



No. JVM/OT-12 /2022-23

Date: 12-04-2023

**INVITATION TO TENDER**

Principal, JVM invites tender for the subject given below. Salient feature are given in the table and detail of scope of work and tender conditions are given in the 'invitation to tender' dated 12-04-2023 enclosed herewith (Total pages 30)

Sub: Proposal for design engineering , supply , fabrication , erection , construction, laying, testing ,& performance guarantee test of fire water system of fire hydrant facilities including pumping system at JVM Shyamali, Ranchi-834002

**Salient Features of the Invitation to Tender:**

1	Tender Enquiry No. & Date	No. JVM/OT-12 /2022-23 Date: 12-04-2023
2	Project Description	Tender for Proposal for design engineering ,supply , fabrication , erection , construction, laying, testing ,& performance guarantee test of fire water system of fire hydrant facilities including pumping system at JVM Shyamali, Ranchi-834002 .Drg.no. MEC/11/p3x/u999/DE/01 Drg no MEC/11/40/9107/FS.PD/ 01
3	Date of floating of on-line Tender	12-04-2023
4	Last date & time of submission of tender document	27-04-2023 by 01.00 PM
5	Date & Time of Opening of Tender	On 27-04-2023 at 04.00 PM .
6	Validity of tender	03(three) months from the date of opening of Techno-Commercial part of the tender document.
7	Project Completion Time	03 (three) months from the date of issue of work order.
8	Earnest Money Deposit	Rs. 50000/- (Fifty Thousand only)
9	Cost of the tender document	Rs. 2000/- (Two thousand only)

*Samarjit Jana*  
12/04/2023  
(SAMARJIT JANA)  
PRINCIPAL

**Samarjit Jana**  
Principal  
Jawahar Vidya Mandir  
Shyamali, Ranchi-2.  
Aff. No.- 3430004 (66230)

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Dated: 12.04.2023

**INVITATION TO TENDER**

**Sub:** Tender for design engineering ,supply , fabrication , erection , construction, laying, testing ,& performance guarantee test of fire water system of fire hydrant facilities including pumping system at JVM Shyamali, Ranchi-834002

Sealed tenders are invited for award of design engineering ,supply , fabrication , erection , construction, laying, testing ,& performance guarantee test of fire water system of fire hydrant facilities including pumping system at JVM Shyamali, Ranchi-834002, as per the Technical Specification attached as Annexure - I from experienced and eligible firms who have executed similar nature of work as per eligibility criteria and satisfying all the terms and conditions in this tender document.

**1.0 Instructions to Tenderer:**

1.1 Tenderers are advised to go through the entire documents completely before quoting for the tender.

1.2 Tenders are invited in a two bid system comprising of Part A- Techno-commercial Bid &Part B - Price Bid.

The 'Techno- commercial Bid' will be made and put in the first envelope containing the title '**Techno-Commercial Bid**'. This shall include full information as required in Techno Commercial Bid Declaration by the Bidder as per Annexure-I.

The 'Price Bid' will be made and put in the second envelope containing the title '**Price Bid**'. It shall include full information as required in price schedule format-Annexure I.

Both the bids shall be put in the third envelope which should be prominently super-scribed as "design engineering ,supply , fabrication , erection , construction, laying, testing ,& performance guarantee test of fire water system of fire hydrant facilities including pumping system at JVM Shyamali, Ranchi-834002," and shall be submitted on or before **27.04.2023** till **1.00 PM**.

The scheduled time for opening of tenders shall be 4.00 PM IST on 27-04-2023.

1.3Tenders received after due date and time mentioned above, as well as those received without separate sealed envelopes as specified above will not be accepted.

1.4 Incomplete tender in any respect or conditional tender will not be accepted.

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## 2.0 Eligibility Criteria

Part a techno-Commercial bid

### 2.1 TECHNICAL

Technical Eligibility Criteria for the above work shall be as follows:

The Bidder, as sole bidder, should have experience of having executed / completed similar works (as defined below) of the following magnitude during last 7 years ending on last day of the preceding month in which this tender is floated.

1. At least one completed similar work (as defined below) having value not less than **INR 13 Lakh**

OR

2. At least two completed similar works (as defined below) having value not less than **INR 10 Lakh** each

OR

3. At least three completed similar works (as defined below) having value not less than **INR 9 Lakh** each

In case bidder has executed work of larger value in a longer duration, portion of work executed during qualifying period of last seven years shall be considered. In case the work is in progress, value of work executed during the qualifying period shall be considered.

#### Definition of Similar work

Supply, Fabrication, Erection and installation of the complete plumbing /, electrical work in any industrial/commercial/residential project, item rate in single work Order.

### 2.2 Documents to be submitted:

The bidder shall submit self-attested copy of the following document issued by client:

1. Letter of award / Work Order.
2. Completion/execution certificate indicating cost of work & scope of work (as mentioned in similar works) executed during the qualifying period.
3. In case of reference of an on- going work or work of longer duration, copy of certified and paid last RA bill/ final bill shall be furnished with proof of certification /passing and payment by the client

### 2.3 Financial Eligibility Criteria

2.3.1 The average annual financial turnover of the Bidder during last (3) three consecutive financial years ending 31st March 2022 shall not be less than Rs 25 lakh.

2.3.2 Copy of Audited Annual Financial Reports for last 3 (three) consecutive financial years ending 31<sup>st</sup> March 2022 (Balance Sheet and Profit & Loss Account).

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2.3.3 Chartered Accountant's certificate with UDIN no., in Original, may be submitted to substantiate the above financial eligibility.

Chartered Accountant's certificate with UDIN no., in Original to be submitted by the bidder indicating the value of Existing commitments as on 31.03.2023 including on-going pending works i.e balance work to be done as on 31.03.2023 as well as the stipulated period of completion remaining for each of the works as per work order and in case of extension provided the extended completion date also.

The documents furnished by Bidders for establishing their financial eligibility should clearly indicate the details of the Membership No., Firm No. of the Chartered Accountant.

## 2.4 Commercial:

The bidder shall submit self-attested copies of the following:

1. Cover letter of Tender detailing list of contents in the bid document being submitted by the Bidder.
2. Un-priced Price schedule as per format enclosed with tender document indicating 'quoted' in price column.
3. Signed & Stamped copy of terms and conditions of the contract
4. Copy of GST Registration Certificate with valid GST registration no. and PAN details
5. Bidder must be registered in PF and ESIC, and also to submit proof of remittance proceedings last financial year.

