



**GOVERNMENT OF WEST BENGAL**  
**OFFICE OF THE SUPERINTENDING ENGINEER, WEST CIRCLE**  
**MUNICIPAL ENGINEERING DIRECTORATE**  
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**Memo. No. MED/ SE (W) / 353 / W -269 / 2022**

**Dated. 28.11.2023**

**NOTICE INVITING e-TENDER**

Notice Inviting e-Tender No. 06 of SE (WC)/MED/2023-24

of The Superintending Engineer, West Circle, Municipal Engineering Directorate, Government of West Bengal.

The **Superintending Engineer**, West Circle, Municipal Engineering Directorate, Govt. of West Bengal invites sealed competitive Bid through online on **Turnkey Basis** (Two-part System) from reliable and resourceful Companies/Firms/Contractors having experience and acumen for “**Surveying, Design, Execution and Commissioning for Water Supply Scheme of Bolpur Municipality including Construction of 57 No. Pump House for 5 Zones 57 No. DTW works, Construction of 5 No. OHR & 5 No. CWR including required length of Boundary Wall and Approach Road ( C.C or B.T as applicable ) as per approve drawing design ( At Z-I : OHR 640 CUM & CWR 200 CUM , At Z – II : OHR 1470 CUM & CWR 450 CUM, At Z – III : OHR 1580 CUM & CWR 450 CUM , At Z – IV : OHR 1750 CUM & CWR 500 CUM, At Z – V : OHR 1800 CUM & CWR 550 ) , Construction of 5 No. Pump House ( 5.4 m x 4.6 m with designed height )for Five Zones for receiving zone wise from DTWs raw water to feed CWR , Construction of 5 No. Pump House attached to CWR ( 5.4 m x 4.6 m with designed height )for Five Zones for feeding zone wise water from CWR to the OHR along with arrangement of chlorination and other relevant water treatment works and installation of designed capacity , Submersible Pump Motor units for 57 No. DTW with 80 mm dia. ERWMS column pipe and required length from DTW to Common Manifold ( MS ) and from Common Manifold to CWR with design dia. and thickness for required length of M.S pipe for Rising Main at different zone wise location and Pump House, Switch Room, construction of pumping station with illumination works and with installation of pump motor units as to be required for all Civil & Elctro-Mechnical works including Soil Testing works within Bolpur Municipal area including 3 months trial run and necessary training of maintenance staff & thereafter (subsequently) 1 (one) year comprehensive operation and maintenance of the Scheme”.**

**Table 1 :-**

Sl. No.	Name of the work	Estimated Amount	Initial Earnest Money	Price of agreement papers consisting of Technical & Financial Bid documents and other annexures excluding W.B. Form No.2911 cost.	Period of Completion	Name of the Concerned Division	Eligibility of Contractor	Defect Liability Period
1	<p>“Surveying, Design, Execution and Commissioning for Water Supply Scheme of Bolpur Municipality including Construction of 57 No. Pump House for 5 Zones 57 No. DTW works , Construction of 5 No. OHR &amp; 5 No. CWR including required length of Boundary Wall and Approach Road ( C.C or B.T as applicable ) as per approve drawing design ( At Z-I : OHR 640 CUM &amp; CWR 200 CUM , At Z – II : OHR 1470 CUM &amp; CWR 450 CUM, At Z – III : OHR 1580 CUM &amp; CWR 450 CUM , At Z – IV : OHR 1750 CUM &amp; CWR 500 CUM, At Z – V : OHR 1800 CUM &amp; CWR 550 ) , Construction of 5 No. Pump House ( 5.4 m x 4.6 m with designed height )for Five Zones for receiving zone wise from DTWs raw water to feed CWR , Construction of 5 No. Pump House attached to CWR ( 5.4 m x 4.6 m with designed height )for Five Zones for feeding zone wise water from CWR to the OHR along with arrangement of chlorination and other relevant water treatment works and installation of designed capacity , Submersible Pump Motor units for 57 No. DTW with 80 mm dia. G.I column pipe and required length from DTW to Common Manifold( MS ) and from Common Manifold to CWR with design dia. and thickness for required length of M.S pipe for Rising Main at different zone wise location and Pump House, Switch Room, construction of pumping station with illumination works and with installation of pump motor units as to be required for all Civil &amp; Elctro-Mechanical works including Soil Testing works within Bolpur Municipal area including 3 months trial run and necessary training of maintenance staff &amp; thereafter (subsequently) 1 (one) year comprehensive operation and maintenance of the Scheme”.</p>	Turnkey Rate e-NIT	Rs. 25,00,000.00	As applicable.	1 Year 6 months from the date of received of work order.	Birbhum Division, M.E. Die., Govt. of W.B.	Bonafide Eligible contractor through pre-qualification.	05 (five) year(s).

NB: - (i) Intending Tenderer will not have to pay the cost of tender documents for the purpose of participating in e-tendering, but the successful L1(Lowest) Bidder will have to pay the cost of tender documents of 3 (Three) set @ price mentioned in the list of scheme of NIET during purchase of tender documents for execution of agreement as per notification no. 452 – A / PW / O / 10 C – 35 / 10 dated 26.07.2011 of the Secretary, to the Govt. Of West Bengal & subsequent no.199-CRC/2M-10/2012 dated 21/12/2012 of the Secretary, Public Works Department, CRC Branch, and Government of West Bengal.

In case of any contractor (L1) expressed his / her willingness to have extra copy of the standard contract forms, only one spare copy of standard contract form may on payment of prescribed price be supplied to a contractor or firm of contractors, eligible to tender in a specific work on receipt of written requisition well in advance for the same.

(ii) Enlistment of Contractors has been abolished as per Govt. order no. 1177-F(Y) dated 28/02/2014.

(iii) Payment to the contractor for the work shall be made through Nodal Engineer-in-Charge (Executive Engineer Civil of the concerned Division, MED) .

**Location of Work:**

**Bolpur Municipality  
Dist: Birbhum.**

1. In the event of e-Filling, intending bidder may download the tender document from the website <https://wbtenders.gov.in> directly with the help of Digital Signature Certificate. EMD has to be deposited by the bidder through the following payment mode as per memorandum of the Finance Department vide No. 3975-F(Y) dated 28<sup>th</sup> July, 2016 read with Finance Department vide No. 5688-F(Y) dt.03.11.2016.

1.1. Net banking (any of the banks listed in the ICICI Bank Payment gateway) in case of payment through ICICI bank payment gateway.

1.2. RTGS/NEFT in case of offline payment through bank account in any bank.

*(Details of which has been narrated in "Instruction to Bidders").*

Modalities regarding receiving performance Bank Guarantee will be as detailed in Finance Department memorandum No. 2691-F(Y) dt.02.05.2017.

Tender document may be download from website & submission of Technical Bid / Financial Bid as per Tender time schedule stated in "Date & Time Schedule".

The documents submitted by the bidders should be indexed and also should be according to his / their Firm name.

1.1.A bidder desirous of taking part in a tender shall login to the e-Procurement Portal of the Government of West Bengal <https://wbtenders.gov.in> using his login ID and Password and thereafter may download the tender document consisting of this N.I.T., Instruction to Bidders (Section - A), different Forms & Affidavits (Section - B), Special Terms & Conditions (Section - C), Specification of Work (Section - D), Additional Terms & Conditions and specification for Electrical works (Section -E)& Schedule of Works (BOQ), W.B. Form No. 2911 and Addenda & Corrigenda (*if any*) from the website directly with the help of Digital Signature Certificate.

1.2 **Earnest Money**: 2% of the Quoted Bid price in two parts, vise

a. Rs. 25,00,000.00 ( Twenty Five Lac ) as an initial Earnest Money Deposit shall accompany with Bid Proposal and may be remitted by selecting from either of the following payments modes: -

i) **Net Banking** (any of the banks listed in the ICICI Bank Payment gateway) in case of payment through ICICI Bank Payment Gateway.

Bank Acknowledgement Slip to be uploaded during online bid submission;

ii) **RTGS/NEFT** in case of offline payment through bank account in any Bank and also to be documented through e-filling.

b. Earnest Money Deposit i.e. 2% of bid amount beyond the initial amount as mentioned above shall have to be deposited after acceptance of Bid Proposal as valid Bank Guarantee (BG) from any scheduled bank by the Lowest bidder within 7(seven) working days from the date of issuance of Acceptance or before execution of Tender agreement, which one is earlier.

Additional Performance security deposit @10% may deposited by the bidder in due course as per GO No.4608 f(y) Dt.18.07.2018

As per G.O. No. 3975-F(Y) dated 28.07.2016 of the Secretary, Audit Branch, Finance Department a bidder should initiate payment of pre-defined EMD for the tender by selecting from either of the following payments modes :

2. The amount of pre-defined Earnest Money is to be submitted online in the following payments modes:
  - 2.1. Net banking (any of the banks listed in the ICICI Bank Payment gateway) in case of payment through ICICI bank payment gateway.
  - 2.2. RTGS/NEFT in case of offline payment through bank account in any bank.  
(Details of which has been narrated in "Instruction to Bidders").

### 3. Eligibility criteria for participation in tender:

#### 3.1. Requirement of Credentials:(Credential criteria should satisfy both Civil & Electrical & Mechanical part)

##### 3.1.1 For 1<sup>st</sup>. Call of e-NIT:

Having experience and technical acumen in executing of similar nature of completed work related to Water Supply Scheme in combination with E&M works like Intakes / WTP / OHRs / CWRs / GLRs / ESRs / WSS related E&M Works and with experience of successful completion of at least 1 (One) no. of Over Head Reservoir with a minimum capacity and staging height of 300 cubic meters and 20 meters respectively within last 5(five) years in a single or separate tender and with experience in successful completion of 1(one) year O & M in any surface or sub-surface water based water supply projects Completed / Ongoing during last 5(five) years and experience in erection, commissioning, and successful operation of pumping machinery and other electrical and electronic equipment's like Control Panel , Horizontal Split Casing Centrifugal / Vertical Turbine Pumps, Submersible Pumps , Voltage Stabilizers etc. during last 5(five)years in a single water supply project and having successful completion of Survey, Investigation, Design, Drawing and execution of W/S Projects as a prime contractor of value at least Rs. **12.00 Crores** in a single work order during the last 5 (five) years prior to the date of issue of the tender notice in any Government Department/Board/Semi-Govt./Corporation/Statutory Authority/Undertaking etc.

