

CONTENTS**NAME OF WORK: REPAIR/REPLACEMENT OF WATER SUPPLY LINES, PUMP AND OTHER CONNECTED WORK AT SECTOR 'C' (MAKARPURA) UNDER GE (ARMY) BARODA.**

SI No	Description	Pages	
		From	To
1.	Contents	01	01
2.	Notice of Tender Including Appx 'A' and Amendments thereto	02	08
3.	Forwarding letter and Instructions	09	14
4.	Tender and item rate contracts for works by measurements IAFW-1779A (Revised 1955), Sch of Credit.	15	23
5.	General Condition of contracts IAFW – 2249 (1989 print).Amendments/errata to IAFW-2249 and Schedule of minimum rates of wages.	24	92
6.	Special Conditions	93	104
7.	Particular specifications	105	135
8.	BOQ	136	
9.	Amendments to tender documents		
10.	Relevant Correspondence		
11.	Acceptance letter		

Total Nos of Pages

Signature of Contractor

AGE (Contracts)
For Accepting Officer

Dated: _____

Tele : 2630049
Email ID: abarod4-mes@nic.in

Garrison Engineer (Army)
Makarpura Road, PO ONGC
Baroda - 390 009

File No. 8971/03/E8

21 Apr 2026

M/s _____

NAME OF WORK: REPAIR/REPLACEMENT OF WATER SUPPLY LINES, PUMP AND OTHER CONNECTED WORK AT SECTOR 'C' (MAKARPURA) UNDER GE (ARMY) BARODA.

Dear Sir,

1. Tender documents in respect of above work are uploaded on the site www.defproc.gov.in. The tender is based on single stage two cover/two stage three cover e-tendering system. The contents of Cover I & Cover II are specified in NOTICE OF TENDER.
2. Bids will be received online by ACCEPTING OFFICER upto the date and time mentioned in the **NOTICE INVITING TENDER (NIT)**. No tender/bid will be received in physical form and any tender/bid received in such manner will be treated as non bonafide.
3. Bid will be opened on line on a due date fixed for opening as per critical dates given in the portal. Cover 1 will be opened first. Tenderers may see the result of the opening of Cover 1 on the tender portal. Date of opening of Cover 2 shall be decided after technical evaluation of Cover 1 keeping in view the various eligibility criteria given in the NIT and the same will be intimated to the tenderers while uploading the technical evaluation on the tender portal.
4. Your attention is also drawn to instruction on filling and submission of tender attached herewith. You may forward your points on tender documents through e-mail and/or depute your technical representative for discussion on tender/drawings and to clarify doubts, if any, before the bid submission starts. You are requested not to write piece meal points and forward your points duly consolidated in one go. You may also attend the pre bid meeting on the date given in the tender.
5. Unenlisted contractors are required to submit the scanned copies (in pdf file) of documents required as per eligibility criteria mentioned in instructions for filling the tender documents and Appendix 'A' to NIT alongwith EARNEST MONEY DEPOSIT (EMD) and tender fee on procurement portal mentioned above and submit the physical documents in the office of **GARRISON ENGINEER (ARMY) BARODA** within time limit specified in NIT. Inadequacy /deficiency of documents shall make the bid liable for rejection resulting in disqualification for opening of finance bid.

6. Enlisted contractors of MES shall submit the scanned copies (pdf file) of enlistment letter, tender fee and such other documents as mentioned in Appx 'A' to NIT on e-procurement portal and submit physical documents in the office of **GE (A) BARODA** before date & time fixed for this purpose.

7. The contractor must ensure that the tender/bid is uploaded on the tender portal using the authorised DSC in time as the Accepting Officer will take no cognizance of any quotations/offer received in any other electronic or physical form like email/fax/byhand/through post from tenderer/bidder.

8. Keeping in view delays due to system failure or other communication related failures, it is suggested that tender/bid may be uploaded sufficiently in advance of the last due date and time fixed on the portal.

9. General Conditions of Contracts (IAFW-2249) (1989 Print) and errata and amendments thereto, Schedule of Minimum Fair Wages and MES SSR (Part-I and Part-II) are not enclosed with these documents. These are available for perusal in the Office of GE/AGE concerned and this office. Tenderer is also requested to keep the copy of these documents with him as same are available in the market.

10. PERFORMANCE SECURITY DEPOSIT

After acceptance of the Tender, the contractor will be required to lodge with the Accepting Officer PERFORMANCE SECURITY DEPOSIT@ 5 % of contract amount. The amount is required to be lodged within 28(Twenty eight) days of the receipt by the contractor of notification of acceptance of tender/bid, failing which action as stipulated in Condition 19 of GCC shall be taken.

11. ANY TENDERER, WHICH PROPOSES ALTERATIONS TO ANY OF THE CONDITIONS, SPECIFICATIONS LAID DOWN IN THE TENDER DOCUMENTS OR ANY NEW CONDITION, WHATSOEVER, IS LIABLE TO BE REJECTED.

Yours faithfully,

Encls: (As above)

AGE (Contracts)
For Accepting Officer

Signature of Contractor

INSTRUCTIONS ON FILLING AND SUBMISSION OF TENDER**1. EARNEST MONEY DEPOSIT (EMD)**

Contractor(s) who are not enlisted with MES/who are enlisted but have not executed the Standing Security Bond shall submit Earnest Money Deposit as detailed in Notice of Tender in one of the following forms, along with their tender/bid: -

- (a) Deposit at Call Receipt from a Scheduled Bank in favour of GE concerned.
- (b) Receipted Treasury Challan, the amount being credited to the Revenue Deposit of GE.

It is advisable that Earnest Money is deposited in the form of deposit call receipt from an approved Schedule Bank for easy refund. In case the tenderer/bidder wants to lodge 'Earnest Money Deposit' in any other form allowed by MES, a confirmation about its Acceptability will be obtained from the Accepting Officer well in advance of the bid submission end date and time. Earnest Money Deposit shall be submitted in the name of concerned GE.

NOTES: -Earnest Money Deposit (EMD) in the form of cheque/Bank Guarantee etc will not be accepted. **Non-Submission of Earnest Money Deposit (EMD) (scanned copy alongwith Technical Bid & hard copy before the date & time fixed for opening of BOQ) will render the bid disqualified for opening of Cover -II (finance bid).**

2. GENERAL INSTRUCTIONS FOR COMPLIANCE

2.1 The bids received only in the electronic form will be considered. All bids shall be submitted on defproc.gov.in portal. Documents should be scanned and forwarded in 'pdf' format and 'xls' form as indicated. Bids shall be uploaded on 'defproc.gov.in' portal on or before the bid closing date mentioned in the tender. No tender/bid in any other electronic or physical form like date email/fax/by hand/through post will be considered.

2.2 The bid shall be DIGITALLY signed using authorised DSC. All pages of tender documents, drawings, corrections/alterations shall be signed/initialed by the lowest bidder after acceptance of tender for making original and CTC of the contract.

2.3 Digital signatory of the bid/tender shall ensure that he is competent to bind the contractor (through partnership deed, general power of attorney or Memorandum and Article of Association of the Company) in all the matters pertaining to the contract with Union of India including arbitration clause. A scanned copy of the documents in confirmation of such authority shall be attached with the tender/bid in 'pdf' form in Cover-1. It shall be ensured that power of attorney shall be executed in accordance with the constitution of the company as laid down in its Memorandum & Article of Association.

2.4 Drawings, if issued in physical form, must be returned duly initialed by the tenderer/ bidder in separate envelope indicating his name and address.

INSTRUCTIONS ON FILLING AND SUBMISSION OF TENDER

2.5 The tender shall be signed, dated and witnessed at all places provided for in the documents after acceptance. All corrections shall be initialled. The Contractor shall initial every page of tender and shall sign all drawings forming part of the tender. Any tender/bid, which proposes alterations to any of the conditions whatsoever, is liable to be rejected.

3. BOQ:-

3.1 The tenderer shall quote his rates on the BOQ EXCEL FILE only as per guide line of e-procure web portal. No alteration to the format will be accepted and such bid will be disqualified.

3.2 In case any tenderer wishes to revise/modify the rates quoted in the BOQ file, he can do so only in the BOQ files before uploading the tender through <https://defproc.gov.in> site only before closing date & time.

3.3 After the uploading of tender, Department may upload the errata/amendment through corrigendum. The tenderer/bidder should submit their offer considering the errata/amendment carried out through corrigendum issued from time to time.

3.4 While uploading the bid, the tenderers/bidders should specifically check whether any **revised BOQ** has been uploaded by department through corrigendum prior to **Bid submission start date**. Tenderers/bidders attention is specifically drawn to the fact that they should submit their offer on revised BOQ only. In case any tenderer/bidder submits offer on pre-revised BOQ in lieu of Revised BOQ, **it will be considered as a willful negligence by the tenderer/bidder and quotation shall be considered non-bonafide**.

4. Tenders/bidders who uploaded their priced tenders/bids and are desirous of being present at the time of opening of the tenders/bids, may do so at the appointed time.

5. Hard copies of all above documents shall be sent by the contractor to the Tender issuing authority well in advance to be received before the date & time fixed for the same.

6. The contractor shall employ Indian National staff after verifying their antecedents and loyalty. Attention is also drawn to relevant provisions in Special Condition referred here-in-after and also Conditions 24 & 25 of IAFW-2249 (General Conditions of Contract).

Signature of Contractor

AGE (Contracts)
For Accepting Officer

In lieu of IAFW-1779-A
(Revised 1955)

TO BE USED IN CONJUNCTION WITH GENERAL CONDITONS OF CONTRACTS

Tele : 2630049
Email ID: abarod4-mes@nic.in

Garrison Engineer (Army)
Makarpura Road, PO ONGC
Baroda – 390 009

File No : 8971/ 03 /E8

21 Apr 2026

M/s: _____

TENDER AND ITEM RATE CONTRACT FOR WORKS BY MEASUREMENT IN THE EXECUTION
OF: REPAIRS/REPLACEMENT OF WATER SUPPLY LINES, PUMP AND OTHER
CONNECTED WORK AT SECTOR 'C' (MAKARPURA) UNDER GE (ARMY) BARODA.

1. A bidder who is qualified as per the eligibility criteria mentioned in the tender documents and has inter alia sound past record is hereby authorized to tender for the above work. The tender/Bid (Cover -1 and Cover-2 both) shall be uploaded on the portal eprocuremes.gov.in on or before the bid closing date and time as per portal.
2. All documents must be uploaded while uploading the bid on above mentioned portal.
3. Any correspondence concerning this tender shall be communicated as per information available on the e-portal mentioned above by due date.

THE PRESIDENT OF INDIA DOES NOT BIND HIMSELF TO ACCEPT THE LOWEST OR ANY TENDER.

Signature of Officer
Issuing the documents
Appointment: AGE (Contracts)

Signature of Contractor

In lieu of IAFW-1779-A (Revised-1955)

SCHEDULE 'A'
LIST OF ITEMS OF WORKS

**NAME OF WORK: REPAIRS/REPLACEMENT OF WATER SUPPLY LINES, PUMP AND
OTHER CONNECTED WORK AT SECTOR 'C' (MAKARPURA) UNDER GE (ARMY)
BARODA.**

NOTES:-

1. The quantities shown under column -3 of schedule 'A' (BOQ) are approximate and are inserted as a guide only. They shall however, not to be varied beyond the limits laid down in condition-7 of General Conditions of Contracts (IAFW-2249).
2. The tenderer shall insert his unit rate in figures under column-6. if the tender fails to quote their rate in the respective column, the rate quoted shall be treated as "NIL" i.e will be done free of cost to the government.
3. The total amount in column 7 of Schedule 'A' (BOQ) is not firm but will be treated as "CONTRACT SUM" referred to in General Conditions of Contracts (IAFW-2249).
4. All the items of works included in this Schedule 'A' (BOQ) shall include for all materials and labour complete as specified and as shown on drawings except where specifically mentioned otherwise.
5. All items shall be carried out as described in Schedule 'A' (BOQ) and particular specifications.
6. Entire work covered under this contract shall be completed within a period of 270 days from the date of commencement as indicated in work order No 1.
7. The exact location of the site and nature/scope of work shall be verified by visit to site of work with prior appointment from GE.
8. The description of items in Schedule 'A' (BOQ) shall be read in conjunction with relevant specifications, Drawings, preambles contained in MES Schedule, unless otherwise specified in drawings or particular specifications.
9. The work will be measured as per method of measurement described in MES schedule on completion and priced as per the rates quoted against the respective items of Schedule 'A'(BOQ).
10. Unit rates quoted by the contractor against the various items of Sch 'A' (BOQ) shall deemed to be included for any minor details or items required for construction/installation which are obviously and fairly intended and which may not have been included in the description of the relevant items of these tender documents, but which are essential for execution of the item in a fair/sound manner and as per standard engineering practice for entire completion of work. In case of difference of opinion between the contractor and Engineer-in-Charge as to whether or not any item(s) of work constitute (s) minor details/minor item, the decision of the Accepting Officer shall be final, conclusive and binding.

Contd....

SCHEDULE 'A' NOTES Contd...

11. The rates quoted shall be NET i.e. inclusive of all charges such as sales tax/VAT, octroi, excise duty, works contract tax, labour welfare cess etc and any other charge/tax/duty levied by the Govt as applicable as on the date of receipt of tender including the following: -
 - (a) Tenderers attention is invited to deduction of Sales Tax at source for execution of works contract as levied by the State Govt. The lump-sum/unit rates quoted by the tenderer in Schedule 'A' (BOQ) shall be deemed to include for the above mentioned Tax and all other taxes levied by the Govt/Statutory body and nothing extra will be payable on this account.
 - (b) Tenderers attention is invited to deduction of Labour Welfare Cess at sources at such rate as notified by State Govt under Building and other Construction Workers (Conditions of Employment and Regulations of Services) Act 1996 and Building and other Construction Workers Welfare Cess Act 1996. This shall deemed to be included in quoted rates by the Contractor.
12. Tender of lowest bidder will be accepted after deduction of credit amount under Schedule of Credit. Total amount under schedule of credit is provisional.
13. SITE FOR EXECUTION OF WORK: Site for execution of work will be available as soon as the work is awarded. In case, it is not possible for the Department to make the entire site available on the award of work, the contractor will have to arrange his working program accordingly. No claim whatsoever, for not giving the entire site on award of work and for giving the site gradually will be tenable.
14. HANDING OVER OF SITE: -The exact location of the site and nature/scope of work and working conditions shall be verified by visit to site of work with prior appointment from Engineer-in-charge. No claim whatsoever shall be entertained subsequently on this account. Building shall be handed over in vacant condition to the contractor for execution through inventory duly signed by contractor and Engineer-in-charge. The contractor shall be liable for taking care of vacant building till handing over after completion of work.
15. The tenderer shall satisfy himself by visiting the site with prior appointment of GE regarding working conditions, local conditions, nature of site/ground, climatic conditions, nature of work and means to access to site and other issues/circumstances which may affect the execution of work at a later stage. No extra percentage/ payment with regard to aforesaid reasons shall be admissible under any circumstances.
16. The contractor shall make all precautionary arrangements not to damage the existing assets to the extent possible. If it becomes inevitable to execute the subject contract including cutting etc, the disturbed/ damaged surfaces /assets shall be made good to the original specifications without any extra cost to the gov.

SCHEDULE 'A' NOTES Contd...

17. As per Government of India Ministry of Labour and Employment New Delhi Circular No S.35025/02/2014-SS II dated 15 Jul 2015, it is mandatory that, **Contractor shall get themselves registered with the Employees Provident Fund Organisation and deposit the necessary contributions with the EPFO. Further, it is mandatory requirement that all construction workers should be provided Universal Account Number (UAN) by the contractor by appropriately registering them on the EPFO Portal. The contractor has to upload scanned Copy of Permanent or Temporary Provident Fund Code Number issued by Concerned Authority. The contractor shall also ensure compliance of the EPF & MP Act, 1952 by the sub-contractors, if any engaged by the contractor for the subject work.** Any tenderer if not uploaded the provident fund code number shall be disqualified and liable to be rejected. No claim on this account shall be admissible from such tenderer whose tender is rejected.

