : 2 Months</td>
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<td>7</td>
<td>Value of work to be taken for issue of interim certificate for payment : 30% of the Lowest Accepted Tender rates (with installation of equipment &amp; fixtures)</td>
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<tr>
<td>8</td>
<td>Retention percentage to be deducted from RA bills : 10 % of the gross value of bill</td>
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<td>9</td>
<td>Total retention money including earnest money and initial security deposit : 5% of the contract value</td>
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<tr>
<td>10</td>
<td>Defect liability period : 12 months from date of completion</td>
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<td>11</td>
<td>Refund of Security Deposit : 50% of the total security deposit will be released with final certificate of payment after removing all his materials, equipment taken force, temporary sheds/stores from the site. Balance 50% payment will be released after completion of defects liability period.</td>
</tr>
<tr>
<td>12</td>
<td>Liquidated Damages : ½ % on tendered amount per week subject to maximum of 5% of contract value.</td>
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<tr>
<td>13</td>
<td>Period of final measurements : TWO Months</td>
</tr>
<tr>
<td>14</td>
<td>Period of honouring interim certificate for payment : 15 Days from date of Architects certificate of payment for interim bill and 45 days for final certificate</td>
</tr>
<tr>
<td>15</td>
<td>Period of honouring final certificate for payment : 30 days</td>
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<td></td>
<td>Terms &amp; Conditions of payment</td>
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<td></td>
<td>Escalation</td>
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</table>
8. SAFETY CODE

1. These shall be maintained in a readily accessible place First - Aid appliance including adequate supply of sterilized dressings and cotton wool.

2. The injured person shall be taken to a public hospital without loss of time, in cases where the injury necessitates hospitalization.

3. Suitable and strong scaffolds should be provided for workmen for all works that cannot safely be done from ground.

4. No portable single ladder shall be over 8 metres in length. The width between the side fails shall not be less than 30 cm (clear) and the distance between two adjacent rungs shall not be more than 30cm. When a ladder is used an extra mazdoor shall be engaged for holding the ladder.

5. The excavated materials shall not be placed within 1.5 metres of the edge of the trench or half of the depth of trench whichever is more. All trenches and excavations shall be provided with necessary fencing and lighting.

6. Every opening in the floor of a building or in a working platform shall be provided with suitable means to prevent the fall of persons or materials by providing suitable fencing or railing whose minimum height shall be one metre.

7. No floor, roof or other part of the structure shall be so overloaded with debris or materials as to render it unsafe.

8. Workers employed on mixing and handling materials such as asphalt, cement, mortar or concrete and lime mortar shall be provided with protective footwear and rubber hand-gloves.

9. Those engaged in welding works shall be provided with welder’s protective eye-shields and gloves.

10. i) No paint containing lead or lead products shall be used except the form of paste or readymade paint.

   ii) Suitable face masks should be supplied for use by the workers when the paint is applied in the form of spray or surface having lead paint dry rubbed and scraped.

11. Overalls shall be supplied by the Contractor to the painters and adequate facilities shall be provided to enable the working painters to wash during the cessation of work.
12. Hoisting machines and tackle used in the work, including their attachments, anchorage and supports shall be in perfect condition.

13. The ropes used in hoisting or lowering materials or as a means of suspension shall be of durable quality and adequate strength and free from defects.
8. SPECIAL CONDITIONS OF CONTRACT

1. WATER AND ELECTRICITY:

Contractor shall make his own and adequate arrangements for water required for drinking and construction purposes and also for required electric supply at site for satisfactory execution and completion of the work, at his own cost. However, Bank on its discretion can provide these requisites on chargeable basis for the work bill @0.5% for water and @0.5% for Electricity, respectively.

2. INFORMATION TO BE SUPPLIED BY THE CONTRACTOR:

The contractor shall furnish to the architect & Employer the following from time to time:

   a. Detailed industrial statistics regarding the labour employed by him, etc., every month (within 5th of succeeding month),

   b. The Power of Attorney, name and signature of his authorized representative, who will be in charge for the execution of work.

   c. The list of technically qualified persons (to be approved by the Architect) employed by him for the execution of the work within 15 days from date of start of work.

   d. The total quantity and quality of materials used for the works, every month within 5th of succeeding month.

   e. The list of plant and machinery employed for this work, every month. Copy of log books shall also be submitted every month (within 5th of succeeding month).

Failure to submit any of these details in time, shall be treated as a breach of the contract and likely to result in,

   i) Levying a fine of Rs.500 for each default for each month, and or

   ii) Withholding payments, otherwise due.

   iii) For the periods for which name of technically qualified persons are not given or for which such persons are not employed, recoveries shall be made at Rs.7,500/- per month for each month of default.

In all these matters the decision of the Architect shall be final and binding.

3. RATES:

Contractor shall quote all the rates both in figures and in words (in case of rates to be quoted in manual bidding, alongwith hardcopy submission, as applicable) and any alterations shall have to be initialed by the contractor. Rates quoted by the contractor for the same item in different schedules shall be same, and incase
different rates are quoted, the lowest will be taken as correct and the schedule corrected accordingly. In case of discrepancy between rates given in words and figures or in the amount worked out, the following procedure will be followed:

(a) When there is difference between the rates in figures and in words, the rates which correspond to the amounts worked out will be taken as correct.

(b) When the amount of an item is not worked out by the contractor or does not correspond with the rate written either in figures or in words, then the rate quoted in words will be taken as correct.

(c) When the rate quoted by the contractor in figures and words tallies but the amount is not worked out correctly, the rate quoted will be taken as correct and not the amount.

(d) Rates quoted by the contractor shall hold good for all the work carried out up to any height and depth, as shown in detailed drawings and laid down in bill of quantities and or as required and directed by the Architect.

(e) Rates quoted by the contractor shall also hold good for any small works at any place at site.

(f) Minor repairs and works to other existing buildings and services shall also be carried out by the contractor at rates quoted in the tender.

(g) The rates quoted for all items of work shall include all the items of work covered by the specifications for the corresponding item of work, unless otherwise specifically mentioned to the contrary (NOT IMPLIED) elsewhere.

4. The item of work is for finished goods delivery including civil works, necessary scaffolding, fixing, making good etc. complete.

5. The successful contractor shall prepare submit application / drawings etc. and obtain necessary NOC and final certificate from Fire Department all as applicable to the site of the work. The rates quoted are deemed to include such expenditure.
9. TECHNICAL SPECIFICATIONS

GENERAL

1.1 INTRODUCTION

1.1.1. SCOPE:

These specifications cover following types of water based fixed fire fighting installation:

1) Fire Pump room Equipment
2) Hydrant system
3) Fire Extinguishers
4) Fire Detection & Alarm system

1.1.2. Related Documents

These General Specifications shall be read in conjunction with the conditions of contract, Tender specifications, Schedule of work, drawing and other documents connected with the work. In the event of any discrepancy between these specifications and general conditions contract and specifications, the later shall over ride the former.

1.1.3. Terminology

1.1.4. The definition of terms used in these specifications shall be in accordance with relevant IS.

1.1.5. Site information

The tenderer should, in his own interest, visit the site and familiarize him with the site conditions before tendering for any clarification, tenderer may discuss with the Engineer-in-Charge.