## 2.5 Earnest Money Deposit:

All the tenders shall be accompanied by EMD (Earnest money deposit) of Rs. 50,000/- (Rs Fifty thousand only) payable to 'Jawahar Vidya Mandir, Shyamali Ranchi' in the form of demand draft.

Tenders received without EMD are liable to be rejected. EMD shall be refunded to successful bidder after execution of order and to unsuccessful bidder after finalization of work order.

## 2.6 Cost of the Tender:

The Bidder shall submit a non-refundable cost of the tender- Rs.2000/- (Two thousand only) in the form of a Demand draft drawn on any Nationalized/ Schedule Bank in favour of 'Jawahar Vidya Mandir, Shyamali Ranchi'.

PART B: Price Part

## 2.7 Price Schedule:



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- Bidder shall submit their Price bid strictly as per the Price Schedule Format- Annexure I provided along-with this bid document. Price submitted by Bidder in any other format shall render their offer invalid and shall not be considered for evaluation.
- There shall be no change or addition/ deletion except for filling-up of the actual price/ rate in the Price part submitted in Part - B
- Price part shall contain rate and cost against all items of BOQ and total cost indicating incidence of tax (rates), if any, as per enclosed price format without any terms & conditions.
- Any change in Price Schedule format shall be notified through corrigendum/addendum and the same shall be considered for submission of price bid. In case Bidders have already submitted their bid before publishing of corrigendum/addendum related to change in price schedule format, the bidders are requested to re-submit price bid as per the changed Price Schedule format. Failure to re-submit the bid in such case may lead to auto rejection of the bid by the system.
- Bidder must quote against all the items in Price Schedule enclosed with this tender. Part quotation (Part Order) is not acceptable for this package.

The bidder shall quote increment/ decrement percentage (%) on the declared estimated total basic price given in the Price Schedule of the tender. The increment/ decrement percentage (%) indicated above shall be equally applicable on all the items of Price Schedule. In case bidders indicate "No Change", price against all the individual items as indicated in the Price Schedule shall remain unaltered

- In case of Tie among lowest bidders, the L-1 bidder shall be decided through lottery among all the bidders whose quoted price is lowest. Decision of tendering authority shall be final & binding to all parties

**IF A FIRM FILING TENDER DOES NOT FULFILL ALL OR ANY OF THE ABOVE ELIGIBILITY CRITERIA MENTIONED ABOVE, THE TENDER OF THE FIRM WILL NOT BE CONSIDERED.**

The Tenderer shall quote for the items indicated above on for JVM, Shyamali, Ranchi basis. The quoted price shall be firm and binding and shall not be subject to any variation whatsoever on any account till completion of supply. All applicable taxes & duties shall be indicated separately. (Un-priced copy of Price Bid indicating "quoted" against each item should be submitted along with Techno-commercial bid).

- 3.0 TAXES & DUTIES:** Except as otherwise specifically provided in the order, the Tenderer shall bear and pay all taxes, duties, levies as charges for the subject work.

**VALIDITY OF RATES:** The rate quoted by the Tenderer shall remain valid for a period of 3 (three) months from the date of opening of quotation.

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**4.0 VALIDITY OF RATES:** The rate quoted by the Tenderer shall remain valid for a period of 3 (three) months from the date of opening of quotation.

**5.0 TIME SCHEDULE:**

**5.1** The successful Tenderer shall be required to complete the job within 3 (three) months from the date of receipt of order.

**5.2** In the event the supplied material is not conforming to the ordering specification and approved make/brand, the material so supplied will be rejected without paying any price/ compensation. The decision of JVM in this regard will be final.

**6.0 PAYMENT TERMS( as per SCC):**

**6.1** The payment shall be released as R.A Bill against submission of bill with measurement basis Certified by Supervisor / Engineer in-charge of JVM Shyamali.

**7.0 INSPECTION:**

The inspection of materials shall be carried out by JVM after receipt of materials at construction site.

**8.0 LIQUIDATED DAMAGES:**

Time and date stipulated in the Contract for completion of delivery shall be deemed to be the important activity of the Contract. If, however, the Tenderer fails to fulfill the completion within the time schedule, or within such extended time schedule as may be further granted, the Tenderer shall be liable to pay as Liquidated Damages (LD) and by way of penalty a sum of 0.5% of the contract price per week of delay or part thereof, and such liquidated damages shall be limited to a maximum ceiling of 5% of the Contract Price

**9.0 ACCEPTANCE OF ORDER:**

JVM is not bound to accept lowest or any tender or to assign reasons whatsoever for non-acceptance. JVM also reserves the right to cancel the tender without assigning any reason whatsoever.

**10.0 EVALUATION OF TENDER:**

Tenderer should quote for all the items as per enclosed price bid format (Annexure-I). Part offer or incomplete offer shall be liable to be rejected. Price of the techno-commercially eligible tenderer shall be evaluated on overall basis.

**11.0 NO CLAIM OR COMPENSATION FOR SUBMISSION OF TENDER:**

The Tenderer whose Tender is not accepted shall not be entitled to claim any costs, charges, expenses of and incidental to or incurred by him through or in connection with his submission of Tender, even though JVM may elect to withdraw the Invitation of Tender

*Signature*  
12/04  
2023

*Signature*



**जवाहर विद्या मंदिर, श्यामली, राँची ८३४००२****14.0 TRANSIT INSURANCE:**

Tenderer shall arrange transit insurance on his own and at his own cost for transportation of equipment to JVM, Ranchi.

**12.0 NEGLIGENCE, DEFAULT AND RISK PURCHASE:**

If the Tenderer fails to execute the work with due diligence or expedition or shall refuse or neglect to comply with any order given to him in writing by JVM in Contract, JVM may give notice in writing to the Tenderer calling upon him to make good the failure, neglect or contravention within such time as may be deemed reasonable and in default of the compliance with the said notice, JVM without prejudice to its rights under the Contract, may rescind or cancel the Contract holding the Tenderer liable for the damages that JVM may sustain in this regard.

**13.0 SUSPENSION AND TERMINATION**

13.1 JVM may at any time temporarily stop the work under the Contract or any part thereof by serving notice in writing to the Tenderer. Work so suspended shall be resumed by the Tenderer on receipt of instructions from JVM in writing. JVM will not be liable to the Tenderer for any damage or loss caused by such period of suspension of work.