18. It is mandatory on the part of the Engineer-in-charge that while clearing the bills/payments (RAR) of contractors, a certificate be obtained from the contractor that all workers employed by him directly or indirectly are registered for EPF and the due contributions have been credited into their accounts.

19. **The rate quoted by the tenderer shall be inclusive of all types of taxes / cesses viz GST and any other tax imposed / modified by the central / state govt during the currency of the contract. Nothing extra shall be admissible on this account. Tenderers are advised to independently ascertain the rate / percentage of Goods & Service Tax, surcharge etc., and shall quote their rates accordingly. No claim on account of any kind of misunderstanding on this issue shall be entertained at a later date.**

20. In case of the BOQ is revised by the deptt and the bidder has failed to quote his rate in revised BOQ (ie the contractor has quoted in unrevised BOQ), such Bid shall be treated as willful negligence on the part of contractor and such Bid/Quotation shall be considered Non-Bonafide. Also necessary action against such contractor(s) shall be taken by the Accepting Officer. Further it is clarified that in such cases, lowest tender shall be determined by the lowest percentage amongst the valid/bonafide bids only.

21. GST (GOODS AND SERVICE TAX ACT)

21.1. The contractor's quoted rate shall be deemed to be inclusive of all taxes / cesses viz GST, duties, royalties, octroi and other levies payable under respective states as applicable on the date of receipt of tender. It may be noted that any tender imposing any condition in this regard or any other account shall be treated as a conditional tender and the same shall be liable to be rejected.

21.2 The contractor is required to submit proof for payment of Service Tax and cess to the Department as and when demanded by GE for verification. In addition to that it is mandatory that contractor shall upload the scanned copy of GST Registration Number while submitting their Technical bid. Contractor not in possession of this number will be disqualified in 'T' bid evaluation and his Finance bid will not be opened. Nothing extra whatsoever shall be admissible on this account. The clauses pertaining to tax liabilities wherever mentioned in the tender shall be deemed to be amended accordingly.

SCHEDULE 'A' NOTES Contd...

22. AADHAAR linked bank account

22.1 The payment shall be made to the employees by the contractor through AADHAAR linked bank account and shall be produced to the Department for Records as proof of payment shall be produced for each payment made.

23. The contractor shall adhere to minimum Wages Act, Workman's Compensation Act, ESI, EPF and other relevant laws.

Signature Of Contractor

AGE (Contracts)
For Accepting Officer

SCHEDULE 'B'
ISSUE OF MATERIALS TO THE CONTRACTOR
(SEE CONDITION 10 OF IAFW-2249)

Ser No	Particulars	Rate at which materials will be issued to the Contractor		Place of issue by name for all items of this schedule	Remarks
		Unit	Rate (Rs.)		
(1)	(2)	(3)	(4)	(5)	(6)
Nil					

SCHEDULE 'C'

LIST OF TOOLS AND PLANTS (OTHER THAN TRANSPORT)
WHICH WILL BE HIRED TO THE CONTRACTOR
 (See condition 15,34 and 35 of IAFW-2249)

Sl No.	Qty	Particular	Details of MES crew supplied	Hire charges unit / per working day	Standby charges per unit per off name	Place of issue (by	Remarks
(1)	(2)	(3)	(4)	(5)	(6)		
Nil							

SCHEDULE 'D'

(TRANSPORT TO BE HIRED TO THE CONTRACTORS)
(See Condition 16 & 35 of IAFW 2249)

Sl No.	Qty	Particular	Hire charges / Unit per working day	Place of issue (By name)	Remarks
(1)	(2)	(3)	(4)	(5)	(6)
NIL					

SIGNATURE OF CONTRACTOR

AGE (Contracts)
For Accepting Officer

SCHEDULE OF CREDIT**(Name of work: REPAIRS/REPLACEMENT OF WATER SUPPLY LINES, PUMP AND OTHER CONNECTED WORK AT SECTOR 'C' (MAKARPURA) UNDER GE (ARMY) BARODA.**

This Schedule consists items only.

Notes:-

(i) Quantity shown under Schedule of Credit is approximate. Exact quantities will be measured at the time of executing work. Dismantling work shall be carried out and carefully so as not to damage the adjoining structure if any damage so caused shall be made good by the contractor at his own cost.

(ii) The Engineer-in-Charge may order for reuse of any materials or a portion thereof obtained from dismantling as required at site.

(iii) The assessed value of the material given in column 5 is firm and fixed by the department and the contractor shall have no claim whatsoever against the department if the actual correct salvaged material turns out to be different from the cost given in column 5.

(vi) The contractor shall remove the materials as per credit schedule below irrespective whether the material obtained from dismantling is worth to the exact amount of credit.

(v) Any materials obtained from dismantling which are not shown in the schedule of credit shall become the property of the Department and shall be returned to the Store Yard of GE (Army) Baroda.

(vi) Materials shall be removed from the site with the prior permission of the Engineer- in-Charge. irrespective of the fact whether the contractor has removed the materials from site or not.

S/ No	Description of items	A/U	Qty	Rate	Amount
1	Old U/S GI Pipe 80 MM	RM	350	70	24500.00
2	Old U/S GI Pipe 50 MM	RM	450	50	22500.00
3	Old U/S GI Pipe 40 MM	RM	350	40	14000.00
4	Old U/S GI Pipe 25 MM	RM	450	20	9000.00
5	Old U/S GI Pipe 20 MM	RM	250	15	3750.00
6	Old U/S CI Pipe 150 MM	RM	220	400	88000.00
7	Old U/S CI Pipe 100 MM	RM	200	280	56000.00
8	Old U/S Gate Valve 50 MM	Each	12	30.00	360.00
9	Old U/S Gate Valve 40 MM	Each	25	25.00	625.00
10	Old U/S Gate Valve 25 MM	Each	85	15.00	1275.00
11	Old U/S Gate Valve 20 MM	Each	40	12.00	480.00
12	Old U/S GI Tank Connector 25 mm	Each	39	1	39.00
13	Old U/S GI Tank Connector 20 mm	Each	25	1	25.00
14	Old U/S GI Elbow 25 mm	Each	40	1	40.00
15	Old U/S GI Elbow 20 mm	Each	23	1	23.00
16	Old U/S water pressure gauge	Each	5	0.5	2.50
17	Old U/ Starter	Each	9	100	900.00

18	Copper Scrap	Kg	14	250	3500.00
			Total Rs.		225019.50

In lieu of IAFW-1779A

TENDER

To,

The President of India,

Having examined and perused the following documents.

1. Specifications signed by the AGE (Contracts)
2. Drawings detailed in particular specifications.
3. Schedule 'A', 'B', 'C' & 'D' attached hereto.
4. MES Standard Schedule of Rates 2009 (Part I) specification & 2020 (Part II Rates) hereinafter and in IAFW-2249 (referred to as the 'MES SCHEDULE') together with amendment No 1 to 3 for part - I and amendment No 1 to 122 for part - II as applicable to the above said schedule.
5. General conditions of contract IAFW-2249 (1989 Print) together with amendment No 1 to 49 and errata 1 to 20.
6. Refer water conditions 31 of IAFW-2249 (General Conditions of Contracts): - Water will be supplied by MES and shall be paid for by the contractor of Rs 3.75 per every Rs.1,000/- worth of work done priced at contract rates.
7. Should this tender be accepted.

I/We agree

* (a) That the sum of Rs. 44,000/- forwarded as Earnest money shall either be retained as part of security deposit or be refunded by the Government on receipt of the appropriate amount of security deposit all as per condition 22 of IAFW-2249.

(b) To execute all works referred to in the said documents upon the terms and conditions contained or referred to at the item rate contained in the aforesaid Schedule 'A' or at such other rates as may be fixed in the provisions of conditions 62 and to carry out such deviations as may be ordered vide condition 7 of IAFW-2249 up to a maximum of **10%(Ten percent)** and further agree to refer all disputes as required by condition 70 to the sole arbitration of a serving officer having degree in Engineering or equivalent or having passed final/Direct final examination of sub division II of Institution of Surveyors (India) recognized by Government of India to be appointed by Chief Engineer Bhopal Zone Bhopal or in his absence the officer officiating as CE Bhopal Zone Bhopal, if specifically delegated in writing by CE Bhopal Zone Bhopal, whose decision shall be final, conclusive and binding.

* To be deleted whichever is not applicable.

(In lieu of IAFW-1779-A (Revised 1955))

SIGNATURE _____ IN THE CAPACITY OF _____
DULY AUTHORISED TO SIGN THE TENDER FOR AND ON BEHALF OF
M/s _____ (IN CAPITAL LETTERS)

POSTAL ADDRESS :-

WITNESS :-

ACCEPTANCE

_____ Alterations have been made in these documents and as evidence that these alternations were made before the execution of the contract agreement they have been initialed by the contractor and **Sh Mukesh Shukla AGE (Contracts)**, GARRISON ENGINEER (ARMY) BARODA.

The said Officer/Officers is/are hereby authorized to sign and initial on my behalf the document forming part of this contract.

The above tender was accepted by me on behalf of the President of India at the item Rates contained in Schedule 'A'.

On the _____ day of _____ 2026.

Signature _____ dated this _____ day of _____ 2026.

APPOINTMENT: - GARRISON ENGINEER (ARMY)
MAKARPURA ROAD, PO ONGC,
BARODA -390 009
(For and on behalf of the President of India)

GENERAL CONDITIONS OF CONTRACTS (IAFW-2249)
FOR
LUMP SUM CONTRACTS (IAFW-2159)
TERMS CONTRACTS FOR ARTIFICERS WORKS (IAFW-1821)
AND
MEASUREMENT CONTRACTS (IAFW-1779 & 1779-A)

1. It is hereby agreed by me/us that the following documents shall form an integral part of the tender documents: -
 - (a) General Conditions of the Contracts including condition 70 pertaining to the settlement of disputes by Arbitration, IAFW-2249 (1989 Print) containing 33 pages (Serial Page No. 24 to 55).
 - (b) Errata No. 1 to 20 and Amendment No. 1 to 49 for IAFW-2249 in 27 pages (Serial Page No. 56 to 82).
 - (c) Schedule of Minimum Rates of wages (revised up to date) in 9 pages (Serial Page No. 83 to 91).
2. This tender submitted by me/us subject to the aforesaid documents and copy of which is in my/our possession and which I/We have read fully and understood before submission of this tender.
3. My/Our signature here under is/are in token of my/our having accepted the aforesaid documents as forming an integral part of the tender.

NOTES:-

- (i) The documents mentioned above can be seen in the Office of the Garrison Engineer (Army) Baroda or in any other MES (CWE/GE) office during working hours.
- (ii) In case of difference in interpretation due to wording of English and Hindi version, the English version will prevail as per article 348 of Constitution of India.

AGE (Contracts)
For Accepting Officer

(SIGNATURE OF CONTRACTOR)

SPECIAL CONDITIONS1. GENERAL

These Special Conditions shall be read in conjunction with the General Conditions of Contracts (IAFW-2249) including errata and amendments thereto. Any provision in these special conditions if at variance with the provision in the above mentioned documents shall be deemed to take precedence there over.

2. VISIT TO SITE OF WORK

The tenderers are advised to visit the site of works with prior permission of the GE. The tenderers shall be deemed to have made themselves familiar with the working conditions, accessibility and nature of site, availability of materials and such other relevant conditions, which may affect the execution and completion of work whether they actually visited the site(s) or not. No extra payment consequent to any mistake, or misunderstanding or otherwise on this account will be allowed.

3. OTHER AGENCIES

Contractor's attention is invited to the fact that during currency of this contract works on other services, which are outside the scope of this contract, may be entrusted for execution to other agencies. The contractor shall permit full access and facilities for such other agencies or departmental workmen if any, engaged by Govt. to carry out their part of work in the area. No extra payment shall however be made to the contractor on this account whatsoever.

4. CONTRACTOR'S REPRESENTATIVES, AGENTS, SERVANTS AND WORKMEN

4.1 Contractor shall employ only Indian Nationals as his representatives, agents, servants and workmen and verify their antecedents and loyalty before employing them for the works. He shall ensure that no person of doubtful antecedents and nationality is, in any way associated with the works. If for reasons of technical collaboration or other consideration, employment of any foreign national is unavoidable, the contractor shall furnish full particulars to this effect to the accepting officer at the time of submission of his tender.

4.2 The contractor shall, on demand by the Engineer-in-Charge, submit list of his agents, employees and work people concerned and shall satisfy the Engineer-in-Charge as to the bonafides of such people.

4.3 The Engineer-in-Charge shall at his discretion have the right to issue passes as per rules and regulations of the installation/Area in force to control the admission of the contractor, his agents, and employees and work people to the site of the work or any part thereof. Passes should be returned at any time on demand by the Engineer-in-Charge or the authorities concerned and in any case on completion of work.

4.4 The contractor and his agents, employees and work people shall observe all the rules promulgated by the authority controlling the installation/area in which the work is to be carried out e.g. prohibition of smoking and lighting, fire precautions, search of persons on entry and exit, keeping to specific routes, observing specified timing etc. Nothing extra shall be admissible for any man hours etc. lost on this account.

4.5 The GE shall have full power and without giving reason to order the contractor immediately to cease to employ in connection with this contract any representative, agent, servant, workman or employee whose continued employment is in his opinion, undesirable. The contractor shall not be allowed any compensation on this account.

SPECIAL CONDITIONS (CONTD./-)5. SECURITY OF CLASSIFIED DOCUMENTS

Contractor's special attention is drawn to condition 2A and 3 of General Conditions of Contracts (IAFW-2249). The contractor shall not communicate any classified information regarding works either to sub contractor or others without prior approval of the Engineer in Charge. The Contractor shall also not make copies of the design, drawings and other documents furnished to him in respect of works and he shall return all documents on the completion of the works or on earlier determination of the contract. The contractor shall along with final bill attach receipt from the Engineer in Charge in respect of his having returned the classified documents as per Condition 3 of General Conditions of Contracts (IAFW-2249).

6. ACCEPTANCE OF TENDER

The tender shall remain open for acceptance for a period of 60 days from bid submission end date mentioned by the department excluding the date of submission of bid.

7. SAMPLES OF MATERIALS AND INDIAN STANDARDS

7.1 In case where materials are specified to conform to samples the tendered is advised to inspect samples of the materials which are displayed in the office of the GE before submitting his tender. The tendered shall be deemed to have inspected the samples and satisfied himself so as to the nature and quality of materials he is required to incorporate in the work irrespective of whether he has actually inspected them or not. The materials to be incorporated in the work by the contractor shall conform to or shall be superior in quality to the sample displayed and shall comply with the specifications given here-in-after.

7.2 The contractor shall produce samples of all materials required for the work and get them approved by the GE before commencement/incorporation in the work.

7.3 Materials provided by the contractor for incorporation in the works shall, unless otherwise specified in the particular specifications, be ISI marked. IS means Indian Standards as issued by the Bureau of Indian Standards. Wherever in the specifications IS is referred to, it means the edition with all amendments, current as on the due date of receipt of the tender documents. The materials listed in Appx 'C' shall be of the makes as specified therein.

7.4 Contractor shall provide items/articles from the sources/firms mentioned in particular specifications i.e. Appendix 'A' and 'C'. Where a firm listed in particular specification is manufacturing both ISI/non ISI marked materials, only ISI marked items/articles shall be provided. Where IS number is mentioned in the tender documents the year of IS shall be the latest including all amendments issued to the IS up to and including the date of receipt of tender.

7.5 Materials and articles shall bear ISI marking where indicated as such. materials which are not being manufactured with /is certification and ISI embossing shall conform to IS provisions

7.6 Where no licensee exists for a particular item as per BIS web site, GE will permit procurement of materials conforming to IS from manufacturer to be decided by GE.

SPECIAL CONDITIONS (CONTD...)8. PROPRIETARY MATERIALS

8.1 Proprietary materials such as paint, water proofing compound, sealing compound, chemical for ATT and the like as directed by the Engineer-in-Charge (the quantity of which cannot be checked after incorporation in the works) when brought to site for incorporation in the work shall be recorded in measurement book and signed by the contractor and the Engineer-in-Charge as a check to ensure that the required quantity has been brought to site for incorporation in the work.