1.2. CONFORMITY WITH STATUTORY ACTS, RULES, STANDARDS AND CODES

i). All components shall conform to relevant Indian standard specifications, wherever existing, amended to date.

ii). All electrical works shall be carried out in accordance with the provisions of Indian Electricity Act 2003 and Indian electricity Rules, 1956 amended to date They shall also conform to latest CPWD Specifications for Electrical works, Part – I: Internal, 2005 Part-II, 1994 and Part IV (Sub-Station) 1982, amended to date.

1.3. SAFETY CODES AND LABOUR REGULATION

i. In respect of all labour employed directly or indirectly on the work for the Performance if the firefighting contracts part if work, the contractor at his Own expense, will arrange for the safety provisions as per the statutory Provisions, BIS
recommendations, factory act, workmen’s compensation act, CPWD code and Instructions issued from time to time. Failure to provide such safety requirements would make the tenderer liable for penalty for RS. 200 /- for each violation. In addition the Engineer –in charge shall be at liberty to make arrangements and provide facilities as aforesaid and recover the cost incurred there on from the contractor.

ii. The contractor shall provide necessary barriers, warning signals and other safety measures while laying pipelines, cables etc. or wherever necessary so as to avoid accident.

1.4. WORKS TO BE ARRANGED BY THE OWNERS

Unless otherwise specified in the tender document, the following works shall be arranged by the Owners.

i. Space for accommodating cannot be provided by the owner space will be provided only for the equipment and components involved in the work.

ii. Power supply, Water supply and Drain points as per Para 1.6

iii. Masonry ducts within and outside the building on carrying pipe lines and cables wherever specified. Inclusive

iv. Under ground and terrace tanks. Inclusive

1.5 WORKS TO BE DONE BY THE CONTRACTOR

Unless otherwise mentioned in the tender documents, the following works shall be done by the contractor and therefore, their cost shall be deemed to be included in their tendered cost- whether specifically indicated in the schedules of work or not.

i. Foundations for equipments including foundation bolts and vibration isolation spring/ pads.

ii. Suspenders, brackets and floor/wall supports for suspending/ supporting pipes.

iii. Suspenders and / or cable trays for laying the cables.

iv. Excavations and refilling of trenches in soil wherever the pipes are to be laid directly in ground, including necessary base treatment and supports.

v. Sealing of all floor slabs/ wall openings provided by the contractor or made by the contractor for pipes and cables, from fire safety point of view, after laying of the same.

vi. Painting of all exposed metal surfaces of equipments and components with appropriate colour as per Para 1.13.

vii. Making openings in the walls, floors, slabs or modifications in the existing openings wherever provided for carrying pipe lines, cables etc.

viii. All electrical works including cable/ wires, earthing etc. beyond power supply made
Available by the contractor.

ix. Making good all damages caused to the structure during installation and restoring the same to their original finish.
x. Approval from local fire authorities as may be required as per local bye-laws. (The contractor’s responsibility shall be limited to the work executed by him).

1.6 POWER SUPPLY, WATER SUPPLY AND DRAINAGE

1.6.1. Power Supply

i. Unless otherwise specified, 3 phase, 415 volts, 50 Hz power supply (5 KW) shall be provided by the Owners free of charge to the contractor at one point for installation at site. Termination switchgear however, shall be provided by the contractor. Further extension if required shall be done by the contractor.

ii. Where the power supply has to be arranged by the Owners at more than one point as per the terms of the contact, the termination of all such power feeders in the incomer of respective control panels to be provided by the contractor shall be the responsibility of the contractor and nothing extra shall be paid on this account.

iii. The contractor shall use the power supply only for the bonfire use of the work. No major fabrication work shall be done at site. Power shall be used only for welding/ cutting works. The power supply shall be disconnected in case of such default and the contractor shall then have to arrange the required power supply at his cost.

1.6.2. WATER SUPPLY

Water supply shall be made available to the contractor by the Owners free of charge at only one point for installation. Further extension it required shall be done by the contractor at his cost.

1.6.3. DRAINAGE

i. Drain traps in pump room shall be arranged by the Owners.

ii. Piping connections from the equipment to the drain trap shall be done by the contractor. These items of work shall be measured and paid as per contract.

1.7. MACHINERY FOR ERECTION

All tools and tackles required for unloading/ handling of equipments and materials at site, their assembly, erection, testing and commissioning shall be the responsibility of the contractor.

1.8. COMPLETENESS OF THE TENDER, SUBMISSION OF PROGRAMME

i. All sundry equipments, fittings, assemblies, accessories, hardware items, foundations bolts, supports, termination lugs for electrical connections, cable glands, junction boxes and all their items which are useful and necessary for proper assembly and efficient working of the various equipments and
components of the work shall be deemed to have been included in the tender, Irrespective of the fact whether such items are specifically mentioned in the tender or not.

ii. SUBMISSION OF PROGRAMME

Within fifteen days from the date of receipt of the letter of award, the successful tender shall submit his programme for submission of drawings, supply of equipment, installation, testing, commissioning and handing over of the installation to the Engineer-in-charge. Items like piping etc. that directly affect the building progress shall be given priority. Hose pipes, branch pipes, first aid hose reel pipes shall be supplied just before commissioning the system.

iii. SUBMISSION OF DRAWINGS
The contractor shall submit the drawings to the Engineer-in-Charge/ Fire Officer as per Para 1.16 for approval before start of works.

iv. COMMENCEMENT OF WORK
The contractor shall commence work as soon as the drawings submitted by him are approved either in full or in part as the case may be.

1.9. DISPATCH OF MATERIALS TO SITE AND THEIR SAFE CUSTODY
The contractor shall dispatch materials to site in consultation with the Engineer-in-Charge. Suitable lockable storage accommodation shall be the responsibility of contractor. Program of dispatch of material shall be framed keeping in view the building progress. Safe custody of all machinery and equipment supplied by the contractor shall be the responsibility of the contractor till taking over by the Owners.

1.10. QUALITY OF MATERIALS AND WORKMANSHIP

i. The components of the installation shall be of such design so as to satisfactorily function under all condition of operation.
ii. The entire work of manufacture / fabrication, assembly and installation shall conform to sound engineering practice.
iii. All equipments and materials to be used in work shall be manufactured in factories of good repute having excellent track record of quality manufacturing, performance and proper after sales service.

1.11. CARE OF THE BUILDING

Care shall be taken by the contractor during execution of the work to avoid damage to the building. He shall be responsible for repairing all such damages and restoring the same to the original finish at his cost. He shall also remove all unwanted and waste materials arising out of the installation from the site of work from time to time.

1.12. COLOUR SCHEME FOR THE EQUIPMENT AND COMPONENTS.

1.12.1. The entire metal work above ground level shall be painted with red colour shade no. 536 of IS: 5.
1.13. **INSPECTION AND TESTING**

1.13.1. Initial Inspection and testing

i. The Owners also reserve the right to inspect the fabrication job at factory and the successful tenderer has to make arrangements for the same.

ii. The materials duly inspected by Engineer-in-Charge or his authorized representative shall be dispatched to site by the contractor.

iii. No additional payment shall be made to the contractor for initial inspection/ testing at the manufacture’s works by the representative of the Engineer-in-Charge. However, the Owners will bear the expenses of its representative deputed for carrying out initial inspection/ testing.

1.13.2. Final Inspection and Testing

Final inspection and testing will be done by the Engineer-in-Charge or his representative as per details indicated in section 9.