14.2 JVM will be at liberty to terminate the Contract without prejudicing its right and affecting the obligations of the Tenderer by giving 15 days' notice in writing in the following events:

- a) If the Tenderer fails to comply with the provision/provisions of the Contract.
- b) If the Tenderer is involved in any action involving moral turpitude.

**15.0 ARBITRATION:**

15.1 Any disputes, differences, whatsoever, arising between the parties, the arbitration shall be governed and regulated in all respect according to Laws of India.

15.2 The Arbitration proceedings in case of other Indian companies shall be regulated and governed by Indian Arbitration and Conciliation Act 1996, or such modification thereof.

15.3 The venue of arbitration proceeding shall be Ranchi.

15.4 Work under this Order shall be continued by the Tenderer during the arbitration proceedings, unless otherwise directed in writing by PURCHASER or unless matter is such that the work cannot possibly be continued until the decision of the arbitrator is obtained.

The tenderers are requested to confirm acceptance of all terms & conditions as per tender enquiry.

(SAMARJIT JANA)  
PRINCIPAL

**Samarjit Jana**  
Principal  
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## 01.0 WATER SYSTEM FACILITIES

### 01.01 GENERAL

Fire fighting water system has been considered to meet the water requirement as per the Fire Safety Department of the Government of Jharkhand, to get the school Jawahar Vidya Mandir equipped with the fire safety norms. Down comer fire hydrant system has been considered as per NBC.

### 01.02 DESCRIPTION OF WORK

To cater to the needs of Down comer fire-fighting system for the Jawahar Vidya Mandir

01.02.01 The school building having 3 story building (Ground floor +2 floor) and one Multipurpose hall (Ground floor +1 floor). Following facilities have been envisaged for fire prevention, life safety in relation to fire and fire protection of the school buildings. There is a requirement of fire safety at each landing floors of six nos of staircase and in the multi-purpose hall of School building.

- Installation of 21000 liters overhead PVC water tank.
- Provision of two terrace pumps (1 working+ 1 standby) of capacity 450 litres/ minute & 3.5Kg/cm<sup>2</sup>).
- Installation of Hose reel with isolation valve and 20mm hose & 30m length with nozzle

01.02.02 Installation of 3 nos of PVC water Tank each having capacity of 7000ltrs for firefighting purpose on terrace of each building of JVM, Admin Block, Secondary Block and Primary Block. These water tanks will be placed in the space available near the existing drinking water tank on terrace. PVC Tank should be placed in such a way so that it is stable and its loads are equally distributed on the roof.

01.02.03 These terrace tanks will be provided supply pipeline, drain & overflow pipeline. Filling line shall be connected with existing supply pipe at

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terrace level with water filling arrangement and replenishment so that a satisfactory supply of water for firefighting shall always available.

- 01.02.04 These terrace tanks will be inter connected with isolation valve.
- 01.02.05 An electrical driven terrace pump motor capacity 450ltrs/min @3.5Kg/cm<sup>2</sup> (1 working + 1 standby) located on the terrace connected to common header of terrace tank with gate valve on suction side and isolation valve, non return valve on the delivery side.
- 01.02.06 The starting of terrace pump should be automatic with pressure switch incorporated in down-comer side so that with opening of any hydrant valve, or hose reel on any floor, it will start automatically with fall in line pressure. In addition there should be manual push button starter in the starter control panel to be located in the ground floor of building. Stopping of pump should be by a push button located in the same starter control. Both the push button shall be prominently indicated and should be in different color for identification.
- 01.02.07 Two pump (one working and one standby) shall be installed to feed down-comer mains, one of which should act as a stand-by, each pump should have different source of power and so arranged that when acting as a duty pump, it will operate automatically when one or more hose reel is opened thus causing a drop in pressure. The standby pump should be arranged to operate automatically in case of failure of the duty pump. There should be an interlocking arrangement between two main pumps so that only one should come into operation at a time.
- 01.02.08 A hose reel conforming to IS 884 : 1985 and directly tapped from the down-comer pipe should also be provided on each floor/landing.
- 01.02.09 An arrangement of fire fighting within the building by means of down-comer mains of not less than 100mm internal dia, connected to terrace tank, through terrace pump, gate valve and non-return valve landing of each staircase of each building.  
It is also fitted with inlet connections at ground level for being capable of charged with water by pumping from fire service appliances and air release valve at roof level to release trapped air inside

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- 01.02.010 In addition to down-comer, first-aid hose reels shall be installed in buildings on all the floors, in accordance with accepted standard. The first-aid hose reel shall be connected directly to the down-comer main and diameter of the hose reel shall not be less than 20 mm.
- 01.02.011 Arrangements for draining a down-comer main should be incorporated to enable any necessary repairs to be carried out
- 01.02.012 To allow any trapped air in the rising main to escape when water is pressurized into system, air release valve should be incorporated above the highest outlet of mains.
- 01.02.013 A 2/3 way collecting head with valves fitted to the down-comer main, so that in case of need, fire service can directly pressurize the system with their pump.

## 01.03 SCOPE OF WORK

The scope of work shall include design engineering, supply, erection / construction / laying, commissioning, testing & performance guarantee tests etc of Fire water system & equipment and piping etc of complete fire hydrant facilities including pumping system, minor civil & structural works,

electrics, instrumentation, automation, etc as specified and detail drawings and required for the complete fire water systems as specified.

**Fire Water system shall in generally comprise of the following:-**

- I) Design & engineering for Down comer Firefighting terrace pumping system.
- II) Supply & erection of pumping system.
- III) Supply & erection of pipe, valves, Pump, Hose reel for Down comer Fire Fighting system and other equipments as per engineering.
- IV) Supply & erection of PVC water tank along with isolation valve, over flow, drain valve and float valve.
- V) Electrics and instrumentation for Fire water system.
- VI) Supply of valve along with companion flanges and fasteners.
- VII) Supply of pipeline supports, R.C.C. pedestals etc.pipelines as per engineering

*Dr. Singh*

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*12/04/2023*



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- VIII) Supply of all technical literature, drawings & documents, general arrangement drawings, assembly & sub assembly drawings of all the equipment, construction & erection & as-built drawings, operation & maintenance manuals, manufacturing drawings, etc.
- IX) Supply of erection, testing & commissioning of equipments and materials.
- X) Supply of all Indian equipments as per the list of preferred make as per MECON.
- XI) Fire Water supply system shall be complete in all respects and any equipment or material not specifically mentioned in this specification, but required for safe, efficient & smooth operation and guaranteed performance of the plant shall be included under the scope of work of the Contractor.
- XII) Supply, erection, testing & commissioning of 2 Nos motors along with Starter Panels and associated electrics including incoming cables (FRLSH) of suitable rating having route length 250 mtrs for each motor.