8.2 Materials brought to site shall be stored as directed by Engr In Charge and those already recorded in Measurement Books shall be suitably marked for identification.

8.3 Proprietary materials brought at site shall be stored as directed by Engineer-in-Charge and those already recorded in measurement books shall be suitably marked for identification.

8.4 The Contractor shall ensure that the materials are brought to site in original sealed container/packing, bearing manufacturer's marking.

9. QUARRIES

Reference condition 14 of IAFW – 2249.

Quarries are not available on Defence land for use by the contractor.

10. AVAILABILITY OF LAND FOR STORAGE OF MATERIALS/TEMPORARY WORKSHOP/OFFICE

Reference condition 24 of IAFW – 2249.

Contractor shall be permitted to store his materials including making temporary stores/temporary workshop/office at area of land marked on the site plan. The GE shall show exact location of the area. Contractor shall pay license fee of Rs. 1/- per year or part thereof in respect of each and every separate area of land allotted to him.

11. AVAILABILITY OF LAND FOR ACCOMMODATION OF LABOUR & CANTEEN

Refer condition 24 of IAFW – 2249.

No land will be allotted for labor camp and canteen.

12. FAIR WAGES

12.1 Refer condition 58 of IAFW-2249. The contractor shall not pay wages lower than minimum wages for labor as fixed, time to time, by the Govt. of India/State Govt./Union Territory under Minimum Wages Act or Contract Labor (Abolition and Regulations Act) whichever is higher.

12.2 It is responsibility of the contractor to ensure payment of wages complying with Govt. notification in vogue along with taxes, if any. Prices quoted by contractor shall be deemed to be inclusive of all such wages and taxes.

12.3 The fair wage referred to in condition 58 of IAFW-2249 will be deemed to be the same as the minimum wages payable as referred to above.

12.4 The contractor shall have no claim whatsoever if, for any reasons other than those mentioned in condition 63 of IAFW-2249 he has required to pay wages in excess of minimum wages as laid down by Govt. of India (Shown in the Schedule of minimum rate of wages or the minimum wages as fixed by the State Govt. whichever is higher).

SPECIAL CONDITIONS (CONTD...)13. VALUATION OF DEVIATIONS

Refer condition 62 of General Conditions of Contracts (IAFW-2249).

14. PRECAUTION AGAINST RISKS

The Contractor shall be responsible at his own expense for taking precaution to prevent any damage from what so ever cause arising, other than out of accepted risks and to minimize the amount of any such loss or damage and for adoption of necessary protective measures required for the purpose in compliance with Condition 38 of IAFW-2249 and Rule 5 of the MES SAFETY CODE code vide (Annexure 'B') of IAFW-2249 until the works have been handed over duly completed to the Engineer-in-Charge.

15. WATER SUPPLY

15.1 Refer Condition 31 of General Conditions of contract IAFW-2249 and clause No 1.13 of MES schedule. Water will be supplied by MES. As the water supply by MES is likely to be intermittent short supply, the contractor shall make his own arrangement for storing the water required for the work, labour and workmen etc., at his own expense. In the event of breakdown of MES supply of water in the said supply of water becoming intermittent, the contractor shall make his own arrangement of supplement the requisite quantity of water.

16. STATUTORY LEVIES INCLUDING SALES TAX ON WORKS CONTRACTS.

Tendered should include all statutory levies including sales tax on works contracts in his lump sum amount/quoted rates. Conditional tender regarding sales tax will not be considered and liable to be rejected.

17. PRODUCTION OF VOUCHERS/INVOICES

The contractor shall produce to the GE, original receipted vouchers/invoices from the manufacturers and/or their authorized agents in respect of the items for which payment is claimed in RAR as "Materials lying at site". The vouchers/invoices shall be defaced and stamped by Engineer-in-Charge indicating contract number, name of the work, under his dated signature. Purchase vouchers in respect of following items will be required to be submitted. Contractor shall produce original voucher of Cement & Steel as specified in particular specification here-in-after as well as well as all proprietary material as required by Engr in Charge for his satisfaction. In case of any dispute the decision of GE will be final and binding.

GI pipe and fitting, Sluice valve, Gun Metal Valve, Synthetic Enamel paint, Copper wire, CI pipe and fittings, foot valve, Reflex valve, Chlorination chemical.

18. GENERAL CONDITIONS OF CONTRACTS IAFW-2249 (1989 PRINT)

In case of difference in interpretation due to wordings of English and Hindi versions, the English version will prevail as per article 348 of the constitution of India.

19. RECORD OF CONSUMPTION OF CEMENT

The contractor shall maintain pucca bound register with serially numbered pages with all pages duly initiated by the Engineer-in-Charge showing daily receipt, quantity used in the works and balance in hand at the end of each day. The form of record shall be approved by the Engineer-in-Charge. The register shall be signed daily by a representative of MES and the Contractor in token of verification of its correctness and shall be checked by Engineer-in-Charge, at least once a week and on the day cement is brought by the contractor. The register shall be kept at site in safe custody of the contractor during the progress of works and he shall on demand produce the same for verification of the inspecting officer. On completion of work, the contractor shall deposit the cement register with the Engineer-in-Charge for record.

SPECIAL CONDITIONS (CONTD...)20. RELEASE OF ADDITIONAL SECURITY DEPOSIT.

Reference condition 22 and 68 of IAFW – 2249 (1989 Print).

The contractor, in case he has to deposit additional security for the contract, is advised to deposit the additional security in two equal parts so as to facilitate release of additional security in accordance with condition 68 of IAFW-2249.

21. OFFICIAL SECRET ACT

The contractor shall be bound by the Official Secret Act-1923.

22. TESTING

Irrespective of what is specified in MES schedule and these tender documents the cost of all tests specified shall be borne by the contractor in case any implements and equipments for the testing at site of works are required, the same shall also be provided by the contractor without any extra cost to the Govt.

23. CONDITIONS OF WORKING

23.1 The work lies in "RESTRICTED AREA": The contractor, his agents, servants, work people and vehicles may pass through unit lines in which case the Engineer-in-Charge shall at his discretion has the right to issue passes, control their admission to the site of work or any part thereof. The contractor shall on demand by the Engineer-in-Charge submit a list of personnel; etc concerned and shall satisfy the Engineer-in-Charge as to the bonafides of such people. Passes shall be returned at any time on demand by the Engineer-in-Charge and in any case on completion of work.

23.2 The contractor and his work people shall observe all the rules promulgated by the authority controlling the area in which the work is to be carried out e.g. Prohibition of smoking, lighting and fire precaution, restricted hours of working etc. Any person found violating the security rules laid down by the authority shall be immediately expelled from the area without assigning any reasons whatsoever and the contractor shall have no claim on this account. Nothing extra shall be admissible for any man-hour lost on this account.

24. ELECTRIC SUPPLY

24.1 In case the contractor desires to buy electricity from MES, he shall be charged for the electric energy consumed at **Rs 13.66 per** Kilowatt hours for KWH lighting and power each.

24.2 The above rates are exclusive of duty/tax, if any levied by the local, State Govt. on the Electric Energy. Duties and taxes, if any levied by the State Govt. and/or electricity undertaking and the like on the electricity charges will be borne by the Department.

24.3 Electric supply required for works shall be made available by MES. The exact location of Electric point (s) shall be shown by the GE. The main switch and KWH Meter to register the electric energy supplied shall be provided and installed by MES. Contractor shall provide all necessary connections, cables, fittings etc from the main switch in order to ensure a proper and suitable supply of electricity for the execution of work.

24.4 MES do not guarantee continuity of supply and no compensation whatsoever shall be allowed for supply becoming intermittent or for breakdown in the system.

24.5 The supply shall be AC 3 phase 3 wire, 400 to 440 volts (within permissible limits) 50 Cycles up to 10 KW at point of supply.

SPECIAL CONDITIONS (CONTD...)

25. **ENERGY METER** LT Cable, main controlling switch etc and proper shed for installation shall be provided by the contractor at his own cost, If due to improper use/ tampering, meter gets burnt , the contractor bound to pay twice of daily average consumption till replacement of meter. Contractor shall submit the particulars of energy meter as per proforma as Appx 'A' enclosed in triplicate to engineer-In-charge and the same shall be forwarded by Engineer-In-charge to the Garrison Engineer duly filled with date of installation after verifying meter reading at Site.

APPX 'A'**PROFORMA****Name of Work: REPAIR/REPLACEMENT OF WATER SUPPLY LINES, PUMP AND OTHER CONNECTED WORK AT SECTOR 'C' (MAKARPURA) UNDER GE (ARMY) BARODA.**

SI No	Make of Meter	SI No of Meter	Capacity of Meter	Initial reading at the time Of connection	Date of installation (To be filled by AGE E/M)	Remarks

Contractor
in-charge

JE E/M /JE B/R

Engineer-

26. **RE-IMBURSEMENT/REFUND ON VARIATION IN TAXES DIRECTLY RELATED TO CONTRACT VALUE**

26.1 The rates quoted by the Contractor shall be deemed to be inclusive of all taxes (including Sales Tax / VAT on materials, Sales Tax / VAT on Works Contracts, Turnover Tax, Service Tax, Labor Welfare cess / tax etc.), duties, Royalties, Octroi & other levies payable under the respective Statutes. No reimbursement / refund for variation in rates of taxes, duties, Royalties, Octroi & other levies, and / or imposition / abolition of any new/existing taxes, duties, Royalties, Octroi & other levies shall be made except as provided in sub paras here-in-below

26.2 (i) The taxes which are levied by Government at certain percentage rates of Contract Sum/Amount shall be termed as "taxes directly related to Contract value" such as Sales Tax/VAT on Works Contracts, Turnover Tax, Labor Welfare Cess/tax and like but excluding Income Tax. The tendered rates shall be deemed to be inclusive of all taxes directly related to Contract value" with existing percentage rates as prevailing on last due date for receipt of tenders. Any increase in percentage rates of "taxes directly related to Contract value" with reference to prevailing rates on last due date for receipt of tenders shall be reimbursed to the Contractor and any decrease in percentage rates of "taxes directly related to Contract value" with reference to prevailing rates on last due date for receipt of tenders shall be refunded by the Contractor to the Government /deducted by the Government from any payments due to the Contractor. Similarly imposition of any new "taxes directly related to Contract value" after the last due date for receipt of tenders shall be reimbursed to the Contractor and abolition of any "taxes directly related to Contract value" prevailing on last due date for receipt of tenders shall be refunded by the Contractor to the Government / deducted by the Government from the payments due to the Contractor.

SPECIAL CONDITIONS (CONTD...)

(ii) The contractor shall, within a reasonable time of his becoming aware of variation in percentage rates and/or imposition of any further "taxes directly related to Contract value", give written notice thereof to the GE stating that the same is given pursuant to this Special Condition, together with all information relating thereto which he may be in a position to supply. The Contractor shall submit the other documentary proof/information's as the GE may require.

(iii) The Contractor shall, for the purpose of this condition keep such books of account and other documents as are necessary and shall allow inspection of the same by a duly authorized representative of Government, and shall further, at the request of the GE furnish, verified in such a manner as the GE may require, any documents so kept and such other information's as the GE may require.

(iv) Reimbursement for increase in percentage rates/imposition of "taxes directly related to Contract value" shall be made only if the Contractor necessarily and properly pays additional "taxes directly related to Contract value" to the Government, without getting the same adjusted against any other tax liability or without getting the same refunded from the concerned Government Authority and submits documentary proof for the same as the GE may require.

27. TESTING OF MATERIALS

It shall be mandatory for the contractor to carry out all the tests specified in the Annexure I in addition to other tests specified elsewhere such as cement, steel etc in the tender documents. The cost of material and transportation to different laboratories shall be borne by the contractor in addition to testing charges unless specified otherwise elsewhere.

28. DEFECTS LIABILITY PERIOD

The defects liability period for this work is Twelve (12) calendar months after the works have been handed over to Government.

(Signature of Contractor)

AGE (Contracts)
For Accepting Officer

SPECIAL CONDITIONS**Annexture I to special conditions**
MATERIAL TESTING AND TESTING CHARGES

Note :-

1. The material listed here in after shall be tested, as per the frequency indicated therein, expenses of which shall be borne by the Contractor.
2. Level of testing shown in Legend as A, B & C are defined as under :-

LEVEL 'A'

- (a) Site lab level 'A' shall be established by the contractor for contract sum of Rs One Crores and above. However, for contract sum below Rs One Crore, contractor may at this option, set up/establish site lab for carrying out various tests.
- (b) "Site Lab" means own site lab established by Contractor at the work site for such tests. This lab shall house all the facilities including T & P, machinery, equipment, manpower etc required for conducting tests. This lab shall be operative for entire duration of the contract till its completion. Tests shall be carried out in the presence of Engineer-in-Charge. Random check of compliance of frequency of testing shall be done by the GE.
- (c) Records shall be maintained at work site. These test results shall be signed by contractor or his authorized representative and aforesaid departmental official.
- (d) Within 15 days of placement of Work Order No 1 site lab be established and fact shall be reported by the Contractor to GE in writing who will verify the fact and satisfy himself regarding the facilities provided. Thereafter GE shall issue a certificate to this effect in writing listing out equipment particulars etc of material test. Only after issue of this certificate by GE, tests shall be carried out and materials so approved shall be incorporated in the work.
- (e) Manpower, materials and infrastructure like electricity, water etc required for conducting these tests shall be provided by the Contractor.
- (f) Remedial measure, if any, required to achieve/obtain desired results for each test shall be taken promptly by contractor.
- (g) Tenderer is deemed to cater for above provisions in his quoted letters.
- (h) In case during any point of time contractor fails to adhere to the laid down frequency of the tests for any reasons whatsoever which in the absolute opinion of GE are beyond the contractor, he shall get the tests done from any other lab whose name shall be approved by GE in writing. The testing charges payable to such lab shall be paid by the contractor. No extension of time shall be admissible on this account.

SPECIAL CONDITIONS**Annexture I to special conditions**
MATERIAL TESTING AND TESTING CHARGES

(j) However, in case GE in his absolute opinion considers that Contractor is purposely not adhering to the laid down frequencies of tests, he shall reserve the right to deduct penal recovery which shall be double the rates of test indicated in Appendix 'D'. However, besides effecting penal recovery for non-compliance of contractual testing frequency for adhering the quality control norms, simultaneously GE will get tests done from any source and necessary testing charges paid by the GE shall be debited to the running payments. GE's decision shall be final and binding in such cases.

Testing charges for level 'A' indicated in Appendix 'D' are applicable only for the purpose of penal recovery as elaborated above.

LEVEL 'B'

(a) "Zonal Lab" means lab of CE Bhopal Zone, Bhopal Zone.

(b) The tests shall be conducted as per frequencies laid down for these tests in this lab for which Contractor shall provide all requisite facilities like sample, cubes materials etc. transportation to labs for testing purpose. It will be contractor's responsibility to adhere to the laid down frequency of testing. Test results shall be sent by lab to the GE whose copies can be made by contractor at his own expense. Testing charges for the tests so conducted shall be recovered at the rates indicated in Appendix 'D' from the running payments. The contractor's quoted rates shall be deemed to include for above provisions. In case facilities are not available in Zonal lab, these tests shall be carried out in Govt. Approved lab/Engg. College/SEMT Pune/ National test house and the cost as charged by these agencies shall be borne by the contractor. No reimbursement for difference in rates between Zonal lab and charged by the agencies mentioned above shall be allowed.

(c) Provisions of para (b) above of level 'A' shall be applicable to level 'B' also.

LEVEL 'C'

(a) Level 'C' lab stands for National Test House/SEMT Wing Pune located in CME Pune- 31/Engineering College.

(b) Rest provisions contained in para (b) of level 'B' above shall be applicable here except that contractor shall obtain test results from these labs and handover to GE. The testing charges payable to these labs for conducting tests shall be borne by the Contractor and his quoted rates shall be deemed to include this provision.