The installation will be offered for inspection by local bodies (Chief fire Officer). The contractor or his representative shall attend such inspection of the Chief Fire Officer, extend all test facilities as are considered necessary, rectify and comply with all observation of the Chief Fire Officer which are part of the agreement and arrange for obtaining necessary clearance certificate in favour of the Owners. In case the contractor fails to attend the inspection and make desired facilities available during inspection, the Owners reserves the right to provide the same at the risk and cost the contractor and impose penalty for the same. The installation will be accepted by the Owners only after receiving clearance from Chief Fire Officer for the work executed by the contractor under the agreement.

1.13.3. Safety Measures

All equipment shall incorporate suitable safety provisions to ensure safety of the operating personnel at all times. The initial and final inspection reports shall bring out explicitly the safety provisions incorporated in each equipment.

1.14. **GUARANTEE**

i. The contractor shall guarantee the complete system to provide the specified flow and pressure under all conditions and outlets.

ii. All equipments shall be guaranteed for a period of 12 months from the date of acceptance and taking over the installation by the Owners against unsatisfactory performance and/ or breakdown due to defective design, material, manufacture, workmanship or installation. The equipment or component or any part thereof so found defective during the guarantee period shall be repaired or replaced free of cost to the satisfaction of the Engineer-in-Charge. In case it is felt by the Owners that undue delay is being caused by the contractor in doing this, the same will be got done by the Owners at the risk and cost of the contractor. The decision of Engineer-in-Charge in this regard shall be final.
1.15. TENDER DRAWINGS, DRAWINGS FOR APPROVAL AND COMPLETION DRAWINGS

1.15.1. Drawing for approval on award of the work

The contractor shall prepare and submit following drawings and get them approved from the Engineer-in-Charge before the start of the work. The approval of drawings however does not absolve the contractor of his responsibility to supply the equipment / materials as per agreement. In case of any contradiction between the approved drawings and agreement the decision of the Engineer-in-Charge shall be final and binding on the contractor.

a. Layout drawings of the equipment to be installed in pump room and terrace foundations.
b. Drawings showing the details of erection of entire equipments including their foundations.
c. Plumbing drawings showing the layout of entire piping, dia and length of pipes, hydrants, air vessel, valves and isometric drawings showing connections to various equipment.
d. Sprinkler drawing indicating layout and sizes of pipe, location of valves, sprinkler etc.
e. Electrical wiring diagrams for all electrical equipments and controls including the sizes and capacities of the various cables and equipment.
f. Dimensioned drawings of all Electrical and Control panels.
g. Drawings showing details of supports for pipes, cable trays etc.
h. Any other drawings relevant to the work.

1.15.2 Completion Drawings

Three sets of the following laminated drawings shall be submitted by the contractor while handing over the installation to the Owners. Out of this one of the sets shall be laminated on a hard base for display in the fire control room. In addition one set will be given on compact disc.

a. Installation drawings giving sizes complete details of all the equipments, including their foundations.
b. Plumbs layout drawings giving sizes and lengths of all the pipes and the sizes and locations of all types of valves, and including isometric drawings for the entire piping including the pipe connections to the various equipments.
c. Line diagram and layout of all electrical control panels giving switchgear ratings and their disposition, cable feeder sizes and their layout.
d. Control wiring drawing with all control components and sequence of operations to explain the operation of control circuits.

1.15.3 Documents to be furnished on completion of installation

Three sets of the following documents shall be furnished to the Owners by the contractor on completion of work:

a. Completion drawings as per para 1.16.2.
b. 3 Sets of manufacture’s technical catalogues of all equipments and accessories.
c. Operation and maintenance manual of all major equipments, detailing all adjustments, operation and maintenance procedure.
2. SYSTEM COMPONENTS

2.1.1. No. of Risers: Number of risers will be decided to fulfill the following conditions:
   i. No corner of the building is farther than 30 M from nearest riser.
   ii. The horizontal distance between two risers shall not be more than 50M.
   iii. Normally one riser shall be provided for every 1000M$^2$ of plinth area or part thereof.
        However the number risers can be suitably increased to meet the given situations.

2.1.2. Internal Hydrants:

2.1.2.1. Internal hydrants are provided to fight fire from within the building. Following factors are considered for deciding location of internal hydrant.
   i. Internal hydrants are provided at every floor at the same location and connected with risers.
   ii. Numbers and locations of risers shall be decided as per para 2.1.5. Every wing of the building shall be preferably being provided with independent hydrants. Hydrants shall be located in the center of the building so that one hydrant can cover area on both sides.
   iii. A masonry enclosure on three sides of size minimum 1200mm wide and 800mm deep and 2100mm height shall be provided. Cut of size 200mm x 200mm be provided in one corner in the slab for down comer/ wet riser pipe. If the sprinkler installations are to be provided additional cut out of similar size for sprinkler pipe and drain pipe as the case may be, shall be provided. Steel shutter of 1250mm width-with locking arrangement shall be provided in front of the hydrant. The shutter shall be painted red as per para1.13.
   iv. Internal hydrants shall be easily accessible and provided near stair case. A clear space of at least 1.5m should be available in front of the internal hydrant for operation internal hydrants shall not be provided in lockable room.
   v. Internal hydrant shall be clearly marked with the inscription of “FIRE HYDRANTS” by luminous sign. Suitable lighting arrangement shall be provided in front of the internal hydrant.

2.1.2.2 Every riser will be provided with the following at every floor including terrace and basemen over and above sprinkler system.
   i. Single headed out let. :1no.
   ii. First Aid Hose Reel (Length of pipe shall be such that nozzle of the hose can be take in to every room and within 6M of any part of the rooms keeping in view layout and obstructions). : 1no.
   iii. Hose pipe 63mm dia 15M long with male and female coupling at both ends. : 2nos.
   iv. Branch pipe 63mm dia with 20mm nozzle (nominal dia) and suitable for instantaneous connection. : 1no.

2.1.3. Yard Hydrant (External Hydrant)
2.1.3.1 For fighting fire from outside the building, yard hydrants are provided around the building and in the closed court yard. For connecting yard hydrants a ring of pipe shall be laid above ground/underground around the building at a minimum distance of 2m form the face of the building. All internal hydrants risers shall be connected with this ring.

2.1.3.2 Yard hydrants shall be located at a minimum distance of 2m but not more than 15m from the building face. The yard hydrants shall be accessible and should normally be provided near boundary wall/ along road. While locating yard hydrants it should be ensured that same do not become hindrance in vehicular movement or entrance to the building. Yard hydrants, should be located around the building in such a way that it should be possible to fight fire on any face of the building from nearest hydrant. A distant of 45M from hydrant will be adequate.

2.1.3.3 Yard hydrant will include the following accessories

i. Connection from ring main with 80mm dia MS pipe.
ii. 63mm dia single head landing valve : 1no.
iii. Hose pipe 63mm dia. 15M long with male and female coupling at both ends: 2nos.
iv. Branch pipe 63mm dia. with 20mm dia. nozzle and suitable for instantaneous connection. : 1no.

All the above components shall be housed in a suitable size M.S. cabinet made from 16SWG thick sheet with glass door. The cabinet shall be painted as per para 1.13.

2.1.4. HOSE PIPES/BRANCH PIPES:

A minimum of two number of 63mm dia 15m long hose with instantaneous coupling at both ends and one number branch pipe with nozzle shall be kept with limited internal and external hydrant.

2.1.5. FIRE SERVICE CONNECTION:

In order to facilitate feeding of water in the system by fire service, a 2/3 way 63mm dia collecting head shall be provided and connected with each riser/ down comer and the rising main with Non return valve and butterfly/ sluice valve. This should be located at a place where fire brigade tender can reach.