Only 2 nos power feeder shall be provided to the bidder , any starting, protection, interlocking as envisaged in the TS shall be provided by the bidder.

Earthing of all Electrical equipments shall also be in the Scope of bidder.

## 01.04 DESIGN CRITERIA

### 01.04.01 Vertical Inline/ Centrifugal Terrace Pump

Vertical inline pump shall be provided. MOC shall be of SS internal

Electric driven Terrace pumps (one working + one standby) of capacity 450ltrs/min and pressure 3.5Kg/cm<sup>2</sup> suitable for automatic operation and consisting of following, complete in all respects, shall be provided

- a) Horizontal type, multistage, centrifugal, split casing pump of cast iron body & bronze impeller with stainless steel shaft, mechanical confirming to IS : 1520
- b) Suitable HP squirrel cage induction motor TEFC type suitable for operation on 415 volts, 3 phase, 50 Hz, AC supply with IP55 class of protection for enclosure, horizontal foot mounted type with Class-'F' insulation, conforming to IS-325.

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12/04/2023

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- c) etc.as required.
- d) Suitable cement concrete foundation duly plastered and with anti vibration pads.

## 01.04.02 VALVES

- 1) Cast steel Valves shall be provided. MOC of CS Gate/Ball / NRV shall be as follows:  
Body - CS to ASTM A216 Gr. WCB Disc - CS  
-13% Cr. Steel  
Stem - SS (Not applicable for NRV) For MOC  
of other part refer GTS.
- 2) Valves shall be suitable for service conditions in all respects and located suitably for ease of operation and maintenance.

## 01.04.03 PIPES, FITTINGS & PIPE SUPPORTS

- 1) The pipe work shall be designed, manufactured, assembled and tested as per the latest standards, codes and recommendations of the Bureau of Indian Standards/ ANSI/ ASTM/ AWWA any international standards. Pipe work shall be complete in all respects including all accessories essential for proper installation, operation and maintenance, even though such items are not specifically mentioned in the specification.
- 2) Piping system shall be designed with high degree of reliability so that the systems perform the duty of fluid handling without any failure under all conditions of plant operation
- 3) The Bidder shall supply all the pipes, fittings, pipe supports, flanges, gaskets etc.
- 4) Mild steel/ Carbon steel pipelines shall be used in general for water supply facilities. Material of pipes selected shall be indicated by the Tenderer in the offer and the same will be subject to Purchaser's/ Consultant's approval

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5) The thickness & specification of pipeline shall be as per TS

## PIPE SPECIFICATION

Carbon Steel Pipes DN 25 to DN150

1. End condition : Bevel Ends  
: As per IS: 1387 / IS 1239 - 1990
2. Material (Part- I)
3. Thickness : Medium class

## 01.04.04 FIRE HOSE REEL

General specification of Hose Reels to be provided by the Tenderer is given below. However, the quantities of all the items will be provided by the Tenderer as per requirement and approval of Purchaser/Consultant without any price implication.

Sl. No.	IS no.	Description	Quantity
A.	FIRE HOSE REEL		
a)	IS 884	Hose reel Supplying and fixing first-aid Hose Reel with MS construction spray painted in post office red, conforming to IS 884 complete with the following as required. 20 mm nominal internal dia water hose 30m thermoplastic (Textile reinforced) type -2 as per IS: 12585 20 mm nominal internal dia gun metal globe valve & nozzle.	

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## 01.04.05 Low Voltage Induction motors:

Sl. No.	Parameters	Description
1.0	Standard	IS 325 / IEC 34 & IEC 72
2.0	Constructional Features	
(i)	Frame size & rating	As per IS 325
(ii)	Motor body	Grey iron casting as per IS:210-1978
(iii)	Motor Feet	Integrally cast with the stator
(iv)	Body Design	<ul style="list-style-type: none"><li>- Motors shall be of weather proof construction.</li><li>- Designed to operate in the humid air stream</li><li>- Drain plugs to be provided.</li></ul>
(v)	Protection for Motor & Bearing	IP-55 (with canopy for motor if installed outdoor)
(vi)	Shaft ends & Extension	Cylindrical as per requirement Proper drilling and tapping shall be provided for mounting of tachos for speed feedback (if required ) Crane motor in 225 and above frame sizes shall have tapered shaft (1:10) ( New point)
(vii)	Bearings	<ul style="list-style-type: none"><li>-For motor of rating upto 5 kW, ball bearings shall be used for both DE &amp; NDE end.</li><li>-For ratings above 5 kW the DE end shall be provided with roller bearing and NDE end shall be provided with ball bearing.</li><li>-Bearings for motors shall be of C3 clearance .</li><li>-Bearings shall be suitable for running of motor in either direction.</li></ul>
(viii)	Hazardous Area safety design	As per requirement
(ix)	Canopy	To be provided for all outdoor motors .
(x)	Greasing point	At DE & NDE sides .
(xi)	Paint shade	Light grey shade 631 as per IS:5 or RAL 7030 (grey).
(xii)	Direction of Rotation	For crane and mill duty motors : reversible general purpose For continuous duty motor: Bidirectional (New point)

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SHYAMALI, RANCHI - 834002

AFF.NO.-3430004  
School No.:08055  
Ph.:2411221, 2411665

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3.0	Terminal box	
(i)	Location	Location on top preferably
(ii)	Suitability	- 4 Core Aluminium Cable - Extension shall be done to receive the aluminium cables to avoid cramping of the cables in the terminal box .
(iii)	Rotation	4 X 90 deg.
(iv)	Earthing stud	Inside Terminal Block
4.0	Cooling	- TEFC - Effective irrespective of direction of rotation
5.0	Quality of operation	
(i)	Vibration intensity	Shall be limited as per IS 12075-1986.
(ii)	Noise level	As per IS: 12065-1987
(iii)	Balancing	Motors shall be dynamically balanced with full key on the shaft- end and fan
6.0	Electrical design	
(i)	Power Supply	<input type="checkbox"/> 415 V +10 & - 15% <input type="checkbox"/> 50 Hz +/- 6% <input type="checkbox"/> 3-phase, 4-wire AC <input type="checkbox"/> 50 kA for 1 second, solidly earthed.
(ii)	Starting	DOL
(iii)	Min Voltage for Start & Run	85 % of rated voltage at terminal
(iv)	Starting Torque	$\geq 160$ % Rated Torque
(v)	Breakdown or pullout torque	Minimum 275 % of the rated torque
(vi)	Starting current	$\leq 600$ % Rated current
(vii)	Duty	S1/ .....or as specified in TS For crane duty S5 40% with 150 start/hour. For conveyor application S-3 and 6 starts / hr For continuous duty- efficiency class EFF-1.
(viii)	Starts/Hour permissible	3 equally spread or 2 in quick succession from cold or one hot start, under rated load condition..
(ix)	Max speed permissible	120% over speed for 2 minutes
(x)	Overload capacity	Capable of withstanding 60% Overload for 15 sec.
(xi)	Efficiency	All continuous duty motor (S1-100%) shall be of