(Signature of Contracter)

AGE (Contracts)
For Accepting Officer

SPECIAL CONDITIONS
MATERIAL AND THEIR TESTS

LEGEND (A) SITE LAB (B) ZONAL LAB (C) NATIONAL TEST HOUSE/SEMT WING PUNE/ENGG COLLEGE APPENDIX 'D' (CONTD)

Ser No	Materials	Test	Method of testing	Frequency of tests		Level of test		Rate of test Rs.PS.	Remarks
1	2	3	4	5		6		7	8
1.	Bricks	(a) Compressive strength	IS-3495 (Part-I)	As per IS 5454 as given under		'A'		180.00	Checks for visual and dimensional characteristics shall also be carried out as per IS-5454
		(b) Water absorption	-do- (Part-II)	Lot size	sample size	Permissible No of defective bricks	'A'	150.00	
		(c) Efflorescence	-do- (Part-III)	1001 to 10000	6	0	'A'	180.00	Legend
				10001 to 35000	10	0			A- Site lab B-Zonal Lab/ CWE Lab
				35001 to 50000	15	1			C-Approved test house/ SEMT wing Pune/Engg College.
2.	Coarse aggregate	(a) Sieve analysis	IS-2386 (Part - I)	One test for every 15 Cubic Metre of aggregates or part thereof brought to site		'A'		120.00	
		(b) Flakiness Index	-do-	-do-		'A'		90.00	
		(c) Estimation of deleterious materials	IS-2386 (Part-II)	One test for every 100 Cubic Metre of aggregates or part thereof		'A'		120.00	
		(d) Organic impurities	-do-	One test per source of supply		'C'		120.00	
		(e) Moisture content	-do- (Part-III)	Regularly as required		'A'		120.00	
		(f) Specific gravity	-do-	One test for each source of supply		'B'		120.00	

SPECIAL CONDITIONS

Ser No	Materials	Test	Method of testing	Frequency of tests	Level of test	Rate of test Rs.PS.	Remarks
1	2	3	4	5	6	7	8
3.	Fine aggregate	(a) Sleeve analysis	IS-2386 (Part-I)	One test for every 15 cubic Metre of Fine aggregate or part when brought to site	'A'	180.00	
		(b) Test for clay, silt and impurities	-do-	-do-	'A'	90.00	
		(c) specific gravity	-do- (Part-II)	One for each source of supply	'B'	180.00	
		(d) Moisture content	-do- (Part-II)	Regularly as required subject to 2 tests per day when being used	'A'	180.00	
		(e) Test for organic impurities	-do- (Part-II)	one for each source of supply	'C'	180.00	
4.	Structural concrete (M-15 grade and above)	(a) Slump test or compacting factor test or vec-bee time	IS-1199	The minimum frequency of sampling of concrete of each grade shall be as under: -	'A'	180.00	
		(b) Compressive strength	IS -516	Qty of concrete in the work (cubic Meter)	No of samples	'A' 120/-	(i) Random sampling shall be carried to cover all mix units.
				1-5	1		
				6-15	2		
				16-30	3		
				31-50	4		
				51 and above	4+ 1 for each addl 50 Cubic Metre or part thereof		(ii) Refer per IS-456 clause 14 for frequency of sampling. (iii) One sample constitute 7 cubes, 03 to be tested at 07 days, 03 at 28 days and balance 1 shall be preserved by EIC till completion of defect liability period.
5.	Timber	(a) Specific Gravity & Weight (b) Moisture content	IS :1708-1960 -do-	Minimum 3 samples from a lot of 4 cum or 250 pieces of seasoned timber -do-	B A	120/- 120/-	

SPECIAL CONDITIONS

Se r No	Materials	Test	Method of testing	Frequency of tests	Level of test	Rate of test Rs.PS.	Remarks
1	2	3	4	5	6	7	8
6.	Water for construct ion purpose	(a) Test for Acidity	IS-456 & 3015	Once at the stage of approval of source of water	'B'	240.00	Also refer clause 4.3 of IS 456 and its subsequen t sub clause regarding suitability of water.
		(b) Test for Alkalinity	-do-	-do-	'B'	240.00	
		(c) Test for solid content	-do-	-do-	'C'	300.00	
7.	Cement	(i) Setting time	IS : 4013-63 Reaffirmed 1980	Once for each consignment or as and when required.	'B'	180.00	
		(ii) Soundness	-do-	-do-	'C'	120.00	
		(iii) Compressive strength	-do-	-do-	'B'	360.00	
		(iv) Fineness	-do-	-do-	'C'	120.00	
8.	Timber paneled & glazed door/win dow shutters (includin g factory made shutters) .	(a) Dimensions sizes, workmanship and finish	IS-1003-1977 (Part-I)	Frequency of sampling from each lot shall be as under: - Lot size Sample size 26 to 50 5 51 to 100 8 101 to 150 13 151 to 300 20 301 to 500 32 501 to 1000 50 1001 and above 80	'A'	180.00	
		(b) Strength test (i) Slaming (ii) Impact Indentation (iii) Shock resistance (iv) Edge loading	IS-1303-1990 -do- -do- -do-	From each lot 5% of the factory made shutters shall be manufacturer tested for strength tests.			

Signature of Contractor

AGE (Contracts)
For Accepting officer

PARTICULAR SPECIFICATIONS**1.0 GENERAL**

- 1.1 Work under this contract shall be carried out in accordance with "BOQ", particular specifications, drawings and general specifications and other provisions in MES Standard Schedule of Rates (here-in-after called Schedule) Part I and Part II read in conjunction with each other.
- 1.2 Term "General Specification" referred to hereinbefore as well as referred to in IAFW-2249 (General Conditions of Contracts) shall mean the specifications contained in the MES Schedule Part I.
- 1.3 General Rules, specifications, special conditions and all preambles in the MES Schedule shall be deemed to be applicable to the work under this contract, unless specifically stated otherwise in these documents in which case the provisions in these documents shall take precedence over the aforesaid provisions in the MES Schedule. The terms "as specified" wherever appears in tenders documents and drawings, relates to relevant particular specifications and in its absence general specifications. All reference to MES Schedule (Standard Schedule of Rates) in these specification relate to Part I of MES Schedule unless otherwise mentioned. References to only some paragraphs of MES Schedule has been made in these particular specifications but other paragraphs and provisions as applicable are also to be followed for all section/parts of Schedule "A"(BOQ) even though not particularly mentioned hereinafter.
- 1.4 Where specifications for any item of work are not given in MES Schedule or in these particular specifications, specifications as given in relevant Indian Standard or Code of Practice shall be followed.
- 1.5 Rate quoted for a particular item shall be deemed to include for any minor details /items of work and /or constructions which are obviously and fairly intended and which may not have been included in these documents but which are essential for the execution and entire completion of the work in a workman like manner. Decision of the Accepting Officer as to whether any minor details of work and/or constructions is obviously and fairly intended to be included in the contract or not, shall be final, conclusive and binding.

2.0 SCOPE OF WORK

- 2.1 The scope of work under this contract shall as detailed in Sch "A" (BOQ), all as specified in, special conditions and particular specifications general specification etc. The scope of work involves the following **One work**:

(a)	<u>REPAIR/REPLACEMENT OF WATER SUPPLY LINES, PUMP AND OTHER CONNECTED WORK AT SECTOR 'C' (MAKARPURA) UNDER GE (ARMY) BARODA.</u>
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- 2.2 Probable sources of local materials are given in the particular specifications. However, the samples shall be got approved from GE before bulk procurement of the material. The contractor may bring material conforming to the specifications from other sources without price adjustment. If the contractor proposes to use materials from such other sources, sample thereof shall be submitted to the GE and the same shall be got approved in writing from the GE before procurement in bulk and incorporation in the work.
- 2.3 In the particular specifications material required to bear BIS marking are given. These shall be procured accordingly.

PARTICULAR SPECIFICATIONS (CONTD ../-)

2.4 (a) In the particular specifications, list of manufacturers of items have been given. Contractor shall obtain these items from one of the approved manufacturers only. However, it will not absolve the contractor from ensuring that the products supplied are bearing BIS mark or conforming to the relevant IS as applicable. The sample shall be got approved from GE before procuring bulk quantity for incorporation in the work.

(a) In case of any items for which make are not given in the tender, the makes of such items shall be only out of standard makes as approved by higher MES authorities. The GE's decision shall be final and binding on the contractor relevant to approval of materials.

3. EXCAVATION AND EARTH WORK**3.1 EXCAVATION IN TRENCHES AND OVER AREAS.**

3.1.1. Excavation in trenches or over areas in soil shall be carried out as described in paras 3.13 of MES SSR Part I. Bailing out and pumping of water, if required will be done as described in para 3.17 of MES SSR Part I. No extra payment shall be admissible for the above-mentioned operation. If however, an inflow of water in to excavation is caused by powerful springs or river seepage, broken water mains or drains and the like (other than those broken through the contractors negligence) the contractor shall immediately inform to GE. If in the opinion of the GE, the inflow is due to any of these causes, he shall issue instructions in writing as to the method to be employed in clearing the water and additional payment shall be allowed as deviation order.

3.2 FILLING IN TRENCHES/UNDER FLOORS.

3.2.1 Filling to sides of trenches shall be in layer n exc 25 cm and each layer shall be watered, compacted and rammed as approved by Engineer-in-Charge.

3.2.2 Surplus soil shall be removed and spread at places as directed by the Engineer-in-Charge, at a distance as mentioned in BOQ.

3.3 HARD CORE

3.3.1 The material for hardcore (broken stone) shall be as per sample kept in GE's office and from the sources as described in the particular specifications.

3.3.2 Hardcore shall be stones of gauge not exceeding 63 mm. Hardcore shall be deposited, spread and leveled in layers n exc 15 cm thick and watered, well rammed to a true surface and compacted. The thickness of the hardcore after consolidation shall be as per drawings and where not specifically shown on drawings, it shall be 150 mm consolidated thickness.

4.0 CONCRETE.

4.1 AGGREGATE. Coarse aggregate for all cement concrete unless otherwise specified shall be crushed or broken and graded stone coarse aggregate and fine aggregate (sand) shall be from the source as mentioned in Appendix 'A' and approved by the GE and shall conform to requirement of IS-383.

PARTICULAR SPECIFICATIONS (CONTD ../-)

4.2 WATER. Quality of water to be used for mixing and curing of concrete work shall conform to the requirement of clause No. 5.4 of IS 456:2000. GE will ensure that testing of water is carried out at regular intervals to comply with the requirement.

4.3 CEMENT

4.3.1 GENERAL. Cement required for the work under the contract shall be procured, supplied and incorporated in the works by the contractor under his own arrangement. Cement shall be of tested quality and shall comply with the requirements mentioned in the SSR, IS specifications as amended and particular specifications given herein after. Type of cement for the subject work shall be Ordinary Portland Cement (OPC) Grade 43 (forty-three) in accordance with IS 8112-1989/Portland Pozzolana Cement (PPC) as per IS-1489-1991 (subject of conditions mentioned here-in-after) at the option of contractor without any price adjustment.

4.3.2 SOURCES OF PROCUREMENT

(a) Cement shall be procured by the contractor directly from any of the main producers of OPC & PPC mentioned in Appendix 'B' herein after.

(a) For repairs, maintenance and works where entire requirement of cement is less than 1200 bags, same can be procured from authorized dealers of firms mentioned in Appendix 'B' herein after.

(c) The contractor shall furnish the particulars of the manufacture/main producers of cement along with the date of manufacture to the Garrison Engineer for every lot of cement separately. The cement so brought shall be fresh and in no case older than 60 days from the date of manufacture. The Garrison Engineer shall verify the documents in support of the purchases of cement. Before placing the order for supply of cement by the contractor, he shall obtain written approval from the GE regarding name of manufacture, quantity of cement etc. Cement shall be procured for minimum requirement of one month and not exceeding the requirement for more than two months at a time. The cement shall be consumed in the work within three months after receipt. Cement shall conform to the requirement of Indian Standard specification and each bag of cement shall bear relevant ISI mark. The weight of each consignment shall be verified by the GE and recorded. The content of cement shall be checked at random to verify the actual weight of cement per bag. However, each bag of cement shall be of nominal average net mass of 52 Kgs, subject to tolerance given in relevant clause and Annexure 'B' of IS-8112 of 89.

4.3.3 TESTING OF CEMENT

4.3.3.1 The contractor shall submit the manufacturer's test certificate in original along with test sheet giving the result of each physical test as applicable in accordance with the relevant IS provision and the chemical composition of cement or authenticated copy thereof, duly signed by the manufacture with each consignment, as per the following IS provision :-

(a) Method of sampling hydraulic cement as per IS-3535-1986

(b) Method of Physical test for hydraulic cement as per IS-4031

(c) Method of chemical analysis of hydraulic cement as per IS-4032-1985

PARTICULAR SPECIFICATIONS (CONTD ../-)

4.3.3.2 The test sheet should include results of the following mandatory tests :-

- (a) Specific surface by Blains air Permeability method.
- (b) Soundness Test by Le' Chatelier Method.
- (c) Initial setting time.
- (d) Final setting time.
- (e) Compressive strength test at 3,7 & 28 days as specified in the relevant IS code.
- (f) The test report should also show the chemical properties of the cement as per relevant IS codes.

4.3.3.3 The test certificate and test sheet shall be furnished with each batch of manufacture. The Engineer-in-Charge shall record these details in the cement acceptance register to be maintained by his which will be signed by JE (Civil), Engineer-in-Charge, Garrison Engineer and the contractors as given in the format here-in-after for verification.

4.3.4 **INDEPENDENT TESTING OF CEMENT BY GE.** In addition to above, the GE will organize independent testing for physical properties as per test mentioned in Cement supply/Acceptance Form of random sample of cement drawn from various lots from the National Test House/SEMT wing/Govt Engineering Colleges/MES Zonal Lab(s)/ Regional Research Laboratories as per relevant BIS and shall be recorded in the respective portion of Cement supply/Acceptance Form. In case the cement is not of requisite standard despite manufacturer's Test Certificate the contractor shall remove the total consignment from the site within 24 hours at his own cost after written rejection order of the consignment by the GE. The cost of tests shall be borne by the contractor irrespective of the results of testing.

4.3.5 **SAMPLING OF INDEPENDENT AND ADDITIONAL TESTS.** Sample of cement from each lot shall be collected in accordance with Para 5.6 of IS-3535-1986, for independent or additional tests. At least 2% of the bags subject to a minimum of five bags shall be sampled as per procedure laid down in IS-3535. The cement should be tested within 1-3 weeks of supply but before incorporation in the works.

(a) The random samples as per relevant IS shall be selected by GE before carrying out testing. The record of such samples selected by the GE for testing shall be properly maintained in the 'Cement Testing Register' giving cross reference to relevant consignment of cement and quantity received etc.

(b) Cost of transportation of samples to the approved laboratory/test house and all testing charges including cost of sample shall be borne by the contractor.

(c) The contractor shall be required to set up adequate testing facilities at site to the entire satisfaction of Garrison Engineer for conducting setting time tests and compressive strength test as per IS codes referred to herein before for the samples collected from the lot brought at site. These tests shall be carried out within 7 days of receipt of cement at site. The tests can alternatively be carried out at the other the other labs as mentioned here-in-before.

PARTICULAR SPECIFICATIONS (CONTD ../-)

(d) The contractor shall submit original purchase vouchers for the total quantity supplied under each consignment to be incorporated in the work. All consignments received at the work site shall be inspected by the GE along with the relevant documents to ensure the requirement as mentioned hereinbefore, before acceptance. The original purchase vouchers and the test certificates shall be verified for subject contract & defaced by the Engineer-in-charge and kept on record in the office of the Garrison Engineer duly authenticated and with cross reference to the consignment/control number recorded in the cement Acceptance Register. The cement Acceptance Register shall be signed by the Junior Engineer (Civil), Engineer-in-charge, GE and the Contractor. The contractor shall maintain schedule of supply of cement for each consignment.

(e) The Accepting Officer may order a board of officers for random check of cement and verification of connected documents during the currency of contract.