2.1.6. FIRE SERVICE CONNECTION:

In case underground tank is not approachable by fire tenders, a 4 way 63mm dia instantaneous male inlet connection is provided at street level and connected to underground tank with 150mm dia pipe.

2.1.7. AIR VESSEL:

To counteract the water hammer effect, air vessel shall be provided one at top of each riser.
2.1.8. ALARM:

To indicate the flow of water in the system, turbine alarm shall be provided outside the pump house in the main line before any connection is taken. The alarm will indicate the healthiness of the system and shall not be silenced till main fire pump is in operation.

2.1.9. CONTROL SYSTEM:

2.1.9.1. The system shall be designed for operation automatically so that as and when water is drawn from the system through any hydrant, the pumps will operate automatically and feed water in to the system. However once a fire pump start working, it will be stopped only manually (except jockey pump) or on account of any fault or non availability of power supply to electrical pumps or low water level in UG tank/terrace tank. Facility shall be provided for manual operation. A selector switch for auto/manual selection shall be provided in each pump.

2.1.9.2. The control system shall be designed to provide the following sequence of operation.

a). The pressurization pump shall maintain pressure in the system and shall operate only on account of slow pressure loss. In case of sudden pressure loss the pressurization pump shall not operate. The pump shall start when the water pressure in the system falls to a pre-set value (about 0.35kg/cm$^2$ below normal system pressure) and shut down when the system pressure reaches the set value. Both limits shall be adjustable.

b). Main Electric pump shall operate on account of sudden pressure loss. So long as main Electric pump is working, other pumps will not operate. The pump shall start when the water pressure falls to a pre-set value in the system.

c). The Diesel Fire pump will start on sudden pressure loss, only in case main Electric pump is not available or within a pre set time main Electric pump fails to start or fails during operation. No other pump will be working when Diesel Fire Pump is in operation. Audio-Visual Alarm shall be available to indicate failure of Main Electric Fire Pump.

d). A their attempts starting facility will be provided for Diesel Pump.

e). If within a pre-set time, the standby pump also fails to start or fails to develop pressure, the standby pump shall also be shut down and locked out. An audio visual alarm indication shall be given at the control panel.

f). only one pump will be working at a time. In manual mode more than one pump can be started.

3. FIRE PUMPS

3.1. This section covers the general requirements of water pumps for main fire pump, jockey pump and terrace pump.

3.2. TYPE
The pumps shall be horizontal type, multistage, centrifugal and split casing directly driven with a 3 phase, 415 V+10%, 50Hz. A.C. motor. The standby fire pump shall be driven by a diesel engine.

3.3. RATING

The main fire pump and terrace pump shall be suitable for continuous operation in the system the jockey pump shall be suitable for intermittent operation to build up pressure in the system on account of leakage. The head and discharge requirement shall be as specified in the schedule of quantities. The head shall be suitable for the system and shall take into consideration the pressure drops across the various components in the water circuit as well as the frictional losses. Pump shall be capable of discharging not less than 150 percent of the rated discharge at a head of not less than 65 percent with the rated head. The shut off head shall not exceed 120 percent of the rated head.

3.4. MATERIAL AND CONSTRUCTION

i. The centrifugal pumps shall conform to IS 1520.

ii. The pump casing shall be of heavy section close grained cast iron and designed to withstand 1.5 times the working pressure. The casing shall be provided with shaft seal arrangement as well as flanges for suction and delivery pipe connection as required.

iii. The impeller shall be of bronze of gunmetal. This shall be shrouded type with machined collars. Wear rings, where fitted to the impeller, shall be of the same material as the impeller. The impeller surface shall be smooth finished for minimum frictional loss. The impeller shall be secured to the shaft by a key.

iv. The shaft shall be of stainless steel and shall be accurately machined. The shaft shall be balanced to avoid vibrations at any speed within the opening range of the pump.

v. The shaft sleeve shall be of bronze or gunmetal.

vi. The bearing shall be ball or roller type suitable for the duty involved. These shall be grease lubricated and shall be provided with grease nipples/ cups. The bearings shall be effectively sealed against leakage of lubricant or entry of dust or water.

vii. The shaft seal shall be mechanical type, so as to allow minimum leakage. A drip well shall be provided beneath the seal.

viii. The pumps shall be directly coupled to the motor/ diesel engine shaft through as flexible coupling protected by a coupling guard.

ix. The pump and motor/ diesel engine shall be mounted on a common base plate fabricated from mild steel section. The base plate shall have rigid, flat and true surfaces to receive the pump and motor/ diesel engine mounting feet. The pump will be perfectly aligned with the motor/ engine so as to avoid any vibration during operations.

3.5. ACCESSORIES

Each pump shall be provided with the following accessories:

a. Butterfly/ sluice valve on suction and discharge (if positive suction is not provided valves at suction is not to be provided).

b. Reducers, as may be required to match the sizes of the connected pipe work.

c. Non-return valve at the discharge.

d. Pressure gauge at discharge side between pump and the non-return valve.
3.6. INSTALLATION

i. The pump and motor/engine assembly shall be mounted and arranged for ease of maintenance and to prevent transmission of vibration and noise to the building structure or to the pipe work.

ii. The pump and motor/engine assembly shall be installed on suitable RCC foundation. The length and width of the foundation shall be such that 100mm space is left all around the base frame. The height of foundation shall be so decided that the total weight of foundation block is 1.5 times the operating weight of the pump assembly. The foundation shall be isolated from the floor by vibration isolating pads. Angle iron frame of size 35x35x3mm shall be provided on the top edges of the foundation.

iii. More than one pump and motor assembly shall not be installed on a single base or cement concrete block.

iv. The suction/ discharge pipe shall be independently supported and their weight shall not be transferred to the pump. It should be possible to disconnect any pump for repairs without disturbing the connecting pipe line.

v. A minimum clearance of 1M around the main pumps shall be provided. For jockey pump-clearance of 75cm. shall be adequate.

vi. Sufficient space is to be left in front for the radiator of diesel engine for free discharge of hot air. Arrangement for discharging hot air to outside the pump house shall be provided so that hot air does not stagnate in the pump house.

4. DIESEL ENGINE FOR FIRE PUMP

4.1. SCOPE

This section covers the details of requirement of a diesel engine for main fire pump to act as standby.

4.2. GENERAL

The diesel engine shall be suitable for automatic operation complete with necessary automatic starting gear, battery system and shall be complete with all accessories. Both engine and pump shall be assembled on a common bed plate, fabricated from mild steel cannel.

4.3. DRIVE

The pump shall be only direct driven by means of a flexible coupling. Coupling guard shall be provided. The speed shall be 1500RPM.

4.4. DIESEL ENGINE

4.4.1. ENVIRONMENT CONDITIONS: The engine shall be suitable to operate under the conditions of environment at site.

4.4.2. ENGINE RATING: The engine shall be multi cylinder/ vertical 4 stroke cycle; water cooled developing suitable HP at the operating speed specified to drive the fire pump. Continuous capacity available for the load shall be exclusive of the power requirement of auxiliaries of the diesel engine, and after correction for altitude, ambient temperature and humidity for specified environment conditions. The engine rating shall be suitable to drive the pump at 150 percent of its rated discharge with at
least 65 percent of rated head. The engine shall have 10% overload capacity for one hour in any period of 12 hours continuous run.

The engine shall be suitable for cold starting for which suitable heaters shall be provided in lubricating oil.