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		high efficiency confirming to eff2 class as per IEEMA-19-2000 .
(xii)	Derating	Motor designed at 50 deg.C shall be derated suitably for mentioned ambient temperature .
(xiii)	Motor connections	and of frame sizes more than 90 shall be connected in delta . For delta connected motors 6 leads shall be brought out .
(xiv)	Insulation	Class F
(xv)	Minimum Permissible temperature rise	Limited to class 'B' (120 deg absolute)
(xvi)	Torque Type	Normal / High / High slip type / Stall Torque type (as required for the specific application)
(xviii)	No. of Poles	4 pole (unless specific drive requirement or economics call for other poles).
(xix)	Testing	As per approved QAP during engineering stage .
(xx)	Mounting	Normally horizontally foot mounting . Other type of mounting as per specific requirement .

## 01.04.06 STARTER PANEL:

<b>A. General :-</b>		
1	Type	- Metal clad . - Non drawout type.
2	Construction	- Modular construction . - Fully compartmentalized with metal / insulating material partition.
3	Enclosure class	IP52.
4	Type of execution	Single front.
6	Installation	Indoor.
<b>B. Constructional Features :-</b>		
1	Sheet steel	
	Thickness	- 2 mm for load bearing members. - 1.6 mm for non load bearing members.

WATER SYSTEM FACILITIES

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2	Material	CRCA
3	Design	- Rear access through removable rear hinged cover door. - All the components shall be accessible from

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4	Interlocking & protection	front , - Module door interlocked with main power isolating devices. - Power circuit isolation device to have pad locking in the OFF position with door closed.
5	Operating height	- Minimum :- 300mm - Maximum :- 2000 mm.
6	Gland plate	Undrilled removable bottom gland plates (3 mm thick)
7	Miscellaneous	- Neosprene rubber gasket shall be provided for all the doors , removable covers & between adjacent covers . - Lifting hooks for the panel . - Doors shall have concealed hinges .
8	Labelling	Clear legible identification labels (anodized aluminum with white letters engraved on black background ) with letter sizes of :- - 25-50 mm for panel . 5 mm for components and module name plates. Danger board on front and rear sides in - English , Hindi and local language .
9	Earthing	- Two separate earthing terminals will be provided. - Bolted joints with tooth spring washers for good earth continuity.
10	Paint shade	Shade No. 631 as per IS-5:1992 equiv to RAL 7035
11	Panel space heater	In each panel with thermostat , MCB .

### C. Busbars

1.	Arrangement	Three phase & neutral.
2.	Material	High conductivity electrolytic aluminium alloy conforming to grade E91E as per IS-5082 -1981.
3.	Phase Busbar Rating	- Shall be able to carry continuously the connected load (considering all derating factors) plus a 25% margin . - Max. current density shall be

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		- 1.0 A/sq.mm for Aluminium - 1.5 A/sq.mm for Copper .
4.	Neutral Busbar Rating	50 % of phase busbar rating
6.	Busbar configuration	Red-yellow-blue from front to back or top to bottom or left to right as viewed from front.
7.	Busbar insulation	Heat shrinkable PVC - R,Y,B coloured sleeves for phases - Black for neutral.
8.	Busbar supporting insulators	- Non-hygroscopic Flame - retarded - Track resistant - High strength - Sheet moulded compound or equivalent polyster fibre glass moulded type .
9.	Max. temp. rise of bus	Not to exceed 35 deg. C. above ambient of 50 deg.C.
10	Air clearance for bare busbar	Phase to phase :- 25.4 mm (minimum) Phase to earth :- 19.0 mm (minimum)
11	Joints and tap off points	- Busbar joints and tap off points shall be shrouded and bolted ( with cadmium coated bolts with plain and spring washers and locknuts). - Bimetallic connectors for connection between dissimilar metals . - Antioxide grease for all bus connections .
12	Neutral bus isolation	Through disconnecting link .
13	Busbar access	Rear side
<b>(i) Earth bus</b>		
1	Material	GI.
2	Size	Minimum 50 x 6 mm with extension at both ends
<b>(ii) Control bus</b>		
1	Material	Copper.
2	Size	Minimum 25 x 3 mm
<b>D. Insulation level</b>		
1	Rated insulation voltage	1100 V

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2	Impulse withstand voltage	4 KV as per IS-13947 (Part I) 1993
3	One minute power frequency withstand voltage	2.5 KV for power circuit & 500 V for control circuit
<b>E. Pollution Degree</b>		
1	Pollution Degree	Pollution Degree 3 as per IS-13947 (Part-1) : 1993 ; unless otherwise stated
<b>F. Components</b>		
1	Isolating Equipment	3 pole MCCB (upto 630A)
2	Indication Lamps	LED type indicating lamps for :- - MCCB ON/OFF/TRIP. - Power ON R / Y / B .
3	Meters and selector switches	- As required
4	Power contactor	- AC3 duty of rated capacity .
5	Intelligent motor controller	- if required
6	Motor protection relay (for non intelligent panel)	- Microprocessor based. - Suitable for 5A & 1A - Protections <input type="checkbox"/> Short circuit <input type="checkbox"/> Overload <input type="checkbox"/> Earth fault <input type="checkbox"/> Stalling protection <input type="checkbox"/> Undervoltage <input type="checkbox"/> Overspeed <input type="checkbox"/> No.of starts per hour (cold & hot)
7	Auxiliary contactors	- Shall be provided for logic operation and operating sequence . - Shall have minimum 2NO+2NC auxiliary contacts.
<b>G. Panel Wiring</b>		
1	Power / current transformer	1.1Kv grade single core , black colour PVC insulated , stranded copper conductor of minimum