4.3.6 STORAGE/ACCOUNTING/PRESERVATION OF CEMENT

(a) Cement shall be stored in covered godown over dry platform at least 20cm high in such a manner as to prevent deterioration due to moisture or intrusion of foreign matter. In case of storeroom, the stack should be at least 60cm away from floors and walls. The stacking of cement shall be done as specified in relevant IS. The storage, accounting and preservation of cement supplied by the contractor shall be done as per standard engineering practice till the same is incorporated in the work and the cost of the same shall be deemed to be included in the unit rate/amount quoted by the tenderer. The Engineer-in-Charge shall inspect once a day to verify that cement lying at site is stored, accounted, preserved and maintained as per the norms. The cement shall be stored so as to differentiate each tested and untested consignment separately with distinct identification. If the GE is not satisfied with the storage/preservation of cement, he may order for any test (s) of cement as applicable for that consignment to ensure conformity to the quality mentioned in the manufacturer's test certificate. The contractor shall bear the cost of necessary testing (s) in this regard and no claim whatsoever shall be entertained.

(b) Stacking of cement shall be done as per relevant IS and as under: -

(i) Each cement consignment shall be stacked separately displaying the control No and date of receipt of cement and removal shall be made on the basis of 'First in First out'.

(ii) Adequate top cover will be provided.

(iii) Stacks in no case shall be higher than 10 bags. The maximum width of each stack shall be 3.00m. If the stack is to be more than 7 or 8 bags high, the bags shall be arranged in header and stretcher fashion, i.e. alternately lengthwise and cross wise so as to tie the piles together and avoid danger of topping over.

PARTICULAR SPECIFICATIONS (CONTD ../-)

(c) Cement godown shall be provided with two locks on each door. The key of one lock at each door shall remain with the Engineer-in-charge or his representative and that of the other lock with the contractor's authorised agent at site of works so that cement is removed from the godown only according to daily requirement with the knowledge of both the parties. During the period of storage, if any cement bag(s) found to be in damaged condition due to whatsoever reason, the same shall be removed from the cement godown on written orders of the GE and suitable replacement for the cement bag(s) so removed shall be made and no claim whatsoever shall be admissible on this account.

(d) Cement shall be removed from the store only according to daily requirement with the knowledge of both the parties and daily consumption of cement shall be recorded in cement consumption register, which shall be signed by the Engineer-in-charge and the contractor. Cement constants given in Appendix 'A' to E-in-C's branch letter No. 19280/E8 date 03 May 1976 shall form the basis of consumption of cement for various items of works unless specifically indicated otherwise.

(e) In case the consumption of cement as per cement consumption register is found to be more than the estimated quantity of cement due to whatsoever reason, the contractor shall not have any claim whatsoever for such excess consumption of cement.

(f) Movement of cement shall be recorded in In/Out Cement Register as per the following Proforma: -

IN/OUT CEMENT REGISTER

Sl.	Date	Cement In		Cement Out			Qty Balance	Signatures		Remarks
		Qty (In Bags)	Control No	Qty (In Bags)	Reasons	Age of Cement		Contractor	AGE/GE	
(a)	(b)	(c)	(d)	(f)	(g)	(h)	(j)	(k)	(l)	(m)

* **NOTE:** - The following reasons may be mentioned for taking out cement from storage: -

- (i) For testing purpose.
- (ii) For use in work.
- (iii) Rejected cement taken out of site.

4.3.7 SCHEDULE OF SUPPLY

a. The procurement of cement should be such that it matches with the physical progress of the work. The schedule of procurement shall be worked out by the GE in consultation with the contractor. The schedule shall be got vetted by GE from time to time. The contractor shall ensure that the schedule is adhered to. The contractor shall forfeit his right to demand extension of time if the supply of cement is delayed due to his failure in placing order in time to the manufacturer.

PARTICULAR SPECIFICATIONS (CONTD ../-)

4.3.8 MEASUREMENTS AND PAYMENT OF CEMENT

a. The entire quantity of cement shall also be suitably recorded in the measurement Book for record purposes as 'Not to be abstracted' before incorporation in the work and shall be signed by the Engineer-in-Charge and the Contractor.

b. The payment shall only be allowed after production of original purchase vouchers, certified copies of test certificates from manufacture for each consignment and results of testing carried out in laboratory or receipt of cement (7 days compressive test) are found satisfactory after testing as specified herein before. Cement shall be paid as material lying at site as per condition 64 of IAFW-2249. Rate of cement given in SSR or market rate whichever is less shall be applicable for cement irrespective of grade of cement specified for use in the work

CEMENT SUPPLY & ACCEPTANCE FORM

1. CA No & Name of work
2. Control No.: _____
3. Name of Manufacturer/Brand Name/Gde of Cement. (a)
Manufacture:.....
(b)Brand..... (c) Grade
4. Quantity of Cement & Lot No./Week No. (in bags): (a) Qty.....(b) Lt No./Week No.....
5. Manufacturer's test certificate No.....
6. Random Test details. (a) Physical test report from.....vide their letter No.....
(Name of approval Lab/Engg College)
(b) Chemical test report from.....vide their letter No
(Name of approval Lab/Engg College)
7. Details of Physical & Chemical properties.

	Physical Requirements (As per IS-4031)						Chemical Requirements (As per IS-4032)								
	Specific Surface Area	Soundness by Le Chatelier	Soundness by Auto clave	Initial Setting Time (minutes)	Final Setting Time (minutes)	Compressive strength (Mpa)	Temp during testing °C	Std consistency (%)	Lime saturation factor (ratio)	Alumina iron insoluble	Magnesium (%)	Sulphuric anhydride (%)	Loss on ignition (%)	Alkalies (%)	Chlorides (%)
As per relevant IS						03 days 07 days 28 days									
As per manufacturer's															
As per random test certificate															

Accepted/Rejected

Remarks with Signatures

Contractor Junior Engineer Engineer-in-Charge Garrison Engineer
Remarks of BOO/Inspecting Officer/CWE

*** To be allotted serially by GE consignment wise**

PARTICULAR SPECIFICATIONS (CONTD ../-)

4.3.9 When the contractor opts for using PPC in the work, GE can allow the incorporation of PPC subject to following: -

(a) GE/AGE (I) are required to ensure that PPC meets the strength criteria of 43 Grade OPC as laid down in IS-8112 1989.

(b) The minimum period before striking formwork given in clause 11.3.1 of IS 456-2000 is to be suitably modified at sites by the GEs/AGEs(I).

(c) The contractor shall give an undertaking that he shall not claim anything extra what-so-ever on account of extra time for stripping formwork etc while using PPC in lieu of OPC.

(b) In cold climate regions where temperature is lower than 15°C and important structures like over Head Reservoirs, Under Ground Sumps, Prestigious Buildings and Buildings with spans 10m or more only OPC shall be used.

(c) Mixing of OPC and PPC shall not be allowed in work except for plaster and mortar.

(d) While procuring PPC the following requirements are to be ensured and certificate to that effect shall be obtained for each batch from the manufacturers.

(i) The quality of fly ash is strictly as per IS 1489 (Part-I) 1991.

(ii) Fly ash is inter-ground with clinker not mixed with clinker.

(iv) Dry fly ash is transported in closed containers and stored in silos. Only pneumatic pumping has been used.

(v) The fly ash received from thermal power plants using high temperature combustion above 1000°C has been used.

(vi) The fly ash content in PPC shall not exceed 25% to ensure consistency.

4.4 **CEMENT CONCRETE.** All plain and reinforced cement concrete shall be as per IS-456-2000 and all as specified in SSR Part I 2009.

4.4.1 **COPING:** - 50 mm thick PCC coping (1:3:6) type C-1 (using 20mm graded stone aggregate) shall be provided on top of masonry parapet walls.

4.4.2 **CILLS**

Cill shall be of 15 to 18 mm thick green marble slab in single piece (single piece in length & width) shall be provided to all windows / ventilators were shown on drawing. Green marble slab well polished exposed surfaces. The exposed edges shall be slightly rounded off. The same shall be laid over a screed 15 mm thick in CM 1:6 and set with neat cement slurry with pigment to match the shade. Where material of cill are not specified in drawings it shall be green marble slab.

PARTICULAR SPECIFICATIONS (CONTD ../-)**4.4.3 PLASTIC COVER BLOCKS**

Contractor may use at his discretion plastic cover blocks in lieu of cement mortar for concrete cover blocks to ensure proper cover for the reinforcement.

NOTE: - In the event of deviation, the rates given in the MES SSR Part-II for reinforced cement concrete shall be applicable without any adjustment for the type of cover blocks.

5.0 BRICK WORK.**5.1 BRICK.**

Bricks shall be sub class 'B' well burnt locally available best quality conforming to the samples kept in the office of GE(A). Irrespective of whatever is specified in BOQ, bricks shall have minimum compressive strength of 75 kg/Sqcm. water absorption shall not exceed 20%, when tested in accordance to IS-3495. sampling and testing of bricks shall be carried out as per IS-5454 and IS-3495. The size of brick shall be 230x115x75mm. The tolerance in size of bricks shall be $\pm 8\%$. Brick masonry shall be carried all as specified in section 5 of MES schedule part-I

5.2 CEMENT

Cement required shall be all as described herein before.

5.3 SAND

Sand for mortar shall be as specified herein before for fine aggregate

5.4 to 7.2.1-----BLANK-----**8.0 STEEL AND IRON WORK**

8.1.1 All type of steel to be used in the work shall be procured by the contractor from main manufacturers / secondary producers / BIS marked manufacturers as specified in clause 10.2 hereinafter and shall be of quality and grade as specified in BOQ

8.1.2 REINFORCEMENT STEEL

(a) Reinforcement steel shall be high strength deformed steel bars produced by Thermo Mechanical Treatment (TMT) process. TMT Steel bar shall be of grade Fe-500 irrespective of whatever shown on drawings, meeting all other requirement of IS: 1786 and elongation shall be more than 14.5 percent.

(b) Fabric reinforcement for concrete shall be ISI marked (IS-1566).

(c) In the event of deviation, for pricing of reinforcement steel using High strength deformed steel bars produced by Thermo Mechanical Treatment process (TMT steel bars of grades Fe-500), the rate shall be applicable as for TMT bars given in SSR Part II adjusted by applicable percentage for respective parts of schedule 'A'.

8.1.3 Structural Steel

(a) Definition of structural steel as given in clause 10.4 of SSR Part I shall be applicable. Steel for general structural purpose shall be Gde Fe-410 WAISI marked (IS-2062) for all types of steel structures including those subjected to dynamic loading.

PARTICULAR SPECIFICATIONS (CONTD ../-)

(b) In the event of deviation, for pricing of steel for general structural purpose Gde Fe-410WA, the rate shall be applicable as per Gde Fe-410-S given in SSR Part II adjusted by applicable percentage for respective parts of BOQ.

(c) Low tensile structural steel Fe-290 ISI marked (IS-2062-2006) shall be used for frame of paneled /gauged doors, windows guard bars, hold fasts, steel gate, lugs, grills, hand railing, fencing posts etc.

(d) In the event of deviation, for pricing of steel for low tensile structural purpose Gde Fe-290, the rate shall be applicable as per Gde Fe-310-O given in SSR Part II adjusted by applicable percentage for respective part of BOQ.

8.2 PROCUREMENT**8.2.1 Reinforcement Steel.**

Reinforcement steel bars of all sizes shall be procured directly from SAIL/RINL/TISCO /Other Primary Producers as approved by E-in-C's Branch till the last date of submission of BOQ.

Reinforcement steel of grade Fe-500 shall not be permitted to be procured from any of the secondary producers.

8.2.2 Structural Steel

Structural steel sections shall be procured directly from SAIL/RINL/TISCO/ Other primary producers as approved by E-in-C's Branch till the last date of submission of BOQ. In case of non availability of structural steel sections with primary producers, the same can be procured from approved Secondary Producers as given in Appendix 'B' with a reduction of 5% (Five percent) of the accepted rates of structural steel. In case the desired section of structural steel is not rolled/ manufactured by primary producer, there shall be no price adjustment in use of structural steel procured from approved secondary producers.

Before allowing the structural steel from secondary producers GE shall verify that the same is fabricated from billet of ISI marked. Also the valid BIS certification and valid ISO license will be verified by the GE before acceptance and CTC copies thereof will be kept on record.

8.2.3 Galvanised Steel Sheets & Fabric Reinforcement for Concrete.

These shall be procured directly from main producers i.e. SAIL, Rashtriya Ispat Nigam Limited, TISCO/BIS marked manufacturers at the option of contractor without any price adjustment.

Galvanised steel sheets & fabric reinforcement for concrete may be procured from authorised dealers of main producers i.e. SAIL, Rashtriya Ispat Nigam Limited, TISCO in case the total requirement is less than 5 tonnes.

8.2.4 Low Tensile Structural Steel. Low Tensile Structural Steel of Gde Fe-290 ISI marked [IS-2062-2006] as in railings, gates, fencing, guard bars, grills, steel chowkats, hold fasts, lugs, nosing bars, fan hooks, dowel bars etc., which do not constitute structural members, can be procured from main producers/ secondary producers/ BIS marked manufacturers or their authorised dealers at the option of contractor without any price adjustment.

PARTICULAR SPECIFICATIONS (CONTD ../-)**8.3 SCHEDULE OF SUPPLY**

- 8.3.1 The contractor shall place his demand/requisition of steel by giving adequate leadtime as agreed in the CPM chart. The schedule of supply of steel shall be **vetted by GE from** time to time.
- 8.3.2 All finished steel shall be well and clearly rolled to the dimensions, sections and weights specified. The finished material shall be reasonably free from cracks, surface flaws, laminations, rough, jagged and imperfect edges and any other harmful defects and shall be finished in a proper manner. Tolerance on size and weight of reinforcement bars shall not be more than that specified in clause 10.17.4 and 10.17.5 of MES SSR Part I and as specified in relevant IS codes.
- 8.3.3. For each consignment of steel brought by the contractor before acceptance of the steel, the following actions shall be taken by GE and Engineer-in-Charge.
- 8.3.4 Physical verification of steel received to confirm the actual quantity of steel as well as to verify aspects brought out hereinbefore.
- 8.3.5 GE shall obtain original machine numbered paid vouchers of manufacturer from contractor.
- 8.3.6 The GE shall obtain the manufacturer's test certificate (IN ORIGINAL) along with the test sheet giving results of each mechanical test and the chemical composition of steel (as per IS-1786) or authenticated copy thereof duly signed by manufacturer with each consignment. The test sheet should inter alia include results of the tests as enumerated in steel supply/Acceptance form stated hereinafter in clause 10.5.1 (c). The GE shall also organize independent testing of random samples of steel drawn from various lots from National Test House, SEMT CME, Regional Research Labs, Government and BIS approved labs, with following frequency as enumerated in steel supply/Acceptance form stated here in after in clause 10.5.1 (c): -

8.4 STEEL FOR REINFORCEMENT

- (a) Bars size less than 10 mm 1 sample (3 specimen) for each test for every 25 tonne or part thereof.
- (b) Bar size 10mm to 16 mm 1 sample (3 specimen) for each test for every 35 tonne or part thereof
- (c) Bar size more than 16 mm 1 sample (3 specimen) for each test for every 45 tonne or part thereof.

8.5 STRUCTURAL STEEL

- (a) Tensile test 1 test for every 25 tonne of steel or part thereof.
- (b) Bend test 1 test for every 10 tonne of steel or part thereof.

PARTICULAR SPECIFICATIONS (CONTD ../-)**NOTE**

- (i) For various test, acceptance criteria, tolerances etc refer to relevant BIS codes and steel supply/acceptance form.
- (ii) Samples from each lot should be tested for quality and elongation. The elongation shall not be less than 18%.

8.5.1 High strength deformed TMT bars which are brought at site in coils shall be got checked by a board of officers appointed by GE in the presence of contractor to determine the actual weight per unit length by getting a suitable length (not less than three metre) from each coil of respective section which shall be recorded in the MB

8.5.2 Verify the documents listed in 10.3.3.2 & 10.3.3.3 hereinbefore given by the contractor from the manufacturer.

8.5.3 Verify the documents.

8.5.4 No consignment or part thereof shall be allowed to be incorporated in the work until and unless the test results are obtained and the consignment is passed by GE. Schedule of procurement shall be prepared keeping in view the time lost for testing etc.