The engine shall develop full load within 15 seconds from the receipt of signal to start. The diesel engine shall conform to BS 649/IS 1601/IS 10002, amended up to date.

4.4.3. ENGINE ACCESSORIES: The engine shall be complete with following accessories.

i. Fly wheel dynamically balanced.
ii. Direct coupling for pump and coupling guard.
iii. Radiator with hoses, fan, water pump, drive arrangement and guard.
iv. Air cleaner dry type.
v. Fuel service tank with necessary pipe work.
vi. Pump for lubricating oil and Lub. Oil filter.
vii. Elect. Starting battery 12V/24, of min 180AH capacity as per manufacturer’s recommendations. Battery charger AC 230 W single phase with suitable quick change and float change current rating and automatic switch over.
viii. Exhaust silencer with necessary pipe work.
ix. Governor.
x. Instrument panel housing all the gauges, including Tachometer, hour meter and starting switch with key (for manual starting).
xi. Necessary safety controls.
xii. Hand operated semi rotary pump for filling the service tank.

4.4.4. COOLING SYSTEM

The engine shall be radiator water cooled. The radiator assembly shall be mounted on the engine. The radiator fan shall be driven by the engine as its auxiliary with multiple fan belts. When half the belts are broken the remaining belts shall be capable of driving the fan. Cooling water shall be circulated by means of an auxiliary pump of suitable capacity driven by the engine in a closed circuit.

4.4.5. Fuel System: The fuel system shall be gravity fed from the fuel tank to the engine driven fuel pump. The engine fuel tank shall be mounted either adjacent to the engine or suitably wall mounted on brackets. The fuel filter shall be suitably located to permit easy servicing.

All fuel tubing to the engine shall be with M.S.'C' class pipe wit flexible hose connections where required. Plastic tubing shall not be permitted.

The fuel tank shall be of welded steel construction (3mm. thick) and of capacity sufficient to allow the engine to run on full load for at least 8 hours. The tank shall be complete with necessary floor mounted supports, level indicator (Protected against mechanical injury) inlet, outlet, overflow, connections and drain plug and piping to the engine fuel tank. The outlet should be so located as to avoid entry of any sediment into the fuel line to the engine.
4.4.6. **Lubricating Oil System:**

Forced feed Lub. Oil system shall be employed for positive lubrication. Necessary Lub. Oil filters shall be provided, located suitably for convenient serving.

4.4.7. **Starting System:**

The starting system shall comprise necessary batteries 12 volts/24 volts, starter motor of adequate capacity and axle type gear to match with the toothed ring on the fly wheel. Suitable protection to protect starting motor from excessively long cranking runs shall be suitably integrated with engine protect.

The capacity of the battery shall be suitable for meeting the needs of the starting system and as per manufacture’s recommendations. Minimum of 180 AH capacity of battery shall be provided.

Three attempt starting facility shall be provided. If the engine fails to start after third attempt. The engine shall be locked out and suitable audio-visual alarm shall be given to indicate engine failure.

The scope shall cover all cabling, terminals, initial changing etc. Battery charger.

4.4.8 **Exhaust System:**

The exhaust system shall be completed with residential silencer suitable for outdoor installation and silencer piping shall be extended up to 1 M outside pump house duly insulated with 50mm. thick glass wool and 1.0mm. thick aluminum sheet cladding.

4.4.9 **Engine shut down mechanism:**

This shall be manually operated and shall return automatically to the starting position after use.

4.4.10 **Governing System:**

The engine shall be provided with an adjustable governor to control the engine speed within 5% of its rated speed under all conditions of load up to full load. The governor shall be set to maintain rated pump speed at maximum pump load.

4.4.11 **Engine instrumentation:**

Engine instrumentation shall include the following:

i. Lub. Oil pressure gauge.
ii. Lub. Oil temperature gauge.
iii. Water temperature gauge.
iv. Tachometer.
v. Hour meter.

The instrumentation panel shall be suitably mounted on the engine.

4.4.12 **Engine Protection Devices:**
Following engine protection and automatic shut down facilities shall be provided:

i. Low lub. Oil pressure.
ii. High cooling water temperature.
iii. High lub.oil temperature.
iv. over speed shut down.

4.4.13 Pipe work:

All pipe lines with fittings and accessories required shall be provided for fuel oil, lub. Oil exhausts systems.

4.4.14 Anti vibration mounting

Suitable vibration mounting duly approved by engineer-in-charge shall be employed for mounting the unit so as to minimize transmission of vibration to the structure.

4.4.15 Battery Charger

Necessary float and boost charger shall be incorporated in the control section of power and control panel, to keep the battery under trim condition. Voltmeter to indicate the state of charge of the shall be provided.

5. PIPE WORK

5.1. PRESASURE TESTING

a). All piping shall be tested to hydrostatic test pressure of at least one and a half times the maximum operating pressure, but not less than 10.5 kg/cm2 for a period not less than 24 hours. All leaks and defects in joints revealed during the testing shall be rectified to the satisfaction of the Engineer-in-Charge.

b). Piping repaired subsequent to the above pressure test shall be re-tested in the same manner.

c). System may be tested in sections and such sections shall be securely capped.

d). Pressured gauges may be capped off during pressure testing of the installation.

5.2. ANTI-CORREOSIVE PROTECTION ON UNDER GROUND PIPE

Corrosion protection tape shall be wrapped on M.S pipes to be buried in ground. This corrosion protection tape shall comprise of coal tar/ asphalt component supported on fabric of organic or inorganic fiber and minimum 4mm. thick and conform to requirement of IS: 10221 code of practice for coating and wrapping of underground Mild steel pipe line. Before application of corrosion protection tape all foreign matter on pipe shall be removed with the help wire brush and suitable primer shall be applied over the pipe thereafter. The primer shall be allowed to dry Until the solvent evaporates and the surface becomes tacky. Both primer and tape shall be furnished by the same manufacturer. Corrosion protection tape shall then be wound around the pipe in spiral fashion and bounded completely to the pipe. There shall be no air pocket or bubble beneath the tape. The overlaps shall be left uncoated after the pipe line is installed. The taps shall be wrapped in accordance with the manufacturers recommendations. If application is done in cold weather, the surface
of the pipe shall be pre-treated until it is warm to touch and traces of moisture are removed and then primer shall be applied and allowed to dry.

5.3. PIPE SUPPORTS
For installing pipes vertically or horizontally inside the building standard pipe supports of reputed make shall be used. Following supports shall be used.

(ii) Split pipe support claims with rubber lining for vertical, horizontal and roof hanging.

(iii) Clevis Hangers for horizontal supports to adjust varying heights.

(iv) Sprinklers hangers for horizontal supports to adjust for pipes from 15mm.dia to 150mm dia. Fasteners and fully threaded rods shall be used for installing the pipe supports. The sizes of pipe supports and installation shall be in accordance with manufactures Recommendations.

6. FIRE FIGHTING ACCESSORIES

6.1 SCOPE
This section covers landing valves, first aid hose reels, hosepipes, branch pipes etc. Which are vital tools for fire fighting?

6.2 LANDING VALVE

Landing valves are provided in the system for connection of hose pipes for discharging water for fighting fire by the trained personnel.