OR,

Having experience and technical acumen in Executing, 2 ( two) No. similar nature of completed work as mentioned above eligibility criteria of each of the minimum value of Rs. **9.00 Crore** during last 5 (five) years prior to the date of issue of the tender notice. in any Government Department/Board/Semi-Govt./Corporation/Statutory Authority/Undertaking etc.

OR.

Intending bidders should produce credential of one single running work of similar nature for the above mentioned eligibility criteria which has been completed to the extent of Rs. **24 Crore** or more and value of which is not less than the desired eligibility at (i) above .

In case of running works, only those tenderers who will submit the certificate of satisfactory running work from the concerned Executive Engineer, or equivalent competent authority will be eligible for the tender. In the required certificate it should be clearly stated that the work is in progress satisfactorily and also that no penal action has been initiated against the executed agency, i.e., the tenderer as per GO No. 04-A/PW/O/10C-02/14 Dated: 18.03.2015.

Name of the project, Estimated amount, Tendered amount, Salient feature & nature of the work, executed value of works, Percentage (%) of physical progress of work in case of running works, Schedule date of completion, Actual date of completion of the project etc. must be indicated in the Credential Certificate. No credential will be considered as valid unless it is supported by work order, price schedule or BOQ of work and completion certificate issued by the Executive Engineer or equivalent or competent authority in their office letter pad containing proper

office address, phone no. and email ID. Payment certificate will not be treated as Credential certificate.

[Completion certificate produced as credential should clearly indicate the description of works, value of contract, executed work value, date of award, actual date of completion etc. and name, address, telephone no. of the client. Work order, schedule of work or BOQ and completion certificate should be uploaded in support of credential. Only executed value of completed or ongoing work will be treated as credential. For composite/package work completion certificate must contain the item wise amount executed, otherwise the certificate will be treated as void. All certificates related to completion should be issued by the officer of the Executing Authority/Client not below the rank of Executive Engineer/Divisional Engineer or equivalent Officer. Payment certificate will not be treated as credential. All document attached shall be self-attested. Original certificate / order copies / any other document as required shall have to be produced on demand during evaluation within 48 (forty eight) Hours. Signatory of all the above documents should be competent enough for issuing such documents. Certificate from the private individual and/or organization for any work shall not be accepted]

**(copies of Completion certificate, work order, price schedule- by the competent authority shall have to be furnished)**

**AND**

Having sufficient qualified technical personnel (to be employed under the firm for at least 2 consecutive years) with sound knowledge and experience in execution of similar nature of works .

**AND**

Having annual turnover of at least Rs. **12 (Twelve) Crore** or above in any one year of last three Financial years

**AND**

Having valid electrical license with electrical Supervisor, VAT, P. Tax, PAN Card Certificate etc.

**Note:**

**Producing P.F & E.S.I Registration with bid proposal is not mandatory however successful bidder have to produce said certificates before agreement.**

A successful performance and completion certificate supplemented with work order along with payment certificate issued by the competent authority shall have to be furnished in support of credibility in terms with eligibility criteria depicted in this Notice (**Ref: Sl. No. 3 :Eligibility to participate in the Bid**). Besides this, following documents shall have to be furnished:

Particulars of ownership/partnership or Board of Directors pertaining to the Organization/Company/Firm

Copies of valid PAN Card, VAT, P.F & E.S.I Registration Certificate, Electrical Supervisory license Certificate, Professional Tax.

Bank solvency Certificate not less than Rs. **5 Cores** issued not before 12 (twelve) month from the date of invitation of NleT and

Valid documents in support of annual Turnover.

List of machines & equipments necessary for field as well as laboratory test for all materials.

List of Technical Personnel employed under the organization in details with names, qualification, experience and address with contact number.

Corresponding address, fax & telephone nos. Contract mobile no. & Email no. of the Organization.

3.1.2 Annual Turn Over – **Rs.12.00 Crore** in any of the last five Financial Year

(i.e. 2018-2019, 2019-2020, 2020-2021, 2021-2022 & 2022-2023).

3.1.3 Minimum Bank solvency Certificate is **Rs. 5.00 Crore** issued not before 12 (twelve) month from the date of invitation of NleT.

**3.2. Other terms and conditions of the credentials:**

3.2.1. Payment certificate will not be treated as credential;

3.2.2. Credential certificate issued by the Executive Engineer or equivalent or competent authority of a State / Central Government, State / Central Government undertaking, Statutory / Autonomous bodies constituted under the

Central / State statute, on the executed value of completed / running work will be taken as credential.

No credential will be considered as valid unless it is supported by work order, price schedule or BOQ of work and completion certificate mentioning the date of completion issued by the competent authority not below the rank of Executive Engineer or equivalent or competent authority of a State / Central Government, State / Central Government undertakings, Statutory / Autonomous bodies constituted under the Central / State Statute. The completion certificate should indicate the value of the work (equal to booked expenditure).

N.B. The credential certificate for completed works should contain (a) Name of work (b) Estimated Amount(c) Tendered amount, (d) Value of executed work (e)Date of Completion of project along with telephone number & detail address for communication of client must be indicated in the Credential Certificate.*[Non Statutory Documents]*

- 3.2.3. The prospective bidders will have in their full time engagement experienced technical personnel, the minimum being one Civil & Mechanical & Electrical Engineering Degree holder, one Civil & Mechanical & Electrical Engineering Diploma holder.

(Authenticated documents in respect of qualification and engagement for this work will have to be furnished for Technical Evaluation);

*[Non Statutory Documents]*

- 3.2.4. **PAN Card, Income Tax return of last three years, Valid Professional Tax Deposit Challan/certificate, Valid Trade License, EPF, ESI, Audit report and balance sheet of last three years (2022-2023, 2021-2022 and 2020-2021), Valid Electrical License, Electrical Supervisory License, valid 15-digit Goods and Service Tax payer Identification Number (GSTIN) under GST Act. 2017, with relevant document(s) and any other(s) if applicable to be accompanied with the Technical Bid document.**

*[Non Statutory Documents]*

- 3.2.5. The prospective bidders or any of their constituent partner(s) should not have abandoned more than one work. Not more than one of their contracts should have been rescinded during the last 3 (*three*) years from the date of publishing of this NIEt. Such abandonment or rescission will be considered as disqualification towards eligibility (a declaration in this respect through Affidavit will have to be furnished by the prospective bidders without which the technical bid will be treated as non-responsive. Neither prospective bidder nor any of constituent partner(s) should have been debarred to participate in tender(s) by the any Department, Government of West Bengal during the last 2 (*two*) years prior to the date of this NIEt. Such debarment will be considered as disqualification towards eligibility. (A declaration in this respect has to be furnished by the prospective bidders as per prescribed format without which the Technical Bid shall be treated non-responsive).

- 3.2.6. The Bidder's Net Worth for the last year calculated on the basis of capital, profit and free reserve available to the firm should be positive.

- 3.2.7. In case of Proprietorship and Partnership Firms and Company the Tax Audited Report in 3CB & 3CD Form to be furnished along with Balance Sheet and Profit

and Loss Account and all schedules forming the part of Balance Sheet and Profit & Loss Account. Tax Audited Report, Balance Sheet and Profit & Loss Account including all schedules forming the part of Balance Sheet and Profit & Loss Account should be in favour of applicant.

*[Non Statutory Documents]*

**3.2.8. Requirement of Machineries:**

Following criteria regarding machineries and equipment to be used in different types of works should be adhered to:

3.2.8.1. Plant Machineries and Equipment should be owned or arranged through lease hold agreements by the bidders. For Leased Plant & Machineries, scanned copy of registered / notarised lease agreement is to be submitted.

3.2.8.2. Conclusive proof of ownership (Tax Invoice, Way Bill, Delivery Challan) for each plant and machinery in working condition shall have to be submitted.

3.2.8.3. No payment for purchase of Batch type Mixing Plant or other equipment in Civil , Electrical or Mechanical will be allowed.

3.2.8.4. If the machineries have been engaged in other works, then name of Client along with his contact number and email address should be furnished in the declaration by the intended tenderer and the present location (working place) should also be given with tentative date of release of plant & machineries.

3.2.8.5. In case of **Building Works:**

All plants, machineries and equipment will be verified by the competent authority before execution of the work.

The prospective bidders should own or arrange through lease hold agreement the required plant and machineries of prescribed specifications as shown and mentioned in format [Section- B]. A statement should be submitted mentioning present location of installation of the said main Plant and machinery, as mentioned, in specified format in Section B, Form-IV. If necessary, authority / Bid Evaluation Committee may inspect Plant and Machineries physically or call for the original documents as proof of Ownership in favour of owner / lessor of the same.

*[Non Statutory Documents]*

3.2.10. Registered Unemployed Engineers' Co-operative Societies / Unemployed Labour Co-operative Societies are required to furnish valid Bye Law, Current Audit Report, Certificate of Registration and Valid Clearance Certificate from A.R.C.S. for the year 2016/2017 Professional Tax Deposit Challan for the Financial Year 2022-2023, PAN Card, EPF, ESI, Valid 15-digit Goods & Service Tax Payer Identification Number (GSTIN) under GST Act, 2017 with relevant document with up-to-date return along with other relevant supporting papers.

*[Non Statutory Documents]*

3.2.11. **Joint Ventures will not be allowed for works up to 25 Crores.** For work more than 25 Crores in case of a joint venture, Lead Member of such joint venture will be required to meet 60% (*sixty percent*) of required Bid Capacity and each of the Joint Venture Members will be required to meet at least 30% (*thirty percent*)

of requirement of BID Capacity. Bid Capacity of all the members in total should be at least 100% (*one hundred percent*) of required Bid Capacity.

- 3.2.12. Electrical Contractor License and Electrical Supervisory License will have to qualify for all requirements set forth in the NIEt for electrical works including credential, electrical license, electrical supervisor's certificate of competency (SCC) etc. However; the onus and full responsibility of execution of the total work (Civil & Mechanical & Electrical) will be on the contractor who will execute the agreement with the Department. Payment will also be made to the L1 contractor only.
- 3.2.13. A prospective bidder shall be allowed to participate in the particular Job either in the capacity of individual or as a partner of a firm. If found to have applied severally for a single job, all his applications will be rejected for that job, without assigning any reason thereof.
- 3.2.14. A partnership firm will have to furnish the registered partnership deed and a company will have to furnish the Article of Association and Memorandum.