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	circuit	size 2.5 sq.mm.
2	Control and potential circuit	-1.1Kv grade single core -Black colour PVC insulated -Stranded copper conductor of minimum size 1.5 sq.mm.
3	Ferrules	- Numbered plastic/ceramic ferrules. - Self locking type.
4	Marking	-Wiring will be properly marked as per relevant IS.
5	Spare contacts	- All spare contacts of relays selector switches & contactors will be wired upto the terminal block. - Each components shall have at least one potential free spare contacts.
6	Terminals	- Power & control terminals shall be segregated by insulating material like hylam / bakelite sheet. - Power terminals shall be stud type. - Control terminals shall be suitable for connecting two cores of 2.5 sq.mm wires. - Minimum 20 % spare terminals shall be provided. - The minimum rating of control terminal shall be 10 Amps. - Color coded wires, TB's of different voltage rating to be provided . - Uniform color-coding to be followed for cabling, TB, etc.
7	Cable glands	Double compression cable glands for receiving external power and control cables

## H. Control Supply

1	Control transformer	1 nos. of 415V/240V control transformer
2	Input and output side isolation device	Input side :- MCB Output side :- MCB

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## 01.05 ERECTION, TESTING AND COMMISSIONING

1. The erection of all plant and equipment shall be carried out according to the latest engineering practices and according to the drawings, specifications, Instructions etc. duly approved by the Purchaser/ Consultant.
2. The welding work should be carried out as per the approved WPS and PQR.
3. The Contractor shall supply all required man-power, tools and related equipment, all hoisting equipment, all necessary scaffoldings, all necessary transporting equipment, consumables. Construction and erection materials, petrol, diesel oil, kerosene, solvents, sealing compound, tapes, brazing and soldering materials, welding and brazing gases, erection bolts, nuts and packing sheets/ compounds, temporary supports, wooden blocks, spacers, templates, jute and cotton wastes, sand/emery paper etc. as required for the satisfactory completion of work.
4. On completion of the work, the Contractor shall remove and dispose off all rubbish and other unsightly materials caused by his working to a distance of five kilometer from the proposed project including MV System units or as directed by the Purchaser and thereby leaving the premises in good, clean, safe and operable condition.
5. Before giving call for final inspection, all the documents shall be furnished to the Purchaser. The record of manufacturing details, inspection and tests carried out by the successful Contractor shall be made available to the final inspecting authority. However, approval and final inspection at the manufacturing works shall not relieve the successful Contractor of responsibility of replacing at his cost any defective part/material which may be detected by the purchaser during erection and commissioning or guarantee period.
6. All materials required for fabrication, construction, testing and inspection shall be supplied by the Contractor. No material shall be free issue to the Contractor.

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7. No equipment or part item shall be dispatched without final inspection and issuance of inspection certificate.
8. All equipment, assemblies, sub-assemblies shall be shop tested as per relevant standards and the test certificates shall be submitted by the supplier.

## 01.06 LIST OF PREFERRED MAKES:

SI No.	Item Description	Manufactures
1.	Pump	M&P, KBL, KSB
2.	CS Valves (gate, NRV)	Audco, Fouress, BHEL, KSB, Steam & Mining, BDK, Kirloskar, Virgo, IVPL, Panja valves, Chemico valves, Forward alloy, Dembla valves, Sakhi engg, GM Dalui, Amco industrial valves, Belgaum Aqua valves, Atam valves, Valtech Industries, Zoloto, Shiva Durga, Kartar valves, MICON valves, Aira Euro Automation
3.	Ball Valves	Audco, KSB, AL Saunders, Xomox, Virgo, Hawa valves (Mumbai), Chemico valves, Forward alloy, Dembla valves, Sakhi engg, Amco industrial valves, Belgaum Aqua valves, Delval flow control, Atam valves, Credence automation & control system, Valtech Industries, Zoloto, Shiva Durga, MICON valves, Aira Euro Automation
4.	Air Release Valve	IVPL, IM Engineers, Steam & Mining, Schroder Duncum, Fluid Line Valves, Panja Valves, Chemico valves, Shiva Durga

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5.	Pipe- MS	SAIL/ TATA/ Jindal/ Zenith/ Man/ SAW /Surindra /Bansal Skipper, Riddhi Steel/ Utkarsh/ Bhushan/ Ajantha Pipes/ Venketesh, Udyog ,Riddhi Steel, PS Steel tubes, K L Parui , Shyam engg. Fittings, JCO gas pipe Ltd. Ratna Mani Metals tubes
6.	MS Pipe Fittings	Stewards & Lloyds, Heavy Metal Tubes, Nobel Tubes, Rajendra Mech. Ind., Vitrag, Poonam Enterprises, N.L.Hazra, M.S.Fittings, Veketesh Udyog, Navkar, Reliable Steel(Reliable Pipes & Tubes ltd), Ranco Industries (Mumbai), Teshi Engg.Shyam engg. Fittings, shree Shankar engg
7.	Hose Reel	New Age Industries, Steelage Industries, ASCO, Strumech, Vijay Fire, Zenith, Steam & Mining., DE'S Technico, Kartar valves, Sterlin & Wilson
8.	Starter Panel	Hindustan Control / Power & Protection / Ecc / Venus / Bch / Havells / Gemco
9.	LT AC Motor (SQ. CAGE)	Abb / Bharat Bijlee / Cgl / Kirloskar Electric Alstom / Siemens
10.	LT Power Cables	CCI / Universal / Nicco / Rpg Cables (Asian) / Polycab / Finolex / Torrent / Havells/Kec/Kei

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## Annexure-I

### BOQ

Sub: Proposal for design engineering , supply , fabrication , erection , construction , laying , testing , & performance guarantee test of fire water system of fire hydrant facilities including pumping system at JVM Shyamali, Ranchi-834002