6.2.1 The landing valves shall be as per IS: 5290
6.2.2 The internal landing valves are single head outlet types and external landing valves (yard hydrants) shall be single headed type

6.2.3. MATERIAL OF CONSTRUCTION
(i) Body, outlet and cap etc
   Bronze or Aluminum alloy or stainless steel
(ii) Spindle
    Brass for Bronze body, stainless steel for Aluminum alloy and stainless steel body.
(iii) Hand wheel
     Mild steel or cast iron

6.2.4. The water discharge hall be not less than 900 lpm for single head and 1800 lpm for double head valves at 7 kg/cm² pressure

6.2.5. INSTALLATION

6.2.5.1 The landing valve shall be fitted to a T connection of the riser at the landing in such a way that the valve is in the center of the internal hydrant opening and at a height of 1m from floor level
6.2.5.2 The valve base shall be vertical and the valve facing outside. There should be no hindrance in operation of the handle.
6.2.6 FIRST AID HOSE REEL

First AID Hose Reel is meant for delivering small quantity of water in early stage of fire and can operated even by untrained personnel, and thus provides a most effective fire fighting facility. It consists of 20mm (nominal internal) diameter hose tubing wrapped around a reel with water inlet pipe, stop valve and shut off nozzle. The entire assembly is mounted on a wall bracket and can swing 180 degree. The water inlet is connected to the riser pipe by means of 37mm socket and valve. The hose tube can be pulled out easily for the purpose of discharge of water on fire.

6.2.7 Fire aid hose reel shall be as per IS-884. The coupling, branch pipe and nozzle shall be as per IS: 636

6.2.8 MATERIAL OF CONSTRUCTION:

(i) Hub and sides : Aluminum Alloy/Mild steel/ Aluminum
(ii) Wall Bracket : Cast iron/ Mild steel.
(iii) Hose tube (15mm) : PRL
(Nominal internal dia) : Type-2 as per schedule
(v) Nozzle with branch pipe : Brass.

(vi) Stop valve (Ball valve) : Gun metal.

Normally M.S. Construction is used. Other material may be used in areas having corrosive atmosphere.

6.2.9 The water flow rate shall be not less than 24lb/m and the range of jet shall be not less than 6m.

6.2.10 INSTALLATION

6.2.10.1 First aid hose reels are installed with internal hydrant (Para2.1.6) space for which is provided as per para 2.1.6. Where space is not provided, first aid hose reel shall be installed in suitable size MS Cabinet made from 2 mm thick sheet glass door. The cabinet shall be painted red as per para 1.13. The size of the cabinet shall be such that there is no obstruction in swinging the hose reel. The location of cabinet shall be such that it does not form an obstruction in passage/ escape route.

6.2.10.2 The length of hose tube shall be such that the nozzle of the hose can be taken into every room and within a range of 6m from any part of the room.

6.2.10.3 There shall be no obstruction is swinging the hose reel and should be installed above landing valve where provided.

6.2.10.4 The inlet valve shall be at 900mm above floor level.

6.2.10.5 Hose reel brackets should be firmly grouted on the wall with the help of raw bolts.
6.3 FIRE HOUSE DELIVERY COUPLING, BRANCH PIPE AND NOZZLES:

6.3.1 These are important accessories used for firefighting operations.

6.3.2 Material of Construction
(a) Copper Alloy.
(b) Aluminum alloy.
(c) Stainless Steel.

6.3.3 Delivery HOUSE COUPLING’S

6.3.3.1 The delivery hose couplings consist of male coupling and female half coupling. Grooves are provided on outer side on both coupling for binding hose pipes with wires. In Female coupling spring loaded cam tooth is provided for holding male half coupling in position. Male half coupling and female half coupling are provided on both sides (i.e. on one side male and on other side female) of hose pipes. Two or more pipes can be joined together with the help of these couplings instantaneously.

6.3.3.2 Sizes:- These are available in two sizes i.e. 63mm size is used.

6.3.4 Branch pipe and nozzle: Branch pipes with nozzle are mounted at the end of hose pipe. Branch pipe is properly finished and free from sharp edges. During operation a fireman has to hold the branch pipe. One end of branch pipe is fixed with hose coupling and the other end is threaded to fit the nozzle.

Nozzle is a tapered pipe with one end threaded internally which is fixed on branch pipe. The size of other end i.e. nozzle shall be 20mm (nominal internal diameter)

6.4 Fire service inlet and fire service connection

6.4.1 These are provided for connection of fire service hose pipes for either directly pressurizing the system with their pumps or filling water in the tank from a distance. In the case non return valve with butterfly valve shall be provided for holding water pressure. Fire service inlet shall be provided with each wet riser/down corner and the ring main. These are fixed to 100mm dia pipe and locator in M.S Box of 2mm tick mild steel sheet with open able glass cover.

6.4.2 These shall be as per IS.904.

6.4.3 Material of construction
(a) Copper Alloy.
(b) Aluminum Alloy.

6.5 HOSE PIPES

6.5.1 Hose pipes shall be rubber lined woven jacketed and 673mm in diameter. They shall confirm to Type a (Reinforced rubbed lined) of IS: 636. They shall be flexible and capable of being rolled. Length of hose pipe will be 15 mm
6.5.2. The hose pipe shall be complete with male and female coupling at the ends as per para 6.3.3.

6.5.3. Besides keeping hose pipe with internal hydrant and yard hydrant, spare hose pipes along with branch pipes shall be kept in fire control room/ pump room.

7. AUTOMATIC SPRINKLER SYSTEM

7.1. SCOPE

This section covers the general requirement of selection, design, installation, testing, commissioning and maintenance of automatic sprinkler system for fire fighting in buildings used for other than industrial and storage purpose.

7.1.1. REFERENCES: - For additional information regarding definitions, planning, design, hydraulic, calculations, tables, etc., following documents are to be referred to.

(1) IS: 15105 Design and installation of Fixed Automatic sprinkler, Fire Extinguisher systems- Code of Practice.

7.2 IS Specification for Automatic Sprinkler Heads for Fire protection service.

7.2 INTRODUCTION

In automatic sprinkler system, sprinkler heads are provided throughout the areas to be protected at specified locations such as roof or ceiling, walls, between racks, below obstructions and fitted with water supply lines permanently charged with water under specified pressure. The sprinklers operate at pre-determined temperature to discharge water over the affected area below and provide an adequate distribution of water to control or extinguish fire. Only those sprinklers which are in the vicinity of fire that is those become sufficiently heated operate. Operation of sprinkler results in flow of water which initiates fire alarm. Thus sprinklers perform two functions, i.e. first to detect fire and then to provide an adequate distribution of water to control or extinguish it. Water distribution from ceiling level cools down the hot gas which forms beneath the ceiling of enclosure in which fire is developing. This will prevent spread of fire to adjoining areas and contain damage to limited area.

It should not be assumed that the provision of sprinkler system entirely obviates the need for other means of fire fighting and it is important to consider the fire precaution in the premises as a whole.

The system shall be installed only where there is no danger of freezing of water in the pipes at any time.

7.3. CLASSIFICATION OF OCCUPANCIES

The administrative building is comes under moderate hazard class. Hence sprinkler system should be designed for moderate hazard class as per IS: 15105

7.4. PLANNING:

7.4.2. Design Density and Assumed Area of maximum Operation: Water discharge shall be at least 5 liters/min/ m² over an assumed area of operation covering 360 m².
7.4.3. **Sprinkler spacing, arrangements and locations:** Sprinkler heads may be installed on ceiling or side walls. For selection of number of sprinkler and their location in a given area, following factors shall be considered.

i). Maximum area coverage for sprinkler
   a). Side wall sprinkler - 9M$^2$
   b). Ceiling Sprinkler - 12M$^2$

ii). Maximum Distance between sprinklers
   a). Side wall Sprinkler - 3.4M
   b). Ceiling Sprinkler - 4M

iii). Maximum Distance between sprinklers - 2M

iv). Maximum Distance between sprinklers and boundary - 2M

While designing sprinkler installation, the recommendation of sprinkler manufacturer shall be considered.