*[Non Statutory Documents]*

Where an individual person hold a digital certificate in his / her own name duly issued to him / her against the company or the firm of which he / she happens to be a director or partner, such individual person shall, while uploading any tender for and on behalf of such company or firm, invariably upload a copy of registered power of attorney showing clear authorization in his / her favour, by the rest of the directors of such company or the partner of such firm, to upload such tender. The power of attorney shall have to be registered in accordance with the provision of the Registration Act.1908 as per G.O. no. 61/SPW/12 dated 08/06/2012.

- 3.2.15. **Partnership Firm, Company Limited Firm, Private Company Limited Firm shall be registered by the respective competent authority from the Registrar of Firms, Society, Non-Trading Corporation, Registrar of Companies etc. & copy of Registration Certificate (*with allotment of Registration No.*) will have to be submitted, otherwise the Technical Bid will not be considered for qualification & Financial Bid shall not be opened.**
4. The successful bidder will have to establish field testing laboratory equipped with requisite instruments in conformity with relevant code of practice and technical staff according to the requirements of works to be executed. The executing agency will have to produce satisfactory test report of all the materials of the work as well as on samples collection jointly by him and concerned authority of the Engineer-in-Charge from all completed / ongoing items of works as per relevant codes of practice at his own cost from any Govt. approved / Govt. testing laboratory during execution of works. The successful bidder will have to bring all requisite plants and mechanical equipment and / or technical personnel and / or laboratory and field testing machineries and equipment for all the items of work as per BOQ and / or as per relevant IS / IRC Codes of practice and / or as per direction of the Engineer-in-Charge and / or as per relevant PWD Schedule of Rates at the time of execution of work at site even if upon technical evaluation he is declared as "qualified" without having all the requisite plants and mechanical equipment and / or technical personnel and / or laboratory and field testing machineries and equipment at the time of submission of tender.



5. The executing agency (successful bidder) will get the payment in the following mode of Payment. Provisions in Clause(s) 7, 8, & 9 contained in West Bengal Form No. 2911 so far as they relate to quantum and frequencies of payment are to be treated as superseded.

**SCOPE OF WORK & MODE OF PAYMENT: Item wise break up**

Surveying, Design, Execution and Commissioning for Water Supply Scheme of Bolpur Municipality including Construction of 57 No. Pump House for 5 Zones 57 No. DTW works , Construction of 5 No. OHR & 5 No. CWR including required length of Boundary Wall and Approach Road ( C.C or B.T as applicable ) as per approve drawing design ( At Z-I : OHR 640 CUM & CWR 200 CUM , At Z – II : OHR 1470 CUM & CWR 450 CUM, At Z – III : OHR 1580 CUM & CWR 450 CUM , At Z – IV : OHR 1750 CUM & CWR 500 CUM, At Z – V : OHR 1800 CUM & CWR 550 ) , Construction of 5 No. Pump House ( 5.4 m x 4.6 m with designed height )for Five Zones for receiving zone wise from DTWs raw water to feed CWR , Construction of 5 No. Pump House attached to CWR ( 5.4 m x 4.6 m with designed height )for Five Zones for feeding zone wise water from CWR to the OHR along with arrangement of chlorination and other relevant water treatment works and installation of designed capacity , Submersible Pump Motor units for 57 No. DTW with 80 mm dia. G.I column pipe and required length from DTW to Common Manifold( MS ) and from Common Manifold to CWR with design dia. and thickness for required length of M.S pipe for Rising Main at different zone wise location and Pump House, Switch Room, construction of pumping station with illumination works and with installation of pump motor units as to be required for all Civil & Elctro-Mechanical works including Soil Testing works within Bolpur Municipal area including 3 months trial run and necessary training of maintenance staff & thereafter (subsequently) 1 (one) year comprehensive operation and maintenance of the Scheme”.

<b>Terms of payment : Item wise break up</b>			
<b>1</b>	<b>Construction of OHR 640 CUM at Zone – I including Boundary Wall and Approach Road ( C.C or B.T as applicable )as per approved drawing (Civil work), design complete as per direction of the E.I.C and including all cost and complete.</b>		
A	Up to Pile Cap / 1 <sup>st</sup> Bracing for Ring Foundation	40%	
B	Up to Heel Beam	15%	
C	Up to Top Dome incl. all Structural Works.	35%	
D	Complete in all Respect incl. Boundary Wall and Approach Road ( Plaster , Flooring , Surface Drain ,Pipes fittings , Sluice Valves etc . )	10%	
		Total =	100%
<b>2</b>	<b>Construction of OHR 1470 CUM at Zone – II including Boundary Wall and Approach Road ( C.C or B.T as applicable )as per approved drawing (Civil work), design complete as per direction of the E.I.C and including all cost and complete.</b>		
A	Up to Pile Cap / 1 <sup>st</sup> Bracing for Ring Foundation	40%	
B	Up to Heel Beam	15%	
C	Up to Top Dome incl. all Structural Works.	35%	
D	Complete in all Respect incl. Boundary Wall and Approach Road ( Plaster , Flooring , Surface Drain ,Pipes fittings , Sluice Valves etc . )	10%	
		Total =	100%
<b>3</b>	<b>Construction of OHR 1580 CUM at Zone – III including Boundary Wall and Approach Road ( C.C or B.T as applicable )as per approved drawing (Civil work), design complete as per direction of the E.I.C and including all cost and complete.</b>		
A	Up to Pile Cap / 1 <sup>st</sup> Bracing for Ring Foundation	40%	
B	Up to Heel Beam	15%	
C	Up to Top Dome incl. all Structural Works.	35%	
D	Complete in all Respect incl. Boundary Wall and Approach Road ( Plaster , Flooring , Surface Drain ,Pipes fittings , Sluice Valves etc . )	10%	
		Total =	100%
<b>4</b>	<b>Construction of OHR 1750 CUM at Zone – IV including Boundary Wall and Approach Road ( C.C or B.T as applicable )as per approved drawing (Civil work), design complete as per direction of the E.I.C and including all cost and complete.</b>		
A	Up to Pile Cap / 1 <sup>st</sup> Bracing for Ring Foundation	40%	
B	Up to Heel Beam	15%	
C	Up to Top Dome incl. all Structural Works.	35%	
D	Complete in all Respect incl. Boundary Wall and Approach Road ( Plaster , Flooring , Surface Drain ,Pipes fittings , Sluice Valves etc . )	10%	
		Total =	100%
<b>5</b>	<b>Construction of OHR 1800 CUM at Zone – V including Boundary Wall and Approach Road ( C.C or B.T as applicable )as per approved drawing (Civil work), design complete as per direction of the E.I.C and including all cost and complete.</b>		
A	Up to Pile Cap / 1 <sup>st</sup> Bracing for Ring Foundation	40%	
B	Up to Heel Beam	15%	
C	Up to Top Dome incl. all Structural Works.	35%	

D	Complete in all Respect incl. Boundary Wall and Approach Road ( Plaster , Flooring , Surface Drain ,Pipes fittings , Sluice Valves etc . )	10%	
	Total =	100%	
<b>6</b>	<b>Construction of CWR 200 CUM at Zone – I including Boundary Wall and Approach Road ( C.C or B.T as applicable )as per approved drawing (Civil work), design complete as per direction of the E.I.C and including all cost and complete.</b>		
A	Up to Bottom Floor Incl. Pile & Pile Cap if any / R.C.C Mat Fdn.	40%	
B	Below Roof level	40%	
C	Complete in all Respect incl. Boundary Wall and Approach Road including Fittings of Pipes and Valves as required.	20%	
	Total =	100%	
<b>7</b>	<b>Construction of CWR 450 CUM at Zone – II including Boundary Wall and Approach Road ( C.C or B.T as applicable )as per approved drawing (Civil work), design complete as per direction of the E.I.C and including all cost and complete.</b>		
A	Up to Bottom Floor Incl. Pile & Pile Cap if any / R.C.C Mat Fdn.	40%	
B	Below Roof level	40%	
C	Complete in all Respect incl. Boundary Wall and Approach Road including Fittings of Pipes and Valves as required.	20%	
	Total =	100%	
<b>8</b>	<b>Construction of CWR 450 CUM at Zone – III including Boundary Wall and Approach Road ( C.C or B.T as applicable )as per approved drawing (Civil work), design complete as per direction of the E.I.C and including all cost and complete.</b>		
A	Up to Bottom Floor Incl. Pile & Pile Cap if any / R.C.C Mat Fdn.	40%	
B	Below Roof level	40%	
C	Complete in all Respect incl. Boundary Wall and Approach Road including Fittings of Pipes and Valves as required.	20%	
	Total =	100%	
<b>9</b>	<b>Construction of CWR 500 CUM at Zone – IV including Boundary Wall and Approach Road ( C.C or B.T as applicable )as per approved drawing (Civil work), design complete as per direction of the E.I.C and including all cost and complete.</b>		
A	Up to Bottom Floor Incl. Pile & Pile Cap if any / R.C.C Mat Fdn.	40%	
B	Below Roof level	40%	
C	Complete in all Respect incl. Boundary Wall and Approach Road including Fittings of Pipes and Valves as required.	20%	
	Total =	100%	
<b>10</b>	<b>Construction of CWR 550 CUM at Zone –V including Boundary Wall and Approach Road ( C.C or B.T as applicable )as per approved drawing (Civil work), design complete as per direction of the E.I.C and including all cost and complete.</b>		
A	Up to Bottom Floor Incl. Pile & Pile Cap if any / R.C.C Mat Fdn.	40%	
B	Below Roof level	40%	
C	Complete in all Respect incl. Boundary Wall and Approach Road including Fittings of Pipes and Valves as required.	20%	
	Total =	100%	
<b>11</b>	<b>Supply delivery, installation and testing commissioning of designed capacities MCC Control panel &amp; 3 No Horizontal Split Casing Centrifugal Pump in Pump House (for operating the 3 nos. Horizontal Split Casing Centrifugal pumping units) and internal &amp; external illumination works with caballing and earthing arrangement per Switch Room as per technical specification and direction of EIC. for feeding Water from CWR to OHR in Zone – I.</b>		
	<b>Break up :</b>		
A	Supply of all Electro-Mechanical equipments ( 3 No. HSC Pump with Designed and approved H.P , MCC Control Panel with designed capacity )required to complete the item.	60%	
B	Installation of Electro-mechanical equipment ( 3 No. HSC Pump with Designed and approved H.P , MCC Control Panel with designed capacity )and any other work required to complete the item in all respect.	30%	
C	Testing, Commissioning and after successful trial run of the plant.	10%	
	Total =	100%	
<b>12</b>	<b>Supply delivery, installation and testing commissioning of designed capacities MCC Control panel &amp; 3 No Horizontal Split Casing Centrifugal Pump in Pump House (for operating the 3 nos. Horizontal Split Casing Centrifugal pumping units) and internal &amp; external illumination works with caballing and earthing arrangement per Switch Room as per technical specification and direction of EIC. for feeding Water from CWR to OHR in Zone – II.</b>		
	<b>Break up :</b>		
A	Supply of all Electro-Mechanical equipments ( 3 No. HSC Pump with Designed and approved H.P , MCC Control Panel with designed capacity )required to complete the item.	60%	
B	Installation of Electro-mechanical equipment ( 3 No. HSC Pump with Designed and approved H.P , MCC Control Panel with designed capacity )and any other work required to complete the item in all respect.	30%	
C	Testing, Commissioning and after successful trial run of the plant.	10%	
	Total =	100%	
<b>13</b>	<b>Supply delivery, installation and testing commissioning of designed capacities MCC Control panel &amp; 3 No Horizontal Split Casing Centrifugal Pump in Pump House (for operating the 3 nos. Horizontal Split Casing Centrifugal pumping units) and internal &amp; external illumination works with caballing and earthing arrangement per Switch Room as per technical specification and direction of EIC. for feeding Water from CWR to OHR in Zone – III.</b>		
	<b>Break up :</b>		
A	Supply of all Electro-Mechanical equipments ( 3 No. HSC Pump with Designed and approved H.P , MCC Control Panel with designed capacity )required to complete the item.	60%	