Sl.no.	Description	unit	Qty	Rate with GST	Rate without GST	Amount
	<b>PIPES</b>					
1	DN 150	Metre	534		1692.48	
2	DN 100	Metre	138		1230.00	
3	DN 80	Metre	12		943.00	
4	DN 65	Metre	06		820.00	
5	DN50	Metre	30		647.80	
6	DN25	Metre	06		385.40	
7	DN 15	Metre	01		369.00	
	<b>VALVES</b>					
1	Gate Valve (DN100)	Nos.	15		11830.96	
2	Gate Valve (DN80)	Nos.	2		8650.18	
3	Gate Valve (DN50)	Nos.	6		5817.08	
4	Gate Valve (DN25)	Nos.	5		2460.00	
5	NRV Valve (DN80)	Nos.	2		6182.80	
6	Ball Valve (15)	Nos.	2		820.00	
7	Float Valve	Nos.	3		4100.00	
	<b>Other Items</b>					
8	PVC Water Tank- 7000L capacity	Nos.	3		24600.00	
9	Electrical Driven Pump= 7.5KW ( Q=27m3/hr, H=35m)	Nos.	2		70110.00	
10	30m first-aid Hose Reel 20 mm nominal internal dia water hose,thermoplastic (Textile reinforced) type -2 as per IS: 12585 20 mm nominal internal dia gun metal globe valve & nozzle.Drum and brackets for fixing the equipments on wall.Connections from riser with 25 mm dia stop gun metal valve & M.S. Pipe and socket	Set	21		6970.00	
11	2/3 way-100 mm dia M.S. Pipe fire inlet brigade connection of cast iron body with gun metal male	Nos.	3		5494.00	

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	instantaneous inlet couplings complete with cap and chain as reqd. for					
12	Pressure switch in M.S. pipe line including connection etc. as required	Nos.	2		1230.00	
13	Pressure Indicator	Nos.	2		1640.00	
14	Supply of MS Fitting as per GTS 90 bend degree (1.5D) - DN150mm	Nos.	31		1230.00	
15	90 bend degree (1.5D) - DN50mm	Nos.	7		820.00	
16	Eccentric Reducer - 100 x 65	Nos.	2		4920.00	
17	Concentric Reducer- 80 x 65	Nos.	2		574.00	
17	10 Air Release Valve	Nos.	2		1640.00	
	<b>ELECTRICAL</b>					
18	11 Starter Panel		2		57400.00	
19	12 Earthing material	metre	Lot		12300.00	
20	LT Power Cable for N 2 ps. motor	metre	500		205.00	

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## जवाहर विद्या मंदिर, श्यामली, राँची 834002

### GENERAL CONDITION OF CONTRACT (G.C.C.)

1. scope of work shall include all workers, suppliers and services for completion of entire work .
2. The contractor shall have own site office, stores, godown as may required for carrying out the subject work.
3. Provision of all labours, skilled, semi-skilled, as may be required to complete the work.
4. Providing adequate tools, instruments, tackles, scaffolding etc. for completion of entire work.
5. Procurement of all the materials, as may be required for carrying out the work.  
Abide by statutory regulations, labours rules, safety codes during execution of work.
6. Abiding by all statutory obligations including ESI, EPF etc . during execution of work and shall submit all evidence in this respect such as ESI, EPF certificates and minimum wage certificate along with each and every bill.
7. Contractor shall make arrangement at his own cost for drawing and distributing water and power from single point each where water and power will be provided by JVM free of cost.
8. Undertaking all works including repairs and renovation work for completion to the satisfaction of JVM.
9. worker engaged by agency will not have any claim for payment employment in JVM. The age limit of worker shall be between 19 yrs. and 60 yrs.
10. Rate of wage shall not be less than the minimum wages plus prevailing percentage of EPF, FP, ESI, EDLI, Bonus etc. as required under the law.
11. Agency shall ensure fulfillment of al labour regulations/rules under the Labour Act and all other statutory requirement of Government of India and Government of Jharkhand.
12. Monthly bill based on actual deployment of worker shall be submitted by Agency statutory payment) viz. EPF, FP, ESI,EDLI, bonus etc.) including taxes payable if any.
13. Unit rates of all the items shall remain firm, fixed and binding on the contractor during entire period of execution of work and shall not be subjected to any variation whatsoever on any account.
14. This being a unit rate contract, the payment shall however be released against actual quotations of work however be released against actual quantities of work executed duly certified by the JVM.
15. Unless otherwise specified, measurement of work shall be carried out at site jointly by JVM & Contractor.
16. **Liquidated damages for non-fulfillment of completion schedule.** If the completion of work is delayed beyond the scheduled date for any reason other than due to force major condition or for those attributable to the contractor, then the contractor shall pay 1% per month of delay on total value of work up to a maximum of 5% of the final contract price.
17. The contractor shall not sublet/sub contract the whole or any part of work failing which the contract may be terminated.
18. No completion certificate shall be issued or shall be work be considered to be complete until the contractor removes from the site all scaffolding, surplus materials, rubbish etc.
19. **Maintenance Guarantee Period (defect liability period):** The contractor guarantees that for a period of 6 (six) months commencing from the date of completion of contract. He shall undertake reconstruction rectification, replacement of all regular schedule work and any other work to make good the faulty work as stated under completion certificate for period of 06 (six) months from the date of issue of commissioning certificate.



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- any other work to make good the faulty work as stated under completion certificate for period of 06 (six) months from the date of issue of commissioning certificate.
20. The contractor shall have a valid labour license and shall also maintain al records/ register/return/cards under state contract labour (R&A) rules act such as :-
- i) Register of workmen employed by contractor : Form - 9
  - ii) Employment card : Form - 10
  - iii) Muster roll : Form - 12
  - iv) Register of wages-cum-muster roll : Form - 13
  - v) Wage slip : Form - 15
  - vi) Register of over time : Form - 19
  - vii) Submission of Return in Form - 20
21. All materials supplied to the site shall be of good quality as per latest revision of CPWD specification. Any material not approved by the Engineer shall be removed from the site at his own cost by the Contractor.
22. The work carried at site as per latest edition of CPWD specification.
23. **Time schedule of contract** : Total time schedule of contract will be 3 (three) months from the date of placement of work order.
23. Any items not mentions in the BOQ but required for the completion of work shall be provided by the bidder on mutually agreed terms and conditions.
24. Further, JVM also reserves the right to cancel the tender without assigning any reasons for the same. In such event JVM shall return the Earnest money deposit.