8.5.5 Three samples of pieces (3.0 metre long) of each section of each consignment shall be retained at the project site till completion of the work. These samples shall be suitably marked and properly preserved.

8.6 DOCUMENTATION

8.6.1 The following documents shall be maintained in addition to the routine documents maintained as per contract provisions: -

- (a) All original vouchers shall be kept in a file serially numbered and to be kept in GEs Office.
- (b) Test certificate shall be kept in a file serially numbered and to be kept in GEs Office.
- (c) Steel Acceptance Register, as under shall be maintained by the GE.

PARTICULAR SPECIFICATIONS (CONTD ../-)**STEEL SUPPLY/ACCEPTANCE FORM**

1.Contract No:_____ Name of work:_____ Control

2.No.:_____

3. Name of Manufacturer's TC No:4. Manufacturer:

5. Random Test details(a) Physical test report from.....vide letter No

(Name of NABL approved Lab/Govt. Engg College) (b) Chemical test report from.....vide letter No (Name of NABL approved Lab/ GovtEnggCollege)

6. Type of steel, dia&Qty :(a) Type: TMT/CRS (b) Dia ; mm(c) Actual Wt : MT (d) Conversion Wt MT

7. Name of Manufacturer's TC No:8. Manufacturer:

9. Random Test details

(a) Physical test report from.....vide letter No

(Name of NABL approved Lab/Govt. Engg College)

(b) Chemical test report from.....vide letter No

(Name of NABL approved Lab/ GovtEnggCollege)

10. Type of steel, dia&Qty :

(a) Type: TMT/CRS (b) Dia: mm (c) Actual Wt: MT (d) Conversion: Wt MT

	Chemical test						Mechanical test							
	Carbon %	Sulphur %	Phosphorous %	Sulphur+ Phosphorus %	Manganese %	Silicon %	Corrosion resistant element	Wt per meter	Yield Stress (N/mm ²)	Tensile Strength (N/mm ²)	Percent elongation (Min 18%)	Bend test	Rebend test	remarks
As per IS 1786- 2008														
As per manufacturer's test certificates														
As per independent test														

Remarks with SignaturesJunior EngineerEngineer-in-ChargeContractor

Accepted/Rejected:

Garrison Engineer

Remarks of Inspecting Officer/CWE

(d) In/Out Register for details of receipt, acceptance/rejection and consumption of steel shall be maintained as under: -

Sl.	Date	Steel In			Steel Out			Qty Balance
		Qty (Tons)	Section	Control No.	Qty (Tons)	Section	Reasons *	
1	2	3	4	5	6	7	8	9

PARTICULAR SPECIFICATIONS (CONTD ../-)

- * **NOTE: -** The following reasons may be mentioned for taking out steel from storage: -
- (i) For testing purpose.
 - (ii) For use in work.
 - (iii) Rejected Steel taken out of site. * NOTE: - The following reasons may be mentioned for taking out steel from storage: -

- (i) For testing purpose.
- (ii) For use in work.
- (iii) Rejected Steel taken out of site.
- (e) Register containing results of independent and additional testing by GE.
- (f) Register containing records of surprise Checks.
- (g) Inspection register.

8.6.2 In addition to the above documents, the following points shall be kept in view while maintaining the documents: -

- a) The original vouchers and the test certificate shall be defaced by the Engineer-in-Charge indicating the contract agreement number and other particulars of work for which used and certified true copies of all such documents shall be maintained by the Engineer-in-Charge with cross reference to the control No. recorded in the steel Acceptance register as referred hereinbefore.
- b) All entries in steel Acceptance Register shall be signed by JE (Civil), Engineer-in-Charge and the contractor.
- c) The entire quantity of steel shall also be suitably recorded in the measurement Book (MB) for record purpose as not to be abstracted before incorporation in the work and shall be signed by the Engineer-in-Charge and the contractor duly checked by the GE.

8.6.3 **ACCEPTANCE/REJECTION OF STEEL** The contractor will keep a separate stack of steel brought at site for inspection, away from the accepted stack of steel. In case, the consignment does not meet any of the requirements of the relevant IS codes, the GE shall reject the steel, and it shall be removed from the site within 24 hours at the cost of the contractor.

8.7 **PROCEDURE FOR MAKING PAYMENTS FOR STEEL INCLUDING MEASUREMENTS CONVERSION WEIGHT ETC.**

8.7.1 The requirement of steel shall be worked out section wise and shall be recorded in separate Register jointly maintained by contractor and Engineer-in-Charge. Day to day record shall also be signed by the contractor as well as Engineer-in-Charge. The register should contain different sheets for each steel sections indicating reference to drawing number, location, number of bars, sketch of each length of bar with dimensions, length of bars with the conversion factors given in MES Schedule Part II. For section not listed in MES Schedule, the IS conversion table shall be followed. The contractor shall not have any claim in case the actual weight of steel items works out to be more than the weight obtained by the standard conversion factor.

8.7.2 On completion of work, the Register will be in the custody of the Engineer-in-Charge and contractor may keep a copy for his record if he so desires.

PARTICULAR SPECIFICATIONS (CONTD ../-)

8.7.3 Payment of Steel brought by contractor: Payment of the steel brought by the contractor shall only be released by the GE after taking action on points enumerated above and completing the documents as specified hereinbefore.

8.7.4 Before procurement of steel, contract specification and structural drawings shall be read thoroughly and various grades/types of steel to be incorporated in the work shall be identified and got approved by the contractor from the Garrison Engineer. No over payment shall be made on this account in the RAR. Steel shall be procured sufficiently in advance.

8.7.5 For payment of steel material laying at site brought by the contractor shall be regularized as under: -

Ser No.	Type of Steel	Rate as applicable in relevant MES Schedule
(a)	High strength deformed steel bars produced by Thermo Mechanical Treatment (TMT) process (TMT steel bars of grades Fe 415, Fe 500 and Fe 550) meeting all requirements of IS: 1786,	TMT bars
(b)	Steel for general structural purpose Gde Fe 410-WA ISI marked (IS-2062)	Structural steel Gde Fe-410-S.
(c)	Low tensile structural steel Gde Fe-330 ISI marked (IS: 1977-1966)	Structural Steel Gde Fe-310-O.

8.8 **COST OF ADDITIONAL AND INDEPENDENT TESTS:**

8.8.1 **REINFORCEMENT STEEL**

- a) 9.1.1 The GE will also organize independent testing of random samples of steel drawn from various lots from National Test House, SEMT Wing CME, Regional Research Labs, Government approved Labs. Independent tests for steel procured from producers with BIS certification shall be carried out.
- b) In case of procurement of steel from main producers, the cost of sample and transportation shall be governed as per condition 10 [A] of IAFW-2249 [General Conditions of contracts] i.e. testing charges shall be borne by the Department if the test results are found in order otherwise these shall be borne by the contractor.
- c) In case of procurement of steel from secondary producers, independent testing is mandatory and testing charges shall be borne by the contractor.
- d) In both the cases as referred in Clause 12.1.2 and 12.1.3 above, the contractor at his own cost shall provide all facilities required for the testing and cost of materials consumed in tests shall also be borne by the contractor.
- e) For checking nominal mass, tensile strength, bend test, rebend test, test specimen at random shall be selected by the GE at frequency mentioned in Clause No. 11.8 hereinbefore. For TMT bars bend dia shall be 2D and rebend dia 4D.

8.8.2 **STRUCTURAL STEEL, GI SHEET & FABRIC REINFORCEMENT**

- a) The GE will also organize independent testing of random samples of steel drawn from various lots from National Test House, SEMT Wing CME, Regional Research Labs, Government approved Labs. Independent tests for steel procured from producers with BIS certification shall be carried out.
In case of procurement of steel from main producers, the cost of sample and transportation shall be governed as per condition 10 [A] of IAFW-2249

PARTICULAR SPECIFICATIONS (CONTD ../-)

- a) [GeneralConditions of contracts] i.e. testing charges shall be borne by the Department if the test results are found in order otherwise these shall be borne by the contractor.
- b) In case of procurement of steel from secondary producers, independent testing is mandatory and testing charges shall be borne by the contractor.
- c) In both the cases as referred in Clause 12.2.2 and 12.2.3 above, the contractor at his own cost shall provide all facilities required for the testing and cost of materials consumed in tests shall also be borne by the contractor.
- d) For checking nominal mass, tensile strength, bend test, rebend test, test specimen at random shall be selected by the GE at frequency mentioned in Clause No.11.8 hereinbefore.

8.9 Storage

8.9.1 Steel of different grades and sizes shall be stacked separately. For each classification of steel separate areas shall be earmarked. Steel shall be marked with distinct painting marks for easy identification.

8.9.2 Steel will be stored in a manner that, it is always at least 15cm above the GL so as to prevent distortion and corrosion. Any section that has deteriorated and corroded or if considered defective for any other reason the same shall be removed from the site by contractor under his arrangement and cost.

8.9.3 Steel sections which are not likely to be used before onset of monsoon shall be given cement slurry wash so as to ensure steel free from scale and rust. Also steel sections, which are procured during monsoon and are not likely to be used within a week from the date of procurement, shall be given cement slurry wash immediately.

8.10 SAFETY OF STEEL

It will be responsibility of contractor to make sure that all possible arrangements are made for safe custody of the steel. In case of any loss of steel, contractor will only be responsible and the loss will be made good without any delay or claim whatsoever.

8.11 UTILISATION OF SEMT WING, CME PUNE

SEMT Wing, CME Pune is well equipped BIS accredited lab. All test facilities are available there. Testing facilities of SEMT wing shall be fully utilized wherever possible.

8.12 GENERAL

The details as above incorporated in tender documents is for implementation by the Department as well as by the Contractor.

Wherever 6mm and 8 mm MS bars are shown in drawings. It shall be amended to read as 8 mm dia high strength deformed TMT steel bars. Number and spacing of bars shall remain unchanged. Cost of buildings to be quoted against BOQ Part-I shall be deemed to include the cost of 8 mm dia high strength deformed TMT steel bars in lieu of 6mm and 8mm dia round bars.

8.13 STEEL FOR REINFORCEMENT

8.13.1 Steel for reinforcement for RCC shall be all as indicated in the drawings. The provision of MES SSR Part-I clause 10.18 that ends of deformed bars are not bent to form hooks is not applicable to this contract. 'L' shaped bends shall be provided to deformed bars all as per RCC notes on drawing No CEAA/TD/109 Sheet No. 1/4 to 4/4.

PARTICULAR SPECIFICATIONS (CONTD ../-)

8.13.2 The overlaps for reinforcement given in drawings No CEEA/TD/109 Sheet No. ¼ of 4/4 (as applicable) shall take precedence over provisions given in Para 10.19 of MES SSR Part-I.

8.13.3 For making adjustment arising out of deviation involving reinforcement bars, the length of each bar for the purpose of calculation of laps shall be taken as 10 metres.

8.13.4 Adequate numbers of chairs as given in drawing No CEEA/TD/141 Sheet No. 1/1 sheet shall be provided in all reinforced sections to prevent top layer of reinforcement from sagging and the cost of the same shall be deemed to be included in lump sum quoted for schedule 'A' Part-I.

8.14 Structural Steel Works-

8.14.1 The structural steel works such as roof, rafters purlins, cleat, gusset plates, base plates shall be provided all as shown on drawing. For all works standard quality Fe 410 WA steel shall be used.

8.14.2. Bolts, Nuts and Washers - Bolts and nuts shall be of grade 'BLACK' (B) conforming to IS-6639 specification for hexagonal bolts for steel structural and all as specified in clause 10.7.2 of MES SSR Part I.

8.14.3 Washers - Plain washer shall be of steel conforming to IS-2016 specification for plain washer and all as specified in clause No. 10.7.3 of MES SSR Part I.

8.14.4 Electrodes - Electrodes for metal arc welding of mild steel shall be as per IS-814, specification for covered electrodes for metal arc welding of structural steel.

8.14.5 Workmanship Generally: - Structural steel work welded, riveted or bolted shall be carried out as described in IS-800, code of practice for use of structural steel in general building construction and all as specified in clause 10.9 to 10.16.13.2 of MES SSR Part I and as directed by GE/Engineer-in-Charge

8.14.6 **Welding:** - Welding wherever shown on drawings shall be by metal arc process in accordance with IS 816 and IS 823 and as per clauses of MES SSR Part I unless specifically indicated otherwise on drawings.

8.15 Hold Fast / Lugs-

8.15.1 Flat iron hold fast/lugs 25mm x 6mm, 30cm long shall be provided by welding as and where shown on drawings. Hold fasts/lugs shall be embedded in PCC (1:3:6) type CI bed block of the size width of wall 230mm x 75mm.

8.15.2 Wherever door frame and window frame side is coming in contact with RCC column, dash fasteners shall be provided in lieu of hold fast.

8.15.3 Fan Hooks with Boxes - Wherever Fan Hooks/Fan Points have been shown, cast iron MS boxes with Fan Hooks as per details shown on drawings shall be provided. Exposed faces shall be given two coats of white paint over a coat of red oxide primer.

8.15.4 The contractor may at his discretion provide mild steel box fabricated out of 1.40mm thick mild steel sheet in lieu of cast iron box without any price adjustment.

PARTICULAR SPECIFICATIONS (CONTD ../-)

- 8.15.5 Laminated white circular sheets shall be fixed to cover metallic boxes provided for fans and pendant lights in the ceiling so that no portion of metallic boxes is visible. The lump sum tendered by the contractor for buildings part/parts under schedule 'A' shall be deemed to include for the cost of the same.
- 8.16 **Expanded Metal** - Where expanded metal is shown and its size is not given on the drawings, it shall be 20mm short way by 50mm long way mesh, wire of nominal size 2.5mm x 1.25mm weight not less than 2.183 Kg per square metre.
- 8.17 **MILD STEEL GRILL**
Irrespective of what is indicated in the drawing all aluminium window & ventilator shall be provided with mild steel grill. Grill shall be fabricated with 25 mm x 5 mm size mild steel flat iron frame with 10 mm size mild square bar @ 100 mm c/c vertical & 200 mm c/c horizontal spacing.
- 8.18 **GI PIPE AND FITTING**
GI tubing shall be medium grade conforming to IS-1239 and fittings shall comply with the requirements of relevant IS. GI pipe and fittings shall be ISI marked and shall be from any one of the manufacturers specified here in after as per Appx 'C'. The holes in the walls and in floors shall be made good to match with the adjoining surfaces all as specified in clause 18.51.4 of MES Schedule Part-I. The rate quoted shall be deemed to include for the same. The contractor shall use proper bends, elbows, tees etc., at turning corners. Contractor shall provide screwed plugs to all open ends of pipe on completion of days work. GI fittings shall be medium grade and shall be ISI marked and make shall be as per Appx 'C'.
- 8.19 **WATER SUPPLY WORK**
(A) Sampled for all pipes and fittings shall be got approved from GE before placing bulk orders.
(b) The pipe and fittings shall be galvanized steel medium grade ISI marked (IS-1239) Make shall be as per Appx 'C'
(c) Whichever required/directed necessary cutting/leaving/forming holes, chases etc in walls floor and ceiling and making good involved shall be deemed to have been included in the unit rate quoted by the contractor. No adjustment shall however, be made on this account for pricing any deviation in quantities.
(d) Water supply lines shall be tested as specified in MES Schedule Part- I. The test shall be carried out in presence of Engr-in-Charge All testing instruments, labour etc shall be arranged by the contractor without any extra cost.
- 8.20 **(PP-R) pipe and fittings**
Polypropylene random copolymer: - PP-R Pipe & fitting shall be all as specified in SSR Part-I clause No 18.114 on Ser Page No. 412.
- 8.21 **CAST IRON PIPE AND FITTINGS ETC**
Cast Iron pipes and fittings shall be suitable for Class/grade of pipe and shall bear ISI mark. CI pipes shall bear 1536-1976 and fittings shall bear IS-1538-1976. CI pipes and fittings shall be procured from firms specified in Appx 'C'. Laying and jointing shall be as specified in SSR Part-I.
- 8.21.A **DUCTILE IRON PIPES AND FITTINGS**
DI pipe shall conform to IS-8329-2000 K-7 class as specified in Sch of works (BOQ). Fittings shall conform to IS -9523-2000. The pipes & fittings shall withstand the hydrostatic test pressure after installation, without showing leakage, sweating or defects of any kind as laid down in IS. The pipes and fitting shall be laid, jointed and tested all as per IS-12288-1987 and as per mentioned in clause No 18.95 of SSR Part-I (2009). Make of DI pipe & fitting shall be as per list make of PS & as approved by GE.