B	Installation of Electro-mechanical equipment ( 3 No. HSC Pump with Designed and approved H.P , MCC Control Panel with designed capacity )and any other work required to complete the item in all respect.	30%	
C	Testing, Commissioning and after successful trial run of the plant.	10%	
	Total =	100%	
<b>14</b>	<b>Supply delivery, installation and testing commissioning of designed capacities MCC Control panel &amp; 3 No Horizontal Split Casing Centrifugal Pump in Pump House (for operating the 3 nos. Horizontal Split Casing Centrifugal pumping units) and internal &amp; external illumination works with caballing and earthing arrangement per Switch Room as per technical specification and direction of EIC. for feeding Water from CWR to OHR in Zone – IV.</b>		
	<b>Break up :</b>		
A	Supply of all Electro-Mechanical equipments ( 3 No. HSC Pump with Designed and approved H.P , MCC Control Panel with designed capacity )required to complete the item.	60%	
B	Installation of Electro-mechanical equipment ( 3 No. HSC Pump with Designed and approved H.P , MCC Control Panel with designed capacity )and any other work required to complete the item in all respect.	30%	
C	Testing, Commissioning and after successful trial run of the plant.	10%	
	Total =	100%	
<b>15</b>	<b>Supply delivery, installation and testing commissioning of designed capacities MCC Control panel &amp; 3 No Horizontal Split Casing Centrifugal Pump in Pump House (for operating the 3 nos. Horizontal Split Casing Centrifugal pumping units) and internal &amp; external illumination works with caballing and earthing arrangement per Switch Room as per technical specification and direction of EIC. for feeding Water from CWR to OHR in Zone –V.</b>		
	<b>Break up :</b>		
A	Supply of all Electro-Mechanical equipments ( 3 No. HSC Pump with Designed and approved H.P , MCC Control Panel with designed capacity )required to complete the item.	60%	
B	Installation of Electro-mechanical equipment ( 3 No. HSC Pump with Designed and approved H.P , MCC Control Panel with designed capacity )and any other work required to complete the item in all respect.	30%	
C	Testing, Commissioning and after successful trial run of the plant.	10%	
	Total =	100%	
<b>16</b>	<b>Supply delivery, installation and testing commissioning of MCC Control panel for operating Z-I DTWs Submersible pumping units and internal &amp; external illumination works with caballing and earthing arrangement as per technical specification and direction of EIC. For receiving zone wise DTWs Raw Water and to feed CWR Zone – I.</b>		
	<b>Break up :</b>		
A	Supply of all Electro-Mechanical equipments (MCC Control Panel with designed and approved capacity) required to complete the item.	60%	
B	Installation of Electro-mechanical equipment (MCC Control Panel with designed capacity )and any other work required to complete the item in all respect.	30%	
C	Testing, Commissioning and after successful trial run of the plant.	10%	
	Total =	100%	
<b>17</b>	<b>Supply delivery, installation and testing commissioning of MCC Control panel for operating Z-I I DTWs Submersible pumping units and internal &amp; external illumination works with caballing and earthing arrangement as per technical specification and direction of EIC. For receiving zone wise DTWs Raw Water and to feed CWR Zone – II.</b>		
	<b>Break up :</b>		
A	Supply of all Electro-Mechanical equipments (MCC Control Panel with designed and approved capacity) required to complete the item.	60%	
B	Installation of Electro-mechanical equipment (MCC Control Panel with designed capacity )and any other work required to complete the item in all respect.	30%	
C	Testing, Commissioning and after successful trial run of the plant.	10%	
	Total =	100%	
<b>18</b>	<b>Supply delivery, installation and testing commissioning of MCC Control panel for operating Z-III DTWs Submersible pumping units and internal &amp; external illumination works with caballing and earthing arrangement as per technical specification and direction of EIC. For receiving zone wise DTWs Raw Water and to feed CWR Zone – III.</b>		
	<b>Break up :</b>		
A	Supply of all Electro-Mechanical equipments (MCC Control Panel with designed and approved capacity) required to complete the item.	60%	
B	Installation of Electro-mechanical equipment (MCC Control Panel with designed capacity )and any other work required to complete the item in all respect.	30%	
C	Testing, Commissioning and after successful trial run of the plant.	10%	
	Total =	100%	
<b>19</b>	<b>Supply delivery, installation and testing commissioning of MCC Control panel for operating Z-IV DTWs Submersible pumping units and internal &amp; external illumination works with caballing and earthing arrangement as per technical specification and direction of EIC. For receiving zone wise DTWs Raw Water and to feed CWR Zone – IV.</b>		
	<b>Break up :</b>		
A	Supply of all Electro-Mechanical equipments (MCC Control Panel with designed and approved capacity) required to complete the item.	60%	
B	Installation of Electro-mechanical equipment (MCC Control Panel with designed capacity )and any other work required to complete the item in all respect.	30%	
C	Testing, Commissioning and after successful trial run of the plant.	10%	
	Total =	100%	
<b>20</b>	<b>Supply delivery, installation and testing commissioning of MCC Control panel for operating Z-V DTWs Submersible pumping units and internal &amp; external illumination works with caballing and earthing arrangement as per technical specification and direction of EIC. For receiving zone wise DTWs Raw</b>		

<b>Water and to feed CWR Zone – V.</b>		
<b>Break up :</b>		
A	Supply of all Electro-Mechanical equipments (MCC Control Panel with designed and approved capacity) required to complete the item.	60%
B	Installation of Electro-mechanical equipment (MCC Control Panel with designed capacity )and any other work required to complete the item in all respect.	30%
C	Testing, Commissioning and after successful trial run of the plant.	10%
		Total = 100%
<b>21</b>	<b>Supply delivery, installation and testing commissioning of 57 No. Submersible Pump w.r.t each DTW design capacity Yield for operating the 57 nos. DTW with 80 mm dia. ERWMS column pipe and required length from DTW to Common Manifold and from Common Manifold to CWR with design dia. and thickness and required length of M.S pipe for Rising Main and with caballing and earthing arrangement for individual connection with the Switch Room and as per technical specification and direction of EIC. For all Zone</b>	
A	Supply of all Electro-Mechanical equipments ( 57 No. Submersible Pump with designed capacity) required to complete the item.	50%
B	Installation of Electro-mechanical equipment (( 57 No. Submersible Pump with Designed and approved H.P with 80 mm dia. ERWMS Column Pipe , M.S Manifold , Common Manifold to CWR with reqd. dia. and approved design thickness with caballing and earthing arrangement for individual connection with the Switch / Pump House / Room and as per technical specification and direction of EIC)and any other work required to complete the item in all respect.	40%
C	Testing, Commissioning and after successful trial run 1 month of the plant.	10%
		Total = 100%
<b>22</b>	<b>Construction of 57 No. Pump House / Switch Room ( 3.00 m x 3.00 m ) for 5 Zones DTWs as per approved drawing (Civil work), design complete as per direction of the E.I.C and including all cost and complete</b>	
A	Up to P.L ( Incl. Pile & Pile Cap if any / R.C.C Mat Fdn / Raft Fdn as to be required complete ).	40%
B	Below Roof level	30%
C	Complete in all Respect	30%
		Total = 100%
<b>23</b>	<b>Construction of 5 No. Pump House / Switch Room ( 5.40 m x 4.60 m with approved Design Height ) for 5 Zones for Operating zone wise DTWs raw water to feed Zone wise CWRs including Boundary Wall and Approach Road ( C.C or B.T as applicable )as per approved drawing (Civil work), design complete as per direction of the E.I.C and including all cost and complete</b>	
A	Up to P.L ( Incl. Pile & Pile Cap if any / R.C.C Mat Fdn / Raft Fdn as to be required complete ).	40%
B	Below Roof level	30%
C	Complete in all Respect incl. Boundary Wall and Approach Road.	30%
		Total = 100%
<b>24</b>	<b>Construction of 5 No. Pump House / Switch Room ( 5.40 m x 4.60 m with approved Design Height ) attached to CWR for 5 Zones for feeding zone wise water from CWRs to the OHRs along with arrangement of chlorination and other relevant water treatment including Boundary Wall and Approach Road ( C.C or B.T as applicable )as per approved drawing (Civil work), design complete as per direction of the E.I.C and including all cost and complete</b>	
A	Up to P.L ( Incl. Pile & Pile Cap if any / R.C.C Mat Fdn / Raft Fdn as to be required complete ).	40%
B	Below Roof level	30%
C	Complete in all Respect incl. Boundary Wall and Approach Road.	30%
		Total = 100%
<b>25</b>	<b>Testing, Commissioning &amp; 3 months Trial run of the whole installation as per I.E. Rules with Govt. Electrical inspector's fees as complete in all respect and as per Bid document &amp; as per direction of EIC and direction of the E.I.C and including all cost and complete.</b>	
A	After completion in all respect	100%
		Total = 100%
<b>26</b>	<b>Comprehensive Operation and maintenance of Electro-Mechanical works of all Zones Pump Houses, CWRs &amp; OHRs for 1 (one) year. The work includes supplying adequate number of operator personnel and skilled Labor with a provision for necessary training to the personnel appointed by the ULB including supplying all sundry materials, and replacement of all types of damaged component etc. as per Bid document and complete in all respect and as per Bid document and as per direction of EIC and direction of the E.I.C and including all cost and complete.</b> <b>N.B:- This item will be executed after three (3) months trial run.</b>	
A	After completion in all respect	100%
		Total = 100%

The payment will be made as and when fund is available from the concerned source. No claim whatsoever for delay in payment, if any, will be entertained. Retention money towards performance Security amount to 8% (*Eight Percent*) of the value of the work will be deducted from the running account bill of the tender as per prevailing order. 2 % EMD of L1 bidder will be converted to Security Deposit and total Security Deposit will be 10 % as per prevailing Order. No interest will be paid on security deposit.