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**जवाहर विद्या मंदिर, श्यामली, राँची - 834002****Special condition of contract (S.C.C.)**

1. The changes in quantity may increase or decrease as given in BOQ and contractor should do the work as per direction/ requirement of site engineer/supervisor.
2. The work will be executed on firm item rates basis as quoted. The contractor will be issued with site order indicating various works to be taken up by the contractor.
3. Any defect found within the guarantee period shall have to be attended by the contractor at their own cost and risk.
4. The institutional building regulations of the safety code shall have to be strictly followed by the contractors.
5. The work is to be executed as per specifications mentioned in BOQ and direction of site engineer. **The quantity mention in BOQ is tentative, it may increase or decrease. The payment will be on actual measurement and consumption of items.**
6. Terms of payment: 95% value bill/tax invoice shall be paid within (15) fifteen days after completion of work on submission of correct and complete certified document as mentioned below. Contractor shall submit Bill in triplicate along with measurement sheet/ abstract of the quantity being executed by the contractor at site, Income Tax Registration no. (PAN) and GST regn. no. Invoice shall be raised per per GST rules

Document to be submitted alongwith tax invoice:

- i. Measurement sheet duly signed by Contractor and certified by JVM site engineer/JVM representative and concerned engineer.
- ii. Abstract of measurement sheet and work done till previous bill, the running and cumulative quantities certified by JVM site representative and concerned engineer.
- iii. Documentary evidence towards payment of ESI, EPF etc. as per statute.
- iv. Abstract sheet for ESI & EPF
- v. Wage sheet
- vi. Undertaking that Contractor has complied with all statutory requirements as per Order during the period for which the progress payment has been claimed

GST shall be released only on submission of related statutory GST return and deposition of GST to exchequer.

7. Work measurement sheet should be on printed form/letter head of the contractor duly signed and stamped by the contractor and certified by JVM site engineer.
8. T.D.S. will be affected from all payments as per prevailing rules.
9. 5% (five percent) work value shall be paid after completion of warranty period/ maintenance guarantee period (6 months) and submission of pre-receipted invoice and completion of all his contractual certified by JVM along with submission of following documents :-
  - a) Completion certificate issued by JVM - original
  - b) No dues certificate from JVM
  - c) No claim/no demand certificate by the contractor - original
  - d) Copies of all statutory documents to be provided by the contractor as required by JVM
10. JVM shall deduct taxes at source as per prevailing status from the payment to be made to the contractor. JVM shall deposit amount thus deducted with the concerned authorities and issue necessary certificates to the contractor to this effect.
11. General schematic tender drawings showing general arrangement of the building is enclosed, any further engineering drawings required for the execution of the work shall be prepared by the JVM





13.000 WIDE ROAD

PLAN OF GROUND FLOOR

NOTES:-

1. ALL DIMENSIONS AND LEVELS ARE IN MM & ONLY FIGURED DIMENSIONS SHALL BE FOLLOWED.
2. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH  
DRG. NO. MEC/

**Samarjit Jana**

## Principal

Jawahar Vidya Mandir  
Siyamalai, Ranchi-2.

Att. No.- 3430004 (66230)

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WORLDWIDE & TONY PLANNING  
MILWAUKEE

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MECON LIMITED

D.A.V. JAHAR VIDHYA

MANDIR, SHYAMALI.

GROUND FLOOR PLAN

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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GA-MC/ 11/PX/V989/DE/	15
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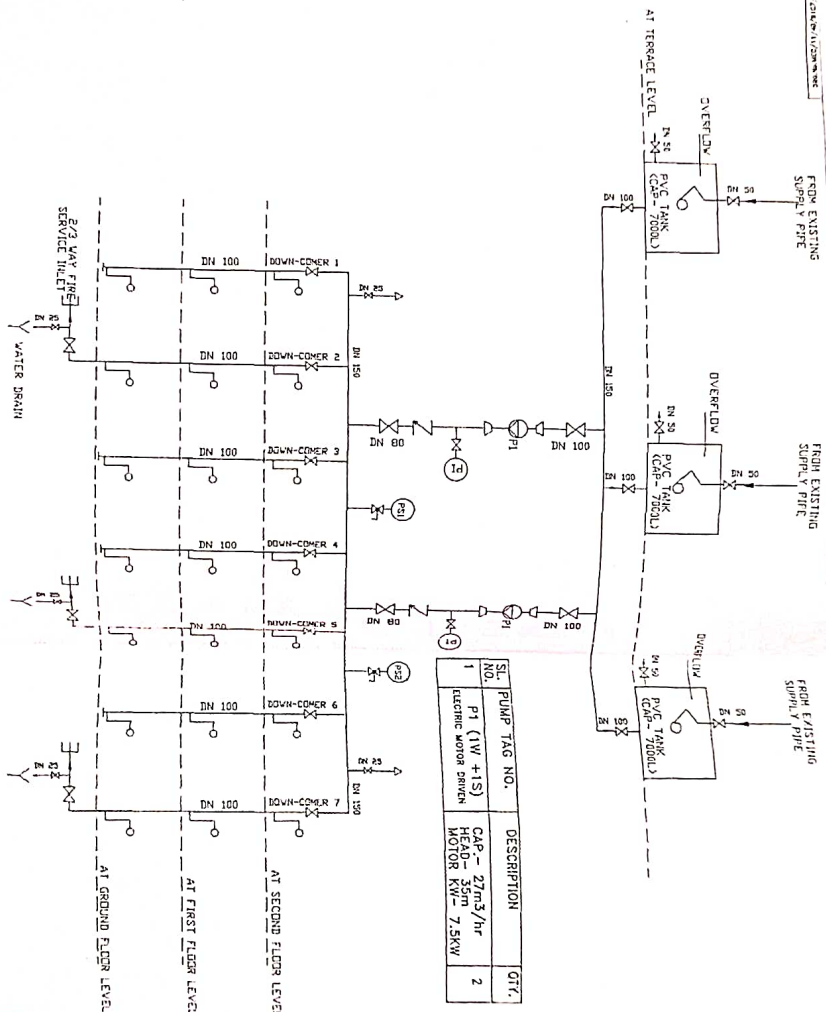
297

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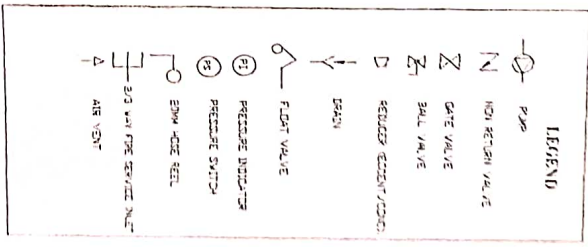
10



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SL. NO.	PUMP TAG NO.	DESCRIPTION	QTY.
1	P1 (1W + 1S)	CAP - 27m <sup>3</sup> /hr HEAD - 35m MOTOR KW - 7.5KW	2



**JYM SHYAMALI SCHOOL**  
MECON LIMITED  
FIRE SAFETY & CIVIL ENGINEERING  
HIRE HYDRAULIC SYSTEM  
PAID

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Samarjit Jana  
Principal  
Jawahar Vidya Mandir  
Siyamal, Ranchi-2.  
Aft. No.-3430004 (66230)