PARTICULAR SPECIFICATIONS (CONTD ../-)

8.22 **CAULKING LEAD** Lead shall conform to IS-782, Lead register shall be maintained to verify the quantity of lead used.

8.23 **VALVE PIT**

The valve pit shall be provided at the locations directed by the Engr-in-Charge and as shown on drawing with the following specifications:-

(a) Cement concrete for foundation shall be with PCC (1:4:8), type D-2 using 40mm graded stone aggregate and coping shall be with PCC (1:2:4) type B-1 using 20mm graded stone aggregate.

(b) Walls of valve pit chamber shall be in brick work, built in cement mortar (1:6) as specified herein before.

(c) Internal and exposed surfaces of valve pit chamber both concrete and brick masonry surfaces shall be plastered with cement mortar (1:4), 15 mm thick, finished even and smooth.

(d) Cover with angle iron frame work for valve pit chamber shall be provided all as shown on drawings. The thickness of MS sheet for cover shall be 3mm.

(e) Frame holding bolts shall be given a thick coat of bitumen/tar before embedding in concrete.

(f) Cover and all exposed surfaces of steel & iron work shall be painted with two coats of synthetic enamel paint over a coat of red oxide primer after preparation of surface.

(g) Excavation and earth work shall be in any type of soil and surplus material to be removed to a distance nor exc 50 Mtr all as directed by Engr-in-Charge.

8.24 **SLUICE VALVES**

These shall be non rising type made of CI body (flanged and drilled ends) with high tensile forged brass/bronze spindle and unit and bronze face rings. These shall be of class PN-1.6 and PN-1 as described in BOQ items and IS-14846 marked. Makes shall be as per Appx'C.

8.25 **STOP/GATE VALVES**

Stp/Gate valves shall be ISI marked and make shall be as per Appx 'C'.

9.00 **CLEANING OF SUMP, OH TANK ETC**

9.1 The cleaning/de-silting shall be done by manually or by deploying proper mechanical machinery of adequate capacity. The bottom and sides shall be thoroughly scrubbed and brushed down with steel brushes and cleaned with water to the entire satisfaction of Engr-in-Charge as specified in BOQ.

9.2 The contractor shall take appropriate precaution to avoid injury etc to his work man. In case of any mis happenings; the contractor shall be fully responsible.

9.3 The silt, etc shall be collected in vehicles or drums/barrels and disposed of outside MD land by the contractor at his own cost.

PARTICULAR SPECIFICATIONS (CONTD ../-)

9.4 The quoted rate of contractor shall include the cost of writing the date of cleaning on tank with synthetic enamel (black/white) paint of size not less than 15cm of each letter.

9.5 GENERAL REQUIREMENT

9.5.1 The requirement pertaining to materials, conformity with National Building code, Workmanship, testing, record of installation shall be as specified in clause No 18.40 and 18. 41 of MES Schedule part I 2009. Laying and jointing of Galvanized iron pipe shall be in accordance with clause 18. 50 to 18.51 of MES Schedule.

9.5.2 All pipe work to be laid or fixed shall be completely airtight and watertight as specified.

9.6 BIB TAPS AND STOP VALVES

Specification for cast copper alloy screw down bib taps and stop valves for water services and as specified in clause No. 18.14.1 on serial page No. 18-6 of MES SSR Part I. Fancy type long shank cup concealed type bib taps and stops cocks shall conform to IS 8931 specification for cast copper alloy fancy type bib taps and stop cocks for water services as specified in clause 18.15 and 18.15.1 of MES SSR Part I.

9.6.1 BALL VALVES.

Ball valves shall be PTMT, high-pressure with PVC float type.

9.6.2 WASTE FITTINGS.

Waste fitting shall be of brass chromium plated and shall conform to IS 2963 specification for cast copper alloy waste fittings for wash basins and sinks. Waste fittings shall be of nominal size 32mm for wash basins and 50mm for sinks.

9.6.3 to 13.9 -----BLANK-----

13.10.1 Pipe work branch connections and other provisions shall be provided as per clause 18.64, 18.65 & 18.66 of SSR Part I 1991.

13.10.2 The mounting height of various fittings shall be as shown in drawings and as directed by Engineer-in-Charge.

PARTICULAR SPECIFICATIONS (CONTD ../-)

13.10.3 As far as possible water supply pipeline shall run exposed on external face of walls of the buildings. Water supply pipe lines inside the buildings shall be concealed for all type of accommodation.

13.10.4 Necessary cutting / forming holes / chases etc in walls, floors and ceiling and making good involved shall be deemed to have been included in the unit rate quoted by the contractor for respective buildings under BOQ. S

13.11 PILLAR TAPS

Pillar taps shall conform to IS 1795-1982 and IS 8934-1978 for ordinary and fancy type respectively and shall be as specified in clause 18.16 of MES schedule Part-I.

13.12 TESTING OF PIPE LINES.

Testing of pipe lines shall be carried out all as specified in MES Schedule Part-I to the entire satisfaction of Engineer-in-Charge. Material, labour and all equipments required for testing shall be provided by the Contractor at his own cost and the same shall be deemed included in quoted unit rates.

13.13. EXTERNAL WATER SUPPLY -

13.13.1. GI Pipe for laying cables shall be light grade shall bear ISI certification mark with IS-1239.

13.13.2. Ends of pipes shall be properly sealed with wooden bush and bitumen compound after drawing the cable through pipes.

13.13.3. Where cables are to be fixed along with poles these shall be drawn through pipes. The pipes shall be fixed to poles by providing proper clamps and same shall be paid under appropriate item of BOQ.

13.14 The scope of work in this tender covers external water supply to various building included in the tender and includes all works described in various items of Schedule 'A' particular specification and as shown on drawing.

13.15 The layout of various water supply equipments pipe lines, valves fittings/ accessories etc shown on various drawings attached with this tender are tentative. The exact layout shall be as directed by Engineer-in-Charge and approved by GE in writing to suit the site requirements. Contractor to ensure written approval before taking work in hand. No price adjustment, whatsoever, shall be admissible to the contractor on this account.

13.16 (a) Specifications of materials and workmanship in these external water supply service shall be as specified in SSR except where specifically mentioned in these documents. General rules, preambles to various section, rates, special conditions, methods of measurements etc. given in SSR shall apply to this contract unless otherwise specified in these documents.

(b) Particular specifications given here-in-after are brief and are only to particularize, amend or emphasize, the aforesaid specifications which are not repeated here. In case of any discrepancy between the two, specifications mentioned herein shall take precedence over SSR.

PARTICULAR SPECIFICATIONS (CONTD ../-)

- 13.17 (a) The tenderer shall be responsible for supplying, installing, laying, connecting, testing and commissioning of the items covered in the tender all as specified and directed by Engineer-in-Charge. The work shall be of high standard and executed as per sound engineering practice as per SSR/IS/ Manual on water supply and treatment of min of Wks and Housing.
- (b) During the currency of work and also on completion of work, testing shall be carried out for all items and installation as a whole as per SSR/IS/Manual on water supply and treatment of Min of Wks and Housing to the entire satisfaction of GE and a record shall be maintained duly signed by the Engineer-in-Charge and the contractor. For testing of pipe lines para 5.4.3 and Appendix 10 of Manual on water supply and treatment of Min of Wks and Housing shall strictly be followed.
- (c) IS-3114 and IS-2065 shall specifically be read and adopted strictly.
- (d) (i) Before laying the pipes, the detail map of the area showing pipe alignment, sluice valves ,scour valves, air valves and fire hydrants along with the existing intercepting sewers, telephone and electric cables and gas pipes will have to be studied. Care should be taken to avoid the existing sewer, telephone cables and gas pipes. The pipeline may be laid on the side of the street where the population is dense. All the pipes to be laid will be cleaned thoroughly before being lowered into trenches with the help of chain pulley block taking care to see that earth does not get into the pipe.
- (ii) **PROTECTION AGAINST POLLUTION NEAR SEWERS AND DRAINS**
Para 9.11.1 of the Manual of water supply and Treatment of the Min of Wks and housing shall be referred to and adopted.
- (e) (i) The contractor will be responsible for the arrangement of testing. All the equipment, testing material etc will be arranged by the contractor at no extra cost.
- (ii) The entire installation shall run continuously for 72 hours under normal operating conditions and contract engineer, fully familiar with the system and equipment, shall be available at the site during this period for proper rectifications of any defect.
- (f) (i) The tendered rates shall be deemed to include all connected works required for supplying, erecting, testing and commissioning of the entire equipment (s) fitting and items like foundation for equipments, supplying laying and connecting of water, various valve fittings, hydrants etc. Minor connected items of work for proper execution and functioning of equipment though not specifically mentioned in the tender are deemed to be included in the rates quoted.
- (ii) Unless otherwise specified civil engineering works, required for installation of the equipments such as grouting of panels and equipments, trench cutting and back filling in ground and in road crossings etc, shall be deemed as included. Wherever the pipe line crosses the existing path/road the contractor shall dig only half the width of path/road at a time. If required, necessary diversion shall be provided. Proper warning sign and red light shall be displayed and watchman posted to prevent accident at crossing and diversions. After the pipe are laid , tested & trenches refilled, the road/path disturbed shall be made good to conform to the original specifications. No extra payment shall be made to the contractor for the aforesaid incidentals. The contractor shall be deemed to have visited site of works and made himself familiar.

PARTICULAR SPECIFICATIONS (CONTD ../-)

- 13.18 The water supply work shall be carried out by skilled and licensed fitters/plumbers under the supervision of qualified supervisors/engineer. The contractor shall on demand by Engineer-in-Charge produce such evidence of qualifications of his workmen/supervisors/engineers at the time of commencement of work & at any time thereafter during the currency of work.
- 13.19 The items covered in this tender & incorporated in the work shall be capable of delivering satisfactory service/operation without detriment to its life under the climatic conditions of site
- 13.20 Before taking up any items of work of this tender in an area not belonging to Min of Def, the contractor shall give adequate notice to the local authorities through MES. He shall be responsible for making adequate arrangements for lighting, watching and guarding excavation which might be a source of danger to the public.

14.00 LIST OF DRAWINGS

14.1 The following drawings shall form part of the tender documents:-

Ser No	Description of Drawing	Drawing No	Sheet No	Date of Drawing	Date of revision if any
1.	TYPICAL DETAIL OF VALVE PIT	TD/2004/26	1/3	08.04.04	
2.	TYPICAL DETAIL OF VALVE PIT	TD/2004/26	2/3	08.04.04	
3.	TYPICAL DETAIL OF VALVE PIT	TD/2004/26	3/3	08.04.04	

14.2. TD drawings as mentioned in the list of drawings above are not enclosed with this tender documents. These TD drawings shall be referred in this office. The tenderers attention is drawn to the fact that whether they are in possession of TD drawing or not it shall be deemed that they are in the Knowledge of provisions covered in the TD drawings as applicable to the subject work. The rate quoted by the tenderer shall be deemed to be inclusive of provision contained in TD drawings as applicable to this work and No claim whatsoever shall be admitted at a later date".

15.0 PLASTERING**15.1 General**

- 15.1.1 Plaster (even if external wall face is pointed) and / or skirting / dado shall be returned in jambs, soffits of lintels and windows cills etc. Internal plaster shall be provided above skirting / dado level.
- 15.1.2 Where plaster on concrete surfaces is shown to match the adjacent wall surfaces, the mix of the plaster shall be the same as for the masonry surface.
- 15.1.3 All internal plastered surfaces shall be trowelled to even and smooth surfaces without using extra cement and external plastered surfaces shall be finished even and fair only.
- 15.1.4 All external plaster shall be carried out upto 15 cm below ground level.
- 15.1.5 Thickness of the cement plaster mentioned hereinafter shall be finished thickness exclusive of dubbing. Dubbing may however be done in one operation with plaster.

PARTICULAR SPECIFICATIONS (CONTD ../-)

15.1.6 All corners, angles, junctions and edges shall be truly vertical or horizontal as the case may be and shall be carefully finished. Corners around jambs of opening and junction of walls shall be rounded to minimum radius of 5 mm. Provide 150 mm wide galvanised iron chicken wire mesh of size 20 mm opening 22 SWG dia of wire fixed with nails at junction of RCC columns / walls / beams / lintels and brick masonry at external and internal faces before plastering. No groove shall be provided. The rate quoted shall be deemed to be inclusive of this provisions.

15.1.7 Particular attention of the contractor is invited to take note of local practices and local availability of materials like bricks, stone, form work etc for any extra quantity of mortar required for rendering smooth, extra dubbing required, touching up properly and achieving smooth and even surfaces. This shall be deemed to have been included in the lump sum or the item rate quoted for plasterwork, as applicable.

15.2 MATERIALS

15.2.1 **Cement:** Refer PS clause herein before.

15.2.2 **Sand** : Refer clause 14.5 of MES SSR Part I and conform to IS 1542.

16.0 SURFACE FINISH**16.3 PAINTING****16.4 Paints and Allied Materials Generally.**

All paints and allied materials shall be of quality not inferior to that required by the relevant IS specification and as specified in clause 17. 2. 1 to 17. 2. 3 of MES SSR part-I.

16.5 Storage of Paints: -

All containers of paints thinners and allied materials shall be stored after use of above materials and disposed off after verification by Engineer-in-Charge and as specified in clause 17. 2. 5 of MES SSR part I.

16.6 Painting Work

Painting work shall be carried out as specified in clause 17. 3. 1 to 17.3.12 of MES SSR part I.

16.7 **Brushing of Paints:** Brush application shall be carried out all as specified in clause 17. 5. 1 to 17. 5. 4 of MES SSR part I.

16.8 PAINTING STEEL AND IRON WORK

16.8.1 **Preparation of surfaces:** - Preparation of steel surfaces shall be carried out as per clause 17. 8. 1 to 17. 8. 1. 2 of MES SSR Part I.

16.8.2. **Primer coat:** - Immediately after the preparation of the surfaces shall be carried out as per clause 17. 8. 3 and of MES SSR Part I and as directed by GE.

16.8.3. **Filler coat:** - Filler coat shall be done as per clause 17.8.4 to 17.8.4.1 of MES SSR Part I.

16.8.4 **Under coating/finishing coat** :- Under coating and finishing coat shall be done as per clause No. 17. 8. 5 and 17. 8. 6 of SSR Part I and as directed by GE.

PARTICULAR SPECIFICATIONS (CONTD ../-)

16.8.5 **Tarring and painting with coal Tar Paint** : Tarring with the coal tar shall be carried out as per clause 17.12 to 17.12. 1 of MES SSR Part I.

Prepare surface and apply two coats of tar mixture for the following: -

(a) Mild steel (except reinforcement bars) surfaces in contact with or buried in earth/grid work/PCC block walling/plaster.

16.8.6 **PAINTING TO WOODEN WORK**

(b) All wood work shall be painted with tint of colour of paint as approved by GE as specified in clause 17. 6. 1 to 17. 6. 5 of MES SSR part I.

(c) Wire cloth, galvanized steel articles (sheet pipe etc) shall not be painted.

(d) Bottom of door shutters shall be given one coat of primer only.

(e) All woodwork required to be painted shall be smoothed, sized and knotted and then applied with priming coat. Stopping and filling (filler coat) shall be done after priming coat and surface rubbed down to a level of smooth surface and thereafter under coat and finishing coat applied, all as specified in clause 17. 6 of MES SSR Part I.

17. **REPAIR AND REPLACEMENT OF SPARE PARTS OF T&P ITEMS**

(a) Repair and replacement of accessories/spare parts shall be carried out as per specified in BOQ and shall be of the same make of the equipment or as approval by the GE.