6. Constructional Labour Welfare CESS @ 1% (one percent) of cost of construction will be deducted from the bill(s) of the contractor(s) on all contracts awarded on or after 01/11/2006

in pursuance with G.O. no. 599A/4M-28/06 dated 27/09/2006. GST, Royalty & all other Statutory levy / CESS will have to be borne by the contractor & the schedule of rates are inclusive of all the taxes & CESS stated above as per rule.

Successful Tenderers will be required to obtain valid Registration Certificate & Labor License from respective Regional Labour Offices where construction work by them are proposed to be carried out as per Clauses U/S 7 of West Bengal Building & other Construction Works' Act, 1996 and U/S 12 of Contract Labour Act.

Successful tenderers will be required to observe the following conditions strictly:

- 6.1. Employees' Provident Fund and Miscellaneous Provisions Act, 1952 and Employees State Insurance Act, 1948 should be strictly adhered to wherever such Acts become applicable.
- 6.2. Minimum wages to the workers shall be paid according to the rates notified and / or revised by the State Government from time-to-time under the Minimum Wages Act, 1948 in respect of scheduled employments, within the specified time as per law. Payment of bonus, wherever applicable, has to be made.
- 6.3. Adequate safety and welfare measures must be provided as per the provisions of the Building and other Construction Workers' (Regulation of Employment & Conditions of Service) Act, 1996 read with West Bengal Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Rules, 2004.
- 6.4. All liabilities arising out of engagement of workers are duly met before submission of bills for payment.

If there is any violation of any or all the relevant above criteria during execution of the job, it will render the concerned agencies ineligible for the work then and there or at any subsequent stage as may be found convenient.

7. Adjustment of Price (increase or decrease) Vide Notification No.23-CRC/2M-61/2008 dated 13/03/2009 & Notification No. 38-CRC/2M-61/2008 dated 20/04/2009 shall not be applicable. Since BOQ for the works under this NIEt is based upon the schedule of rates of Public Works Directorate, PHED , Government of West Bengal with Addendum & Corrigendum as mentioned hereinafter, the bidders shall quote their rate accordingly considering that no escalation and / or price adjustment will be allowed by the Department there to under any circumstances.
8. **No Mobilisation Advance and Secured Advance will be allowed** Agencies shall have to arrange required land for installation of Plant & Machineries, (specified for each awarded work, storing of materials, labour shed, laboratory etc. at their own cost and responsibility nearest to the work site. The agencies will have to install the above machineries on the site within 45 (*forty five*) days from this end positively with application of Tender.
9. Bids shall remain valid for a period not less than **180** (*one hundred eighty*) days from the last date of submission of Financial Bid / Sealed Bid. In case of inadvertent typographical mistake found in the specified schedule of rates / BOQ, the same will be treated to be so corrected as to conform with the relevant schedule of rates prevailing at the time of floating of tender and / or technically sanctioned estimate. No claim whatsoever for such inadvertent typographical mistake will be entertained.
10. All materials required for the proposed scheme as mentioned including bitumen (*all grade*), bitumen emulsion, **cement & steel** (which ever applicable) will have be of specified grade & approved brand in conformity with relevant code of practice (*latest revision*) & manufactured accordingly & will have to be procured & supplied by the agency at his / their own cost including all taxes. Authenticated evidence for purchase of bitumen, bitumen emulsion, cement and steel are to be submitted along with challan and test certificate. In the event of further

testing opted by the Engineer-in-Charge, such testing from any Government approved / Government Testing Laboratory will have to be conducted by the agency at his/their own cost. VG 30 / VG 40 grade paving bitumen, as the case may be, of I.O.C.L/ B.P.C.L/ H.P.C.L will be permitted as Straight run Bitumen. All steel materials to be used for the work should be SAIL / TATA / RINL unless otherwise mentioned specifically in the BOQ.

11. Date & Time Schedule:

Sl. No.	Particulars	Date and Time
1	Date of publishing NIE T Documents.(online) ( <i>Publishing Date</i> )	29 .11.2023 From 11:30 P.M. onwards.
2	Tender Document download start date and time. (online)	29 .11.2023 From 12:30 P.M. onwards.
3	Pre Bid Meeting with the intending Bidders. ( <i>Optional for the bidders</i> )	12.12.2023 at 01:00 P.M. At office of The Superintending Engineer, West Circle, Municipal Engineering Directorate, Government of West Bengal, Patal Bazar , Burdwan (The intending bidders may send their queries, if any through e-mail <a href="mailto:sewestcircle1@gmail.com">sewestcircle1@gmail.com</a> on or before pre-bid meeting. If intending bidders remain absent in the pre-bid meeting; their queries if any may not be accepted in this regard and claim of bidders for queries may not be entertained and replied in future.)
4	Start Date of Bid Submission. ( <i>Technical and Financial</i> ) (online)	29 .11.2023 From 02:00 PM onwards.
5	Closing date and time of download of Tender Document (online).	26.12.2023 up to 4:00 P.M
6	Closing date and time of Bid submission ( <i>Technical and Financial</i> ) (online).	26.12.2023 up to 4:00 P.M
7	Date and time of opening of Technical Proposals (online).	28.12.2023 after 5:00 P.M
8	Date and time of uploading of list of Technically qualified bidders.(online)	Will be notified later on.
9	Date of uploading of final list of technically qualified bidders after disposal of appeals, if any.	Will be notified later on.
10	Date and time of opening of Financial Proposal (online).	Will be notified later on.

**12. There will be no provision of Arbitration.**

In this connection vide No.215(Law)/UDMA-15011(99)/17/2023-LS-UD ,dated 10<sup>th</sup>.March 2023 order of the Principal Secretary , Deptt. of UD&MA shall be followed if otherwise not mentioned anything else.

**However ; Clause 25 of WBF 2911 will be followed for Settlement of Disputes and Arbitration :-**

"Except where otherwise provided in the contract all question and disputes relating to the meaning of the specifications, designs, drawings and instructions herein before mentioned and as to the quality of workmanship or materials used on the work or as to any other question, claim, right, matter or thing whatsoever, in any way arising out of relating to the contracts designs, drawings, specifications, estimate, instructions, orders or these conditions or otherwise concerning the works, or the executions or failure to execute the same, whether

arising during the progress of the work, or after the completion or abandonment thereof shall be dealt with as mentioned hereinafter;

If the contractor considers any work demanded of him to be outside the requirements of the contract, or disputes any drawings, record or decision given in writing by the Engineer-in-Charge on any matter in connection with or arising out of the contract or carrying out of the work, to be unacceptable, he shall promptly within 15 (*fifteen*) days request the Chairman of the Dispute Redressal Committee in writing for written instruction or decision. Thereupon, the Dispute Redressal Committee shall give its written instructions or decision within a period of three months from the date of receipt of the contractor's letter.

13. The Bidder, at the Bidder's own responsibility and risk is encouraged to visit and examine the site of works and its surroundings and obtain all information that may be necessary for preparing the Bid and entering into a contract for the work as mentioned in the Notice inviting Tender, the cost of visiting the site shall be at the Bidder's own expense. Issuance of letter of acceptance / Work Order may be delayed and / or work may be financially restricted up to the limit of existing administrative approval until receipt of administrative approval / revised administrative approval from the competent authority (*in applicable cases*). Also issuance of letter of acceptance / work Order may be delayed and / or work may be restricted in some stretches till necessary land for the same is made available and / or encroachments are removed (*in applicable cases*). No claim, whatsoever, for such delay in issuance of Letter of Acceptance / Work Order and / or restriction of work will be entertained. Intending bidders may keep these criteria in mind while participating in tender and / or while quoting their rates.

Prospective applicants are advised to note carefully the minimum qualification criteria as mentioned in 'Instructions to Bidders' before bidding.

- 14. Defect Liability Period:- Defect liability period will be 5 years from the date of commissioning as per Notification No. 5784-PW/L&A/2M-175/2017 dt. 12.09.2017 of Principal Secretary, PWD the following partial modification in the West Bengal Form No: 2911 (herein after referred to as printed Tender Form), in cancellation of earlier Notification No.177-CRC/2M-57/2008, Dt.12.07.2012 are made: -**

**Clause 17 of CONDITIONS OF CONTRACT of the Printed Tender Form shall be substituted by the following as per G.O. no. 5784-PW/L&A/2M-175/2017 dated 12/09/2017:**

Clause 17 - If the contractor or his workmen or servants or authorized representatives shall break, deface, injure, or destroy any part of building, in which they may be working, or any building, road, road-curbs, fence, enclosure, water pipes, cables, drains, electric or telephone posts or wires, trees, grass or grassland or cultivated ground contiguous to the premises, on which the work or any part of it is being executed, or if any damage shall happen to the work from any cause whatsoever or any imperfection become apparent in it at any time whether during its execution or within a period of three months or one year or three years or five years, as the case may be (depending upon the nature of the work as described in the explanation appended hereto) hereinafter referred to as the Defect Liability Period, from the actual date of completion of work as per completion certificate issued by the Engineer-in-Charge, the contractor shall make the same good at his own expense, or in default, the Engineer-in-Charge may cause the same to be made good by other workmen and deduct the expense (of which the certificate of the Engineer-in-Charge shall be final and binding on all concerned) from any sums, whether under this contract or otherwise, that may be then, or at any time thereafter become due to the

contractor from the Government or from his security deposit, either full, or of a sufficient portion thereof and if the cost, in the opinion of the Engineer-in-Charge (which opinion shall be final and conclusive against the contractor), of making such damage or imperfection good shall exceed the amount of such security deposit and/or such sums, it shall be lawful for the Government to recover the excess cost from the contractor in accordance with the procedure prescribed by any law for the time being in force.