7.4.4. **Spacing below sprinkler heads:** Clear minimum space of 0.5m shall be maintained below the deflector of sprinkler head.

7.4.5. **Location of Sprinkler in relation to Building Structure:**

i). Ceiling sprinkler deflector shall not be less than 150mm and more than 300mm below ceiling.

ii). Side wall sprinkler deflector shall not be less than 100mm and more than 150mm below ceiling.

iii). If depth of a beam in an area is less than 450mm distance at (i) and (ii) shall be maintained and provision of beam shall not be considered. If the depth of the beam is more than 430mm, then the beam shall be regarded as a boundary.

7.4.6. **Concealed Spaces:** Spaces between roofs and ceiling more than 0.8m deep shall be sprinkler protected as follows.

a). Sprinkler heads shall be provided considering the space as any other area in the building.

b). Sprinkler heads may be connected individually with range/ distribution pipes below, which shall be sized by taking the room and concealed area sprinkler cumulatively.

c). Sprinkler head may be connected with independent range/ distribution pipes connected with common feed pipe. The common feed pipe shall not be less than 65mm dia.

7.4.7. **Obstruction below Sprinkler:**
Sprinkler shall be fitted under the following types of obstruction which are either.

a). More than 0.8m wide less than 150mm from adjacent walls or partitions (or)

b). More than 1m wide.

7.4.8. **Pipe sizing and Design:** Sprinkler heads shall be connected with pipe lines permanently charged with water. Depending upon location of sprinkler heads and site conditions, sprinkler heads may be connected with range and distribution pipes.
The pipes connecting the sprinkler heads are to be sized depending upon number of sprinkler heads and arrangement of their connection. Sizes of pipes are to be calculated from various tables and hydraulic calculations in IS: 15101. Some guidelines are given below:

a). Pipe less than 25mm dia shall not be allowed.
b). There shall not be more than 6 sprinkler in any range pipe.
c). Range and distribution pipe nominal sizes are to be selected from table given below.

7.4.9. Components of sprinkler system:

Following types of valves are used in the installations.

a). Stop valve
b). Test valve
c). Drain valve
d). Flushing valve
e). Check valve
f). Installation valve and alarm valve
g). Pre action valve
h). Subsidiary valve
i). Alarm valve
j). Pressure Gauges

The location of above valves shall be as under.

7.4.9.1. Main stop valve: Only one main stop valve shall be provided immediately after main alarm valve at a location which is readily available.

7.4.9.2. Test Valves: For testing hydraulic alarm or electric alarm by drawing water from down stream side, test valve shall be connected with downstream of the water flow alarm.

7.4.9.3. Drain valve: For drainage of system, drain valve of 50mm dia shall be provided down stream of installation valve/ stop valve or any subsidiary stop valve.

7.4.9.4. Flushing valves: If the water used for sprinkler is not profitable, flushing valves shall be provided at the end of distribution pipe. The valve size shall be same as distribution pipe. Valve outlet shall be fitted with a brass plug and extended to not more than 3 m above floor.

7.4.9.5. Check valve: Check valve shall be provided where more than one water supply is available and same shall be fitted with on each water supply pipe.

7.4.9.6. Subsidiary valve: Subsidiary stop valve which shall be of same dia as the pipe line in which they are fitted shall be provided to control water supply to sprinkler s of highly sensitive areas like computer rooms.
7.4.9.7. **Installation and Alarm valve:** A sprinkler installation shall be fitted with suitable main installation valve to control water supply to the installation. The valve set shall comprise of following.

a). A main stop valve  
b). An alarm valve  

The main stop valve shall be placed in the vicinity of the main entrance of the protected area at an easily accessible place. The valve shall be secured open by a pad locked and protected against damage. A location plate shall be fixed near the valve bearing the following words in raised letters “SPRINKLER STOP VALVE”. Alarm valve shall be fitted on the main supply pipe immediately after the main control valve and before any connection is taken off to supply any part of the installation.

7.4.9.8. **Alarm Device:** Water monitor alarm suitable for sprinkler service shall be provided very close to the installation and alarm valve. This alarm shall be provided outside of the external valve. Strainer shall be fitted between motor nozzle and alarm valve connection. The water outlet shall be positioned so that any flow of water can be seen. The alarm device shall provide audibility level of 85dB above the background noise level.

7.4.9.9. **Pressure Gauges:** Pressure gauges shall be provided at each of the following points.

a). Immediately downstream of alarm valve.  
b). Immediately up stream of the main stop valve.

Stop cock shall be provided before pressure gauges for removal without interruption of water supply of the installation. Pressure gauges shall be as per IS: 3624.

7.5. **Orifice size of sprinkler:** In moderate hazard applications, sprinkler of orifice size 15mm shall be selected.

7.6. **Size of Installation:** The number of sprinkler in an installation (Excluding sprinklers provide in concealed spaces) shall not be more than 1000. As far as possible one area shall be controlled by one installation and control valve. If the area is quite large, more than one installation and alarm valves should be planned. Details of area controlled by installation valves shall be exhibited near installation valves.

7.7. **Protection of Sprinkler:** Any sprinkler installed in a position of risk or accidental damage shall be fitted with a metal guard suitable for sprinkler services.

7.8. **WATER SUPPLY ARRANGEMENT FOR SPRINKLER:**

7.8.1 Rating of pumps shall be as indicated in schedule of quantities. For larger installations, separate jockey pump shall be provided for sprinkler system. All pumps shall have common discharge header. If two electrical pumps are to be provided one non return valve shall be provided in the header such that sprinkler pump will not feed other system.
11. LIST OF APPROVED MAKES

1. PUMPS : KIRLOSKAR/MATHER & PLATT
2. MOTORS : KIRLOSKAR/GE/CROMPTON
   GREAVES/JYOTI
3. CONTROL PANEL : ANY REPUTED FABRICATOR WITH
   SIEMENS/ABB/GE SWITCHGEAR
4. FOOT VALVES : DURGA/NORMAX/KIRLOSKAR
5. SLUICE VALVES : DURGA/KIRLOSKAR/KARTAR/
   NORMAX
6. NON RETURN VALVES : DURGA/INTERVALVE/AUDCO
7. PRESSURE SWITCHES : INDFOSS/DONFOSS
8. PRESSURE GUAGES : H.GURU/FEVIG
9. BALL VALVES/GATE VALVES : ZOLOTO/LEADER
10. BUTTERFLY VALVES : INTERVALVE/AUDCO/ZOLOTO
11. PRIMING TANK : SINTAX
12. AIRCUSSION VESSEL : FABRICATED
13. MS/GI .PIPES : TATA/JINDAL
14. RED ENAMEL PAINT : ASIAN
15. RED OXIDE : ASIAN
16. WRAPPING AND COATING MATERIAL : IWL PIPKOT
17. HYDRANT VALVES : /NEW AGE/WINCO/ OMEX
18. BRANCH PIPES : /NEW AGE/WINCO/ OME
19. PRL HOSES : NEW AGE/CRC/JAYASHREE
20. HOSE REEL : NEW AGE/DUNLOP/MINIMAX
21. HOSE BOX : FABRICATED
22. FIRE ALARM PANEL : RAVEL/APOLLO
23. MANUAL CALL POINT : RAVEL/APOLLO
24. ELECTRONIC HOOTERS : RAVEL/APOLLO
25. CABLES : FINOLEX/HAVELLS
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<tr>
<td>26. DETECTORS</td>
<td>: APOLLO-65 SERIES</td>
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<tr>
<td>27. FIRE EXTINGUISHERS</td>
<td>: SAFEX/MINIMAX</td>
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PROFORMA FOR RUNNING ACCOUNT BILLS

CERTIFICATE

The measurements on the basis of which the above entries for the Running Bill __________________ were made have been taken jointly on ________ and are recorded at pages________________ of Measurement Book No.______________________________________

Date & Signature of Contractor.
Date & Signature of Consultant’s Representative (Seal).
Date & Signature of Site Engineer

The work recorded in the above mentioned measurements has been done at the site satisfactorily as per tender drawings, conditions and specifications.