(b) Testing shall be carried out to the entire satisfaction of Engr-in-Charge.

(c) The contractor will be responsible for the arrangement of testing. All the equipment, testing material etc will be arranged by the contractor at no extra cost.

18. **RECORD**

The Engr-in-Charge shall maintain the record of repairs to T&P items specified in BOQ

19.00 **DISMANTLING/DEMOLITION** In order to avoid accidents, the contractor shall follow MES safety code given in Annexure `B' of IAFW-2249 to the entire satisfaction of Engineer-in- Charge at the time of dismantling/demolition of items given in BOQ. The worthless dismantled/demolished materials not covered in schedule of credit shall be removed out side the MD land to the entire satisfaction of the Engineer-in-Charge at no extra cost to the Govt. The rate quoted by the contractor shall be deemed to include for the same. Existing fittings shall be dismantled and taken down carefully. Care shall be taken not to cause any damage to the adjacent fittings/portion etc while dismantling. Any damage caused by the contractor or his workmen shall be made good by the contractor at his own expenses to the satisfaction of the Engineer-in-Charge. Adequate precautions shall be taken by the contractor while carrying out the work to keep down dust and minimize nuisance to the occupant.

PARTICULAR SPECIFICATIONS (CONTD ../-)20. **PENALTY CLAUSE**

The work involves repairs to be carried at HL scattered in around 5-10 km radius. The repairs have to be done on atmost priority. Incase of delay in attending the complaints for more that 24 hrs for minor defect and Two day for major defect penalty of Rs. 150/- per complaint per Day or part there of will be levied.

Note :-

- (a) The decision of the GE as to the defect is minor or major shall be final and binding.
- (b) The penalty mentioned above shall be in addition to the provision made in condition 50 of IAFW-2249 General condition of contract.
- (c) In case of any dispute, the decision of accepting officer will be final and binding to the contractor

PARTICULAR SPECIFICATIONS (CONTD ../-)**PROBABLE SOURCES OF MATERIALS****Appx 'A'**

Ser No	Name of Materials	Name of Sources
(a)	Stone/Stone Aggregate/Crushed Coarse Aggregate for PCC	Sevaliya & Sankheda.
(b)	Fine aggregate/Sand for road, Plastering, concrete etc	Sevaliya & Sankheda.
(C)	Bricks	Locally Best Available with Embedded mark

NOTE : The Contractor may bring materials conforming to contract specifications from other sources without any adjustment in rate. If the contractor proposes to use materials from other sources it shall be approved in writing by the GE before incorporation in the work.

APPENDIX 'B'

LIST OF MATERIALS/ITEMS MANDATORILY BEARING BIS CERTIFICATION MARK AND AS PER BRAND APPROVED BY GE AFTER SATISFACTION ON QUALITY OF MATERIALS AND OTHER CHECKS

SI No	Name of the materials	Relevant IS
1	2	3
1.	Blank	
2.	CONCRETE	
	(a) Ordinary Portland Cement Grade-43	IS: 8112
	(b) Ordinary Portland Cement Grade-53	IS: 12269
	(c) Portland Pozzolana Cement	IS: 1489
	(d) Integral water proofing compound	IS: 2645
3.	STEEL AND IRON WORK	
	(a) Steel for general structural purpose grade Fe- 410 WA	IS: 2062
	(b) Low Tensile Structural Steel grade Fe-290	IS: 2062
	(c) Reinforcement Steel :Deformed bars(TMT bars)	IS: 1786
	(d) Galvanised Iron Sheet(Plain and Corrugated)	IS: 277
	(e) Galvanised Steel Barbed Wire	IS: 278
	(f) Hard drawn steel wire fabric for reinforcement	IS: 1566
	(g) Galvanised Steel Wire Chain Link Fences	IS: 2721
	(h) Metal Rolling Shutters/Rolling Grills	IS: 6248
	(j) Steel doors, windows, ventilators	IS:1038
4.	Blank	
5.	PAINTING WORK	
	(a) Linseed oil, raw and refined	IS: 75
	(b) French Polish	IS:348
6.	WATER SUPPLY, PLUMBING DRAINS AND SANITARY APPLIANCES	
	(c) Centrifugally cast (Spun) iron spigot and socket soil, waste and ventilating pipes and fittings	IS:3989
	(d) Sand cast iron spigot and socket soil waste and ventilating pipes and fittings.	IS: 1729
	(e) PVC soil, waste and rain water pipes	IS: 4895
	(f) Mild Steel tubes, tubulars	IS:1239(Part-I)
	(g) Mild steel tubulars and other wrought steel pipe fittings	IS:1239(Part-II)
	(h) GI fittings for GI pipes	IS:1626(Part-II)
	(l) Cast copper alloy screw down Bib taps and stop valves for water services of 15 mm and 20 mm bore size	IS: 781
	(m) self closing taps	IS:1711
	(p) Cast iron manhole covers and frames	IS:1726 (Part-I to VII)
	(r) Cast iron fancy bib taps and stop valves	IS: 5931
	Rubber sealing ring for gas mains, water mains and sewers	IS:5981

PARTICULAR SPECIFICATIONS (CONTD../-)**Appx 'C'****APPROVED LIST OF MAKES/MANUFACTURERS FOR THE ITEMS TO BE INCORPORATED IN THE WORK**

The make of various items of materials are as under. Wherever makes are given under respective item of BOQ the same shall supersede the makes given below. The contractor shall ensure that the items of these makes only are incorporated in the works. Make of items applicable only considered and balance shall be treated as cancelled.

SER NO	MATERIAL	NAME OF MANUFACTURERS/BRAND NAME
1.	(A) CEMENT (OPC and PPC)	M/s shree Digvijay Cement Co Ltd, Ahmedabad
		M/s Cement Corporation of India Ltd, Andra Pradesh
		M/s Sanghi Industries Ltd, Ahmedabad
		M/s Cement Manufacturing Co Ltd, Guwhati
		M/s Ultra Tech Cement Ltd, Mumbai
		M/s OCL India Ltd, Orissa
		M/s Dalmia Cement (Bharat), Tamil Nadu
		M/s Chettinad Cement Co Ltd, Tamil Nadu
		M/s Heidelberg Cement India Ltd, Haryana
		My Home Industries Ltd, Hyderabad
		M/s Parasakti Cements Ltd, Hyderabad
		M/s Zuah Cement Ltd, Chennai
		M/s Toshali Cement Pvt Ltd, Hyderabad
		M/s Saifco Cement Ltd, Srinagar
		M/s Prism Cement Ltd, Lucknow
		M/s Shree Guru Kripa Cement (Pvt) Ltd, Jammu
		M/s Barak Valley Cements Ltd, Assam
		M/s Dhruv Industrial Co Ltd, Kanpur
		M/s Madras Cement, Chennai
		Saurashtra Cement, Mumbai
		Lafarge Cement, Mumbai
		The Associated Cement co Lte, New Dekhi
		Grasim Industries Ltd, MP
		The India Cement, Chennai
		Andhra Cement Ltd, AP
		Century Cement, Mumbai
		Binari Cement Ltd, Mumbai
		Mangalam Cement Ltd, Rajasthan
		Birla Corporation Ltd, Kolkata
		Orient Cement, Hyderabad
		Shree Cement, Rajasthan
		JK Cement
		JK Lakshmi Cement Ltd, Rajasthan
		JaipeeRewa Cement
		Ambuja cement Ltd, Gujarat

PARTICULAR SPECIFICATIONS (CONTD ../-)

Appx 'B'

SER NO	MATERIAL	NAME OF MANUFACTURERS/BRAND NAME
		Steel Authority of India Ltd (SAIL), Delhi
2.	Main/Primary producers of Steel	Tata Iron & steel Co. (TISCO or TATA steel), MUmbari
		RashtriyaIspat Nigam Ltd (RINL), Visakhapatnam
		M/S SRMB SrijanLtd, Kolkata.
		M/S Jindal Steels & Power Ltd, Haryana.
		M/S Steel Exchange India Ltd, Hyderabad.
		M/S Jai Balaji Industries Ltd, Delhi.
		M/S SPS Steel Rolling Mills Ltd, Kolkata
		M/S Shyam steel industries Ltd, Kolkata
		M/S Concast steel & Power Ltd, Kolkata
		M/S AdhunikMetaliks Ltd, Orissa
		M/S Bajrang Power &Ispat Ltd, Raipur, Chhatisgarh
		M/S JSW steel Ltd, Mumbai
		M/S Electosteel steels Ltd, Kolkata
		M/s ShyamMetalics& Energy Ltd, Kolkata
3.	Secondary producers for steel	M/s KL Steel Pvt Ltd Post Box NO. 61, LalKuan, Bulandshahar Road, Gaziabad (UP) Tel No. 0120-2867911, 2867915 FAX: 0120-2867917
		M/s ShriBadrinarain Alloys & Steel Ltd 95, Stephen House, 4, B B D Bag, Kolkata-700 001 Tele 033-2220-5381/2248, 1601, FAX 033-2248-8664
		M/s Pushpak Steel Industries Pvt Ltd Gate No. 119, AlandiMarkal Road, Dhanore, TahKhed Pune Tele Fax 020-26444700/070
		M/s Amba Shakti Ispat Ltd. Plot No. 6, Phase II Industrial Area, Kala Amb, Dist - Sirmour(HP)-173 030 Tele 01734-309983, 309986 FAX-01702-238927
		M/s SRMB Udyog Ltd 46, BB GanguliStreet,Kolkata - 700 012 Tele : 2236 9999
		M/s ShreeParushNath, Re-rolling Mills Ltd 4C, MaharshiDevendre Road, 3 rd Flor, Kolkata-700007 Ph 033-2274 0045/4475 FAX 033-2274 0039
		M/s Tata steel structures, Tata Steel - Tube Division, Jeevan Tara Building, 1 st Floor, 5, Sansad Marg, New Delhi-110001 Tele 991112334, 264601734, 309983
		M/s KL ConcastPvt Ltd. Z-18 Naraina, New Delhi
		M/s Karan Steel Corporation, Nasrali Road, PO No. 56 MandiGobindgarh - 147 301
		M/s. Sharma Steel Industries Ltd. 115 College Street White towers, 1 st Floor, Calcutta-700 012
		M/s. KashiVishwanath Steel Ltd. Narain Nagar, BazpurRoadmKashipur, Distt-US Nagar Urraranchal-13
		M/s Sharma Steel Rolling Mills Pvt Ltd.,127 Industrial Area, Jothwara,Jaipur-302012 Tele 0141-2362936 Mob 09829012753

PARTICULAR SPECIFICATIONS (CONTD ../-)

Appx 'B'

SER NO	MATERIAL	NAME OF MANUFACTURERS/BRAND NAME
4.	SYNTHETIC ENAMEL PAINT / FIRE RESISTANT PAINT (FIRST GRADE ONLY)	(1) BERGER PAINTS (2) JOHNSON AND NICHOLSON INDIA LTD (BROLAC) (3) SHALIMAR PAINTS (SUPERLAC) (4) ASIAN PAINTS LIMITED (APCOLITE) (5) LUXOL (BERGER) (6) GOODLASS NEROLAC (NEROLAC) (7) APCOLITE (ASIAN)
5	GALVANISED IRON STEEL TUBING & FITTINGS	(1) TATA (2) PRAKASH SURYA (3) ADVANCE STEEL TUBES (4) SWASTIK (5) JINDAL (6)BST (7) LISCO
6	CENTIFUGALLY CAST CI PIPES (IS-3989) FOR SOIL WASTE PIPES & FITTING (SPUN PIPE)	(1) JAYASWAL NECO LTD NAGPUR (2) JINDAL (3) TATA (4) KESORAM
7	CI PIPE CENTRIFUGALLYCAST (SPUN) AS PER IS-1536	(I) KEJRIWAL (II) ELECTROSTEEL (III) KESORAM (IV) JINDAL (V) KAPILANSH DHATU UDYOG
8	CI PIPES & CI FITTINGS/SPECIALS	(1) ELECTRO STEEL CASTING (2) KESORAM (BIRLA GROUP) (3) TISCO (4) KESOSPUN (5) JAISWAL NECO (6) KEJRIWAL (7) LISCO (8) KAPILANSH DHATU UDYOG
9	SLUICE VALVE/ FOOT VALVE/ REFLUX VALVE /NON RETURN VALVE/ AIR RELEASE VALVE/GATE VALVE/GLOBE VALVE/BALL VALVE & BUTTERFLY VALVE	(1) KIRLOSKAR (2) L & T (3) LEADER ISI (4) KEJRIWAL (5) VENUS (6) KSB (7) UPADHYAYA (8) AUDCO (9) ZOLOTO (10) JINDAL (11) SAM (12) KARTAR
10	GREEN HOSE PIPE	DUPTRON OR EQUIVALENT
11	BALL VALVES (WATER DUTY)	(1) CIMM (2) ARCO (3) RB
12	PRESSURE GAUGE	AIRMASTER/FIVIG/HGURU
13	CENTRIFUGAL PUMPS SETS	(I) KIRLOSKAR (II) ALSTOM (III) CROMPTON (IV) BEACON (V) MATHER & PLATT <u>NOTE</u> : MOTOR SHOULD BE OF SAME MAKE.
14	MOTORS FOR PUMP SETS	(I) KIRLOSKAR (II) CROMPTON (III) ABB (IV) BHARAT BIJLEE
15	NONCLOGSEWAGE SUBMERSIBLE PUMP	KSB, KIRLOSKAR, MATER & PLATT
16	PP-R PIPE AND FITTINGS	PHOENIX, RELIANCE, SWASTIK, KPT (Surat) & SFMC
17	DI PIPES DI FITTINGS	(1) ELECTRO STEEL CASTING (2) LANCO (3) TATA METALICS (4) JAI BALAJI INDUSTRIES LTD KOLKATA (5) KAPILANSH DHATU UDYOG (6) JINDAL SAW PIPES (7) ELECTRO steel casting Ltd.
18	HDPE PIPES	(1) RELIANCE (2) PRINCE (3) SUPREME (4) DURTON (5) DUPLON (RELIANCE) (6) FINOLEX (7) DIPLAST (8) NEEL KAMAL (9) TIRUPATI
19	BALL BEARINGS	(1) TATA TIMKEN (2) ARCO (3) RB (4) SKF (5) FAG
20	CENTRIFUGAL PUMP PARTS LIKE IMPELLAR, SHAFT, COUPLING, GLANE CALLER, NECK RING ETC.	FAB, KSB, JYOTI, KIRLOSKAR,
21	FLOAT VALVE	(1) LEADER (2) BOMBAY METAL (3) BOMBAY SUPER FLOW (4) PRMA (5) PERRY WARE (6) HINDWARE (7) CERA (8) COMMANDER
22	PVC RAIN WATER PIPE / SEWAGE PIPES	(1) RELIANCE (2) FINOLEX (3) SUPREME (4) PRINCE (5) ASTRAL
23	HDPE TANKS (IS MARKED)	(1) POLY CON (2) ROTAX (3) SINTEX (4) ROTOMATIC CONTAINER PVT LTD (STORE WELL) (5) NASIK (6) AQUAPLAST INDUSTRIAL PVT LTD
24	Parts of Chloronome plant	AQUA / BANCO / ION EXCHANGE / Declibac make as approved by E-in-C
25	Voltmeter	Similar to Cat no. WDS301FEV00 of Make L&T or equivalent in Havell's, Wipro, Legrand, CG
26	Motor starter fully automatic star delta	L&T, ABB, Havells.
27	Three phase line protector	CAT No. ST419370000 for 25 Make: Sinetrac / L&T / or its equivalent.

Note:

1. In case there are less than 3 makes in the approved list for any material/item/product then only generic description/specification of the material/item/product as specified in tender and relevant codal provision shall be followed.

2. Any other make approved by the E-in-C's Branch and/or CE SC Pune or other command (subject to submission of approval letter with validity period) upto end date of submission of the bid shall also be deemed included in above list.

(Signature of Contractor)

AGE (Contracts)
For Accepting Officer