Provided further that the Engineer-in-Charge shall pass the "Final Bill" and certify thereon, within a period of thirty days with effect from the date of submission of the final bill in acceptable form by the contractor, the amount payable to the contractor under this contract and shall also issue a separate completion certificate mentioning the actual date of completion of the work to the contractor within the said period of thirty days. The certificate of the Engineer-in-Charge whether in respect of the amount payable to the contractor against the "Final Bill" or in respect of completion of work shall be final and conclusive against the contractor. However, the security deposit of the work held with the Government under the provision of clause 1 hereof shall be refundable to the contractor in the manner provided here under:-

**Explanation:**

The word 'work' means and includes road work, bridge work, building work, sanitary and plumbing work, electrical work and/or any other work contemplated within the scope and ambit of this contract. For

- (i) The work of patch repair or patch maintenance in nature or a combination thereof, the Defect Liability Period of the work shall be three months from the actual date of completion of the work.
- (ii) Thorough Bituminous Surfacing work with bituminous thickness less than 40 mm, Repair & Rehabilitation of any road / bridge / culvert / building / Sanitary & Plumbing work, the Defect Liability Period of the work shall be one year from the actual date of completion of the work;
- (iii) Extension of building / bridge / culvert, Construction of new flexible pavement up to bituminous level which has been designed for a period of 3 years or more, Widening and strengthening of flexible pavement designed for a period of 3 years or more, Improvement of riding quality / Strengthening of flexible pavement designed for a period of 3 years or more; Providing only mastic asphalt layer over existing bituminous surface without providing bituminous profile corrective course / bituminous base course, the Defect Liability Period of the work shall be three years from the actual date of completion of the work;
- (iv) Construction of new building / new bridge / new culvert, Reconstruction of building / bridge / culvert including construction of approach roads for bridge / culvert, Construction of rigid pavement, Reconstruction of rigid pavement, Construction of new flexible pavement covered by mastic work which has been designed for a period of 5 years or more, Widening and strengthening of flexible pavement covered by mastic work which has been designed for a period of 5 years or more, Improvement of riding quality / Strengthening of flexible pavement covered by mastic work which has been designed for a period of 5 years or more, the Defect Liability Period of the work shall be five years from the actual date of completion of the work

"The word 'Government' means the Government of the State of West Bengal in Municipal Engineering Directorate, UD&MA Department."



**Additional provisions in substituted Clause 17 of the Condition of Contract of the printed tender form as per G.O. no. 52-CRC/2M-06/2014 dated 27/10/2014 and G.O. no. 5951-PW/L&A/2M-175/2017 dated 02/11/2017.**

In cases of Refunding and Releasing of 100% (*one hundred percent*) Security Deposit held with the Government, arising out from works contract, Security Deposit will be released after issuance of Completion Certificate on submission of unconditional BANK GUARANTEE by the Contractor for the Security Deposit subject to the following conditions:

1. The Bank Guarantee will be issued by a Scheduled Commercial Bank in favour of the Engineer-in-Charge of the concern work, MED, Government of West Bengal on behalf of the contractor.
2. The Bank Guarantee shall remain valid for the whole Defect liability period/Security period as per contract of the work (No renewal in between should be required).
3. The Bank Guarantee will be submitted as per approved Format. The Engineer-in-Charge should obtain confirmation of the Bank Guarantee directly from the Bank before its acceptance.
4. The Bank Guarantee, now pledged in the form of Security Deposit will be released to the contractor in the following manner, if not forfeited under conditions of contract:

4.1. For work with 3 (*three*) months Defect Liability Period:

Full amount shall be refunded to the contractor on expiry of 3 (*three*) months from the actual date of completion of the work.

4.2. For work with 1 (*one*) year Defect Liability Period:

Full amount shall be refunded to the contractor on expiry of 1 (*one*) year from the actual date of completion of the work.

4.3. For work with 3 (*three*) years Defect Liability Period:

4.3.1. 30% (*thirty percent*) of the same shall be refunded to the contractor on expiry of 2 (*two*) years from the actual date of completion of the work;

4.3.2. The balance 70% (*seventy percent*) of the same shall be refunded to the contractor on expiry of 3 (*three*) years from the actual date of completion of the work.

4.4. For work with 5 (*five*) years Defect Liability Period:

**For this work defect liability period is 5 years from the date of completion of the work as per completion certificate issued by the concerned Executive Engineer, MED. However, completion certificate should be issued after completion of all items of works as per schedule as required including supplementary items (if any) in all respect but except the items of Operation and Maintenance works.**

4.4.1. No amount shall be refunded to the contractor for first 3 (*three*) years from the actual date of completion of the work;

4.4.2. 30% (*thirty percent*) of the same shall be refunded to the contractor on expiry of 4 (*four*) years from the actual date of completion of the work;

4.4.3. The balance 70% (*seventy percent*) of the same shall be refunded to the contractor on expiry of 5 (*five*) years from the actual date of completion of the work.

15. In case of Ascertaining Authority at any stage of tender process or execution of work necessary registered irrevocable power of attorney is to be produced. Power of Attorney

holders are not allowed to sign Tender Documents unless otherwise approved by the Government.

16. All intending bidders are requested to be present in the Office of office of the Superintending Engineer, East Circle, Municipal Engineering Directorate, Government of West Bengal, during opening of the Tender as per the dates mentioned in the notice to observe the tender opening procedure.

17. No CONDITIONAL/ INCOMPLETE TENDER will be accepted under any circumstances.

**18. Requirement of Principal Machineries which must be possessed by own/ Lease Hold agreement (as the case may be) are as shown and mentioned in Section – B.**

Original documents in support of own / lease possession of the aforesaid machineries are to be furnished if required by the Tender Inviting Authority.

19. In the event of acceptance of **lowest tendered rate, no multiple minimum rate** will be considered by the Department.

20. The Tender Inviting Authority reserves the right to cancel the NIeT due to unavoidable circumstances and no claim in this respect will be entertained.

21. During the scrutiny, if it comes to the notice of the tender inviting authority that the credential(s) and/or any other paper(s) of any bidder are incorrect / manufactured / fabricated, that tender will be out rightly rejected and further penal action may be taken against him as per rule.

22. In case there is any objection regarding prequalifying an agency, that should be lodged to the Superintending Engineer & Convener of the Bid Evaluation Committee, i.e., the Superintending Engineer East Circle, Municipal Engineering Directorate, Government of West Bengal within 48 (forty eighty) hours (including holidays) from the date and time of publication of list of qualified agencies and beyond that time schedule no objection will be entertained by the Bid Evaluation Committee. The objection may also be submitted to the E-mail ID [seeastcircle@yahoo.com](mailto:seeastcircle@yahoo.com) of the Superintending Engineer, East Circle MED within the said time frame.

23. Before issuance of Letter of Acceptance / Work Order, the tender inviting authority may verify the credentials & other documents of the lowest tenderer if found necessary. After verification, if it is found that such documents submitted by the lowest tenderer are either manufactured or false, in that case Letter of Acceptance / Work Order will not be issued in favour of that tenderer under any circumstances and further penal action may be taken against him as per rule.

24. If any discrepancy arises between two similar clauses on different notifications, the clause as stated in later notification will supersede former one in following sequence:

- (i) West Bengal Form No. 2911
- (ii) NIeT
- (iii) Special terms & Conditions
- (iv) Technical bid
- (v) Financial bid

In case of inadvertent typographical mistake in the BOQ / Schedule of Works/ Price Schedule/rates /elsewhere, the same may be treated to be so corrected as to conform with the relevant schedule of rates and / or technically sanctioned estimate.

**25. All Pile works Grade of Concrete should be M25 minimum. All Water Retaining Structures Grade of Concrete should be M 30 minimum. Mix Design should be approved prior to any execution of any R.C.C construction works. Cement grade should be approved before execution of works.**

**26. All Concrete Works other than Sl. No. 25 related to R.C.C should be M 25 Minimum grade of Concrete. However Mix Design should be approved before execution of the works.**

**27. Reinforcement should be Fe 415 Minimum Grade HYSD bar. However approval of Steel materials should be taken before the execution of works.**

28. **Bid Evaluation Committee (BEC):**

A Bid Evaluation Committee (BEC) has been constituted under the Superintending Engineer East Circle, Municipal Engineering Directorate, Government of West Bengal, who is the tender inviting authority for all works beyond the tender accepting power of the Executive Engineers.

The members of Bid Evaluation Committee would be: -

1.	Superintending Engineer , West Circle, Municipal Engineering Directorate, Government of West Bengal	- Chairperson & Convener
2.	Executive Engineer , West Circle, MED, Govt. of WB	- Member
3.	Executive Engineer, Birbhum Division, MED, Govt. of WB.	- Member
4.	Divisional Accounts Officer / Divisional Accountant, Birbhum Division , MED.	- Member
5.	Assistant Engineer , West Circle, MED, Govt. of WB.	- Member

Or, as per consecutive orders from competent authority.

The Bid Evaluation Committee will do the technical and financial evaluations of the bidders for different types of works and make recommendation to the tender accepting authority. The bidders will have to meet all the minimum criteria regarding:-

- (a) Financial Capacity
- (b) Technical Capability comprising of personnel & plant & equipment capability
- (c) Experience / Credential

The eligibility of a bidder will be ascertained on the basis of his digitally signed documents in support of the minimum criteria as mentioned in (a), (b), (c) above with the help of his DSC and the declaration executed through prescribed affidavit in non-judicial stamp paper of appropriate value duly notarized. If any document submitted by a bidder is either manufactured or false, in such case the eligibility of the bidder/ tenderer will be out rightly rejected at any stage without any prejudice and further penal action may be taken against him as per rule.

29. The Bid Evaluation Committee reserves the right to ignore minor deficiencies at their discretion in case of first call and no challenge whatsoever against such decision of the said committee will be entertained. In case of re tender, the Bid Evaluation Committee reserves the right to ignore some deficiencies at their discretion and no challenge whatsoever against such decision of the said committee will be entertained. In case of third and subsequent calls, the Bid Evaluation Committee reserves the right to ignore some more deficiencies at their discretion and no challenge whatsoever against such decision of the said committee will be entertained.
30. Bidders should upload their documents from original copies. Uploading Photocopy & illegible copies will not be accepted.
31. Each work will be awarded against specific set of machineries as indicated in Sl. No. 20 of this NIeT & Section - B (Form-IV).

**32. Quality Monitoring and Supervision Consultant:**

- 32.1. Reputed engineering firm may be engaged to act as Supervision Consultant as per direction of the Engineer-in-Charge. The Supervision Consultant will assist the Engineer-in-Charge to monitor the project, checking the quality and quantity of works etc. Supervision Consultant or any person authorized by the Engineer-in-Charge shall at allreasonable time have access to the site, all plant and all places where materials are being manufactured and tested. The contractor will have to afford every facility for andevery assistance in obtaining the right to such access.
- 32.2. Third Party quality audit may also be conducted for quality monitoring as per sole discretion of the Engineer-in-Charge.
33. This NIeT shall form a part of the contract document. The successful bidder on acceptance of his bid by the Accepting Authority, shall have to sign the contract consisting of NIeT, all tender documents forming part of the bid as uploaded at the time of invitation of bid, the rates quoted online at the time of submission of bid and acceptance thereof together with any correspondence leading thereto and standard West Bengal Form No. 2911.

34. **As per memorandum no. 4608-F(Y) dated.18.07.2018 of Finance Department Govt. of West Bengal, the successful bidder will have to submit Additional Performance Security @10%of the tendered amount, if the accepted bid value is 80%orless of the Estimated amount put to tender.**

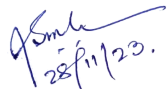
The Additional Performance Security shall be submitted in the form of Bank Guarantee from any Scheduled Bank before issuance of the Work Order. If the bidder fails to submit the Additional Performance Security within seven working days from the date of issuance of Letter of Acceptance, his Earnest Money will be forfeited and other necessary actions as per NIT like blacklisting of the contractor, etc, may be taken. The Bank Guarantee shall have to be valid up to end of the Contract Period and shall be renewed accordingly, if required.

The Bank Guarantee shall be returned immediately on successful completion of the Contract. If the bidder fails to complete the work successfully, the Additional Performance Security shall be forfeited at any time during the pendency of the contract period after serving proper notice to the contractor. Necessary provisions regarding deduction of security deposit from the progressive bills of the contractor as per relevant clauses of the contract shall in no way be altered/affected by provision of this Additional Performance Security.

35. **Cost of Tender Documents:** The intending Tenderers shall not have to pay the cost of tender documents for the purpose of participating in e-tendering vide Notification No. 199-CRC/2M-10/2012 dated 21/12/2012 of the Secretary, Public Works Department, Government of West Bengal

**However, the successful bidder shall have to pay the cost of contract documents as per Order No. 452 - A / PW / 0 / 10 C - 35 / 10 dated 26.07.2011 only per set at the time of formal agreement.**

36. **Having after due survey and Structural Design Analysis; all drawings for Civil Construction, Electrical & Mechanical equipment and accessories should be approved prior to execution at site. No works should be executed without taking prior approval from the appropriate authority. The all drawings should be submitted by hard copy in triplicate along with soft copy for approval.**

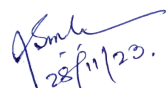
  
**Superintending Engineer**  
West Circle,  
Municipal Engineering Directorate,  
Government of West Bengal.

**Memo. No. MED/ SE (W) /353(1-9) / W -269 / 2022**

**Dated. 28.11.2023**

Copy forwarded for information and for forwarded wide circulation through his Office Notice Board to:-

1. The Director, SUDA, West Bengal.
2. The Secretary, MED, Bikash Bhavan, Salt Lake Kolkata.
3. The Engineer in Chief , MED, Bikash Bhavan, Salt Lake Kolkata.
4. The Chief Engineer( South Zone ), MED, Bikash Bhavan, Salt Lake Kolkata.
5. The Chairman, Bolpur Municipality.
6. The Additional Chief Engineer, South, MED. Bikash Bhavan, Salt Lake Kolkata.
7. The District Magistrate , Birbhum.
8. The Executive Engineer, Birbhum Division , MED.

  
**Superintending Engineer**  
West Circle,  
Municipal Engineering Directorate,  
Government of West Bengal.

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**General guidance for e-Tendering:**

Instructions / Guidelines for electronic submission of the tenders have been annexed for assisting the contractors to participate in e-Tendering.

**Registration of Contractor:**

Any contractor willing to take part in the process of e-Tendering will have to be enrolled & registered with the Government e-Procurement System, through logging on to <https://etender.wb.nic.in> (the web portal of Public Works Department). The contractor is to click on the link for e-Tendering site as given on the web portal.

**Digital Signature Certificate (DSC):**

Each contractor is required to obtain a Class-II or Class-III Digital Signature Certificate (DSC) for submission of tenders, from the approved service provider of the National Informatics Centre (NIC) on payment of requisite amount. Details are available at the Web Site stated in Clause A.1. above. DSC is given as a USB e-Token.

The contractor can search and download NIeT, Tender Document(s) and Addenda & Corrigenda (*if any*) electronically from computer once he/she logs on to the website mentioned in Clause A.1. using the Digital Signature Certificate. This is the only mode of collection of Tender Documents.

**Participation in more than one work:**

A prospective bidder shall be allowed to participate in the job either in the capacity of individual or as a partner of a firm. If found to have applied severally in a single job all his applications will be rejected for that job.

A prospective bidder (*including his participation in partnership*) shall be allowed to participate in 2 (*two*) works anywhere for each set of prescribed machinery and equipment owned / lease hold agreement by the bidder. In no case a bidder will be allowed to participate in bid for more than 2 (*two*) works anywhere per set of required machineries.

Provided that in a particular NIeT, having multiple work, a bidder can participate in more than one work, provided the bid capacity permits and the bidder is capable to arrange and deploy separate set of required machineries for multiple works and complete the work in specified time.

**Submission of Tenders:**

General process of submission:

Tenders are to be submitted through online to the website stated in Clause A.1. in two folders at a time for each work, one is Technical Proposal & the other is Financial Proposal before the prescribed date & time using the Digital Signature Certificate (DSC). The documents are to be uploaded Virus free scanned copy of the documents are to be uploaded duly Digitally Signed. The documents will get encrypted (transformed into nonreadable formats).

**Technical proposal:**

The Technical proposal should contain scanned copies of the following in further two covers (folders):

**Statutory Cover Containing:**

- A. 6.2.0.1. Prequalification Application  
*(Section – B, Form – I)*
- A. 6.2.0.2. Earnest Money has to be deposited by the bidder through the following payment mode as per memorandum of the Finance Department vide No. 3975-F(Y) dated 28<sup>th</sup> July, 2016.
  - (a) Net banking (any of the banks listed in the ICICI Bank Payment gateway) in case of payment through ICICI bank payment gateway.
  - (b) RTGS/NEFT in case of offline payment through bank account in any bank.
- A. 6.2.0.3. Financial Statement  
*(Section – B, Form – II)*
- A. 6.2.0.4. Affidavit  
*(Ref:- format for affidavit shown in "X" and Declaration "Y" in Section – B)*
- A. 6.2.0.5. West Bengal Form No. 2911 & NIET with all agenda & corrigendum  
*(download & upload the same digitally signed, quoting rate will only encrypted in the BOQ under Financial Bid. In case quoting any rate in West Bengal Tender Form No. 2911 the tender liable to summarily rejected)*
- A. 6.2.0.6. Special Terms, conditions & specification of works.

**Non statutory Cover Containing:**

- A. 6.2.1.1. Professional Tax (PT) deposit receipt challan for the financial year 2022-2023, PAN Card, valid 15-digit Goods and Service Tax payer Identification Number (GSTIN) under GST Act. 2017 with relevant document(s) and any other(s) if applicable.
- A. 6.2.1.2. Registration Certificate under Company Act. *(if any)*.
- A. 6.2.1.3. Registered Deed of partnership Firm / Article of Association & Memorandum.
- A. 6.2.1.4. Registered Power of Attorney  
*(For Partnership Firm/ Private Limited Company, if any)*.
- A. 6.2.1.5. Tax Audited Report in 3 CD Form along with Balance Sheet & Profit & Loss A/c for the last five years  
*(year just preceding the current Financial Year will be considered as year – I)*.
- A. 6.2.1.6. Clearance Certificate for the Current Year issued by the Assistant Register of Co-Op (S) (ARCS).

- A. 6.2.1.7. Bye laws are to be submitted by the Registered labour Co-Op (S) & Engineers' Co.-Opt.(S).
- A. 6.2.1.8. List of machineries possessed by own/ lease along with authenticated copy of tax invoice, delivery challan& waybill Ref.:- Cl. No. 3.2.9.& 20 and Section -B, Form - IV of this NIeT and a statement should be submitted with mentioning the present status and location of installation of main plant and machineries.
- A. 6.2.1.9. List of laboratory Instrument along with authenticated Invoice &Challan.
- A. 6.2.1.10.List of Technical staffs along with structure & organization  
(Section - B, Form - III).
- A. 6.2.1.11. Requisite Credential as per Cl. No. 3(i) and Section - B, Form - V of this NIeT. Scanned copy of Original Credential Certificate as stated in Cl. No. 3(i) of NIeT is to be submitted.

Note: Failure of submission of any of the above mentioned documents (as stated in A. 1.& A. 2.) will render the tender liable to be summarily rejected for both statutory & non statutory cover.

**Opening & evaluation of tender:**

Rest Earnest money for total amounting to 2% (*two percent*) of the tendered value of work for which tender has been offered by the L1 bidder will have to be submitted in due course beyond initial EMD.

**Opening of Technical proposal:**

Technical proposals will be opened by the Superintending Engineer, West Circle, Municipal Engineering Directorate, Government of West Bengal. Intending tenderers may remain present if they so desire.

Cover (folder) statutory documents (vide Cl. No. 6.A-1) will be opened first & if found in order, cover (Folder) for non-statutory documents (vide Cl. No. - 6.A2) will be opened. If there is any deficiency in the statutory documents, the tender will summarily be rejected.

Decrypted (transformed in to readable formats) documents of the non-statutory cover will be downloaded & handed over to the tender evaluation committee.

Pursuant to scrutiny & decision of the Bid Evaluation Committee, the summary list of eligible bidders & the serial number of work for which their proposal will be considered will be uploaded in the web portals.

While evaluation the committee may summon the bidders(s) & seek clarification / information or additional documents or original hard copy of any of the documents already submitted & if these are not produced within the stipulated time frame, their proposals will be liable for rejection.

**THE ABOVE STATED NON-STATUTORY/TECHNICAL DOCUMENTS  
SHOULD BE ARRANGED IN THE FOLLOWING MANNER**

Click the check boxes beside the necessary documents in the My Document list and then click the tab "Submit Non Statutory Documents" to send the selected documents to Non-Statutory folder.

Next Click the tab "Click to Encrypt and upload" and then click the "Technical" Folder to upload the Technical Documents.

Sl. No.	Category Name	Sub-Category Description	Detail(s)
A.	Certificate(s)	Certificate(s)	<ol style="list-style-type: none"> <li>1. Valid 15-digit Goods and Service Tax payer Identification Number (GSTIN) under GST Act. 2017 with relevant document(s) and any other(s) if applicable.</li> <li>2. PAN Card.</li> <li>3. Valid P. Tax Deposit Challan/certificate.</li> <li>4. Valid Trade License.</li> <li>5. Valid PF &amp; ESI Certificate</li> <li>6. Valid Electrical License.</li> <li>7. Valid Electrical Supervisory License.</li> </ol>
B.	Company Detail(s)	Company Detail - 1	<ol style="list-style-type: none"> <li>1. Proprietorship Firm (<i>Trade License</i>)</li> <li>2. Partnership Firm (<i>Partnership Deed, Trade License</i>)</li> <li>3. Ltd. Company (<i>Incorporation Certificate, Trade License</i>)</li> <li>4. Co-Operative Society (<i>Society Registration Certificate Copy, Trade License</i>)</li> <li>5. Registered Power of Attorney.</li> </ol>
C.	Credential	Credential - 1 Credential - 2	Similar nature of work done and completion certificate with Price Schedule or BOQ which is applicable for eligibility in this NIET.
D.	Equipment	Laboratory Equipments Machineries - 1 Machineries - 2	<ol style="list-style-type: none"> <li>1. Authenticated copy of Tax Invoice, Delivery Challan and Waybill (Plant / Machinery)</li> <li>2. Authenticated copy of Tax Invoice, Delivery Challan and Waybill (laboratory)</li> </ol>



Sl. No.	Category Name	Sub-Category Description	Detail(s)
E. Financial Information		Work in hand	1. Financial Statement (Section – B, Form – II) duly filled up. 2. Affidavits – X and Declaration – Y. 3. Certificate of revolving line of credit by the Bank.
		Payment Certificate 1 Payment Certificate 2	Only Payment Certificate not the TDS Certificate. ( <i>Issued by an Officer not below the rank of Executive Engineer</i> ).
		Profit & Loss A/c. and Balance Sheet for the financial year 2022-2023.	Profit & Loss A/c. and Balance Sheet ( <i>with Annexure and 3CD form in case of Tax Audit</i> )
		Profit & Loss A/c. and Balance Sheet for the financial year 2021-2022.	Profit & Loss A/c. and Balance Sheet ( <i>with Annexure and 3CD form in case of Tax Audit</i> )
		Profit & Loss A/c. and Balance Sheet for the financial year 2020-2021.	Profit & Loss A/c. and Balance Sheet ( <i>with Annexure and 3CD form in case of Tax Audit</i> )
		Profit & Loss A/c. and Balance Sheet for the financial year 2019-2020	Profit & Loss A/c. and Balance Sheet ( <i>with Annexure and 3CD form in case of Tax Audit</i> )
		Profit & Loss A/c. and Balance Sheet for the financial year 2018-2019.	Profit & Loss A/c. and Balance Sheet ( <i>with Annexure and 3CD form in case of Tax Audit</i> )
L. Man Power		Technical Personnel	List of Technical Staffs along with Structures & Organization ( <i>as per NIeT.</i> )
		Technical Personnel on Contract	List of Technical Staffs along with Structures & Organization ( <i>as per NIeT.</i> )

Tender Evaluation Committee (TEC)

Bid Evaluation Committee constituted under Superintending Engineer with reference to Order no. 45-W(C)/1M-23/15 dated 13/02/2015 of the Principal secretary to the Govt. of W.B., P.W.D.

Opening of Technical Proposal:

Technical proposals will be opened by the Superintending Engineer (East Circle), M.E. Directorate and his authorized representative electronically from the website using their Digital Signature Certificate (DSC).

#### **Financial proposal**

The financial proposal should contain the following documents in one cover (folder) i.e., Bill of Quantities (BOQ). The contractor is to quote the rate (*Item*

Rate on Turnkey) online through computer in the space marked for quoting rate in the BOQ.

Only downloaded copies of the above documents are to be uploaded virus scanned & Digitally Signed by the contractor.

**The overall lowest rate will be accepted instead of individual lowest Item Rate of the bidder.**

Financial capacity of a bidder will be judged on the basis of net worth and available bid capacity as mentioned in the NIeT to be obtained from the information furnished in Form – II (Section– B), i.e., Financial Statement.

The Audited Balance Sheet for the last 5 (*five*) years, Net Worth, Bid Capacity etc. are to be submitted which must demonstrate the soundness of Bidder's financial position, showing long term profitability including an estimated financial projection for the next 2 (two) years.

**Penalty for suppression / distortion of facts:**

Submission of false document, by tenderer is strictly prohibited & if found the matter may be referred to the appropriate authority for prosecution as per relevant IT Act / other relevant Acts and further penal action may be taken against him as per rule.

**REJECTION OF BID**

**The Employer (tender inviting authority / tender accepting authority) reserves the right to accept or reject any Bid and to cancel the Bidding processes and reject all Bids at any time prior to the award of Contract without thereby incurring any liability to the affected Bidder or Bidders or any obligation to inform the affected Bidder or Bidders of the ground for Employer's (tender inviting authority /tender accepting authority) action.**

**AWARD OF CONTRACT**

The Bidder whose Bid has been accepted will be notified by the Tender Inviting & Accepting Authority through Letter of Acceptance. Refusal to accept an award after issuance of "Letter of Acceptance" or refusal to enter into contract with the Government without justifiable cause will lead to forfeiture of EMD of the said bidder in favour of the Government and appropriate penal action as per rule / as stated elsewhere in this NIeT will be taken against him.

All the tender documents including N.I.T. & B.O.Q. will be the part of the contract documents. After receipt of Letter of Acceptance, the successful bidder shall have to submit requisite copies of contract documents along with requisite cost (Ref: of this N.I.T.) through Demand Draft / Pay Order /RTGS/NEFT issued from any nationalized / scheduled bank in favour of the Executive Engineer of the concerned work within time limit to be set in the letter of acceptance.

The Letter of Acceptance will constitute the formation of the Contract. Issuance of Letter of Acceptance / Work Order may be delayed due to non-receipt of clear site for the work and no claim, whatsoever, for delay in issuance of Letter of Acceptance / Work Order will be entertained.

The Agreement in West Bengal Form No. 2911 will incorporate all necessary documents e.g. NIeT, all addenda & corrigendum, special terms & conditions (Section – C), different filled-up forms (Section –B), BOQ, prevailing P.W. Directorate , PHED Schedule of Rates at the time of floating of NIeT, and the same will be constituted between the Tender Accepting Authority and the successful Bidder.

**Online receipt and refund of EMD of e-procurement through State Government e-procurement portal.**

**Login by bidder:**

A bidder desirous of taking part in a tender invited by a State Government Office / PSU / Autonomous Body / Local Body / PRIs, etc. shall login to the e-procurement portal of the Government of West Bengal

**<https://wbtenders.gov.in>** using his login ID and password.

He will select the tender to bid and initiate payment of pre-defined EMD / Tender Fees for that tender by select from either of the following payments modes:

- A. 11.0.1.1. Net banking (any of the banks listed in the ICICI Bank Payment gateway) in case of payment through ICICI bank payment gateway.
- A. 11.0.1.2. RTGS/NEFT in case of offline payment through bank account in any bank.

**Payment procedure:**

**Payment by Net Banking** (any listed bank) through ICICI Bank PaymentGateway:

- A. 11.1.0.1. On selection of net banking as the payment mode, the bidder will be directed to ICICI Bank payment Gateway webpage (along with a string containing a Unique ID) where he will select the Bank through which he wants to do the transaction.
- A. 11.1.0.2. Bidder will make the payment after entering his Unique ID and password of the bank to process the transaction.
- A. 11.1.0.3. Bidder will receive a confirmation message regarding success/failure of the transaction.
- A. 11.1.0.4. If the transaction is successful, the amount paid by the bidder will get credited in the respective Pooling account of the State Government / PSU / Autonomous Body / Local Body / PRIs, etc. maintained with the Focal Point Branch of ICICI Bank at R.N. Mukherjee Road, Kolkata for collection of EMD / Tender Fees.
- A. 11.1.0.5. If transaction is failure, the bidder will again try for payment by going bank to the first step.

**Payment through RTGS/NEFT:**

- A. 11.1.1.1. On selection of RTGS/NEFT as the payment mode, the e-procurement portal will show a pre-filled challan having the details to process RTGS/NEFT transaction.
- A. 11.1.1.2. The bidder will print the challan and use the pre-filled information to make RTGS/NEFT payment using his Bank account.
- A. 11.1.1.3. Once payment is made, the bidder will come back to the e-procurement portal after expiry of a reasonable time to enable the NEFT/RTGS process to complete, in order to verify the payment made and continue the bidding process.
- A. 11.1.1.4. If verification is successful, the Fund will get credited to the respective Pooling account of the State Government maintained with the Focal Point Branch of ICICI Bank at R.N. Mukherjee Road, Kolkata for collection of EMD.

A. 11.1.1.5. Hereafter, the Bidder will go to e-procurement portal for submission of his bid.

A. 11.1.1.6. But if the payment verification is unsuccessful, the amount will be returned to the bidder's account

#### **Refund/Settlement Process:**

A. 11.1.3.1. After opening of the bids and technical evaluation of the same by the tender inviting authority through electronic processing in the e-Procurement portal of the State Government, the tender inviting authority will declare the status of the bids as successful or unsuccessful which will be made available, along with the details of the unsuccessful bidders, to ICICI Bank by the e-Procurement portal through web services.

A. 11.1.3.2. On receipt of the information from the e-Procurement portal, the Bank will refund, through an automated process, the EMD of the bidders disqualified at the technical evaluation to the respective bidders' bank accounts from which they made the payment transaction. Such refund will take place within  $T \pm 2$  Bank Working Days where T will mean the date on which information on rejection of bid is uploaded to the e-Procurement portal by the tender inviting authority.

A. 11.1.3.3. Once the financial bid evaluation