SITE ENGINEER / BANK’S ENGINEER
**RUNNING A/C BILL**

Name of Contractor/Agency: ________________________
Name of Work: ________________________
Sr. No. of this Bill: ________________________
No. and Date of Previous Bill. ________________________
Reference to Agreement No. ________________________
Date of Written Order to Commence. ________________________
Date of Completion as per Agreement. ________________________

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Item description</th>
<th>Unit</th>
<th>Rate (Rs.)</th>
<th>As per Tender Qty.</th>
<th>Upto Previous R/A Bill Qty.</th>
<th>Upto Date (Gross) Qty.</th>
<th>Present Bill Qty.</th>
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Note: 1. If Part Rate is allowed for any Item, it should be indicated with reasons for allowing such a Rate.
2. If Adhoc Payment is made, it should be mentioned specifically.

Date & Signature of Contractor.
PERFORMA FOR APPLICATION BY CONTRACTOR FOR EXTENSION OF TIME

1. Name of the Contractor
2. Name of the Work as given in the Agreement
3. Agreement W O
4. Tender Amount
5. Date of Commencement of Work
6. Period allowed for Completion as per Agreement
7. Date of Completion as per Agreement
8. Period for which Extension of Time has been given

<table>
<thead>
<tr>
<th>Date</th>
<th>Month</th>
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a) 1st Extension vide Bank’s Letter No
b) 2nd Extension vide Bank’s Letter No
c) 3rd Extension vide Bank’s Letter No

9. Reasons for which extensions have been previously given (Copies of the previous applications should be attached)

10. Period for which extension is applied for and the reasons thereof including hindrances, time for extra work assigned, if any etc.

Signature of Contractor & Seal
# PERFORMA OF HINDERANCE REGISTER

<table>
<thead>
<tr>
<th>Sr No</th>
<th>Nature of Hindrance</th>
<th>Date of occurrence of Hindrance</th>
<th>Date of which Hindrance was removed</th>
<th>Period of Hindrance</th>
<th>Signature SE / PE</th>
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TENDER DRAWINGS

(Refer Annexure /section in e-tender portal for Tender Drawings & Document, Successful (L-1 bidder has to get it approved as in order to carry out the work from Fire Officer/Engineer-In-Charge).
BILL OF QUANTITY
(as annex-1, Price Bid-enclosed)

PREAMBLE: TO BE READ ALONG WITH DRAWINGS (filling of Price Bid on E-tendering site).

1. RATES TO BE QUOTED BOTH IN FIGURES AND WORDS, AS APPLICABLE IN ONLINE PRICEBID.
2. ALL PAGES TO BE SIGNED AND STAMPED BY THE TENDERER.
3. THE RATE OF THE ITEMS SHALL BE APPLICABLE FOR ANY FLOOR LEVEL/ ANY NUMBER OF FLOORS, OR ANY QUANTITY.
4. THE SPECIFICATION OF THE ITEMS SHALL BE AS PER LATEST INDIAN STANDARD CODES IE. CPWD SPECIFICATIONS FOR HORTICULTURE WORKS, UNLESS OTHERWISE SPECIFIED.
5. ALL MATERIALS SHALL BE AS PER APPROVED LIST AND SHOULD BE OF 1st QUALITY UNLESS OTHERWISE SPECIFIED.
6. THE RATES ARE INCLUSIVE OF ALL DUTIES AND TAXES (EXCEPT GST) OF ALL GOVERNMENT, MUNICIPAL OR ANY OTHER STATUTORY BODY APPLICABLE FROM TIME TO TIME.
7. RATES SHALL BE FOR ITEMS COMPLETE IN ALL RESPECTS AS PER DRAWING, INSTRUCTIONS AND APPROVAL OF THE CONSULTANT/ BANK’S ENGINEER.
8. THE QUANTITIES ARE APPROXIMATE AND TENTATIVE WHICH MAY VARY DURING COURSE OF EXECUTION. THE RATES QUOTED AGAINST PARTICULAR ITEM SHALL NOT BE CHANGED WITH VARIATION IN QUANTITIES.
9. MAKING OF ANY CUTOUT / OPENING FOR ELECTRICAL / AIR – CONDITIONING WIRING / FITTING IN ANY OF THE ITEM OF FALSE CEILING, PARTITIONS, PANELING MASONRY WORK ETC. AND FINISHING EDGES JAMBS / CILLS / SOFFITS OF THE OPENING SHALL NOT BE PAID EXTRA.
10. THE TENDERER SHALL VISIT THE SITE AND SHALL SATISFY HIMSELF AS TO CONDITIONS UNDER WHICH THE WORK IS TO BE PERFORMED. HE SHALL ALSO CHECK, ASCERTAIN THE LOCATIONS OF ANY EXISTING STRUCTURES OR EQUIPMENT OR ANY OTHER SITUATION WHICH MAY AFFECT THE WORK. NO EXTRA CLAIM AS A CONSEQUENCE OF IGNORANCE OR ON GROUND OF INSUFFICIENT DESCRIPTION WILL BE ALLOWED AT A LATER DATE.
11. THE QUOTED PRICE FOR ITEMS SHALL INCLUDE ALL ACCESSORIES, CONSUMMABLES ETC. AS REQUIRED TO MAKE THE ITEM COMPLETE IN ALL RESPECTS, COMPATIBLE WITH OTHER RELATED / ASSOCIATED ITEMS AND FULLY FUNCTIONAL.
12. CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY ERROR, DIFFICULTY IN EXECUTION / DAMAGES INCURRED OWING TO DISCREPANCY IN DRAWINGS WHICH HAS BEEN OVERLOOKED BY HIM AND HAS NOT BEEN BROUGHT TO THE NOTICE OF THE CONSULTANT.
13. THERE ARE NUMBER OF ITEMS GIVEN IN THE TENDER WHERE IN BASIC RATES INCLUDING ALL TAXES EXPECTED HAS BEEN MENTIONED IN THE TENDER. THESE ITEMS SHALL BE PURCHASED BY THE CONTRACTOR FROM THE MARKET ONLY AFTER THE APPROVAL OF QUALITY AND RATES BY THE CONSULTANT.
14. CONTRACTOR SHALL APPOINT TECHNICALLY QUALIFIED FULL TIME SITE SUPERVISOR TO MONITORING THE DAY TO DAY PROGRESS OF WORK AT SITE ON THEIR OWN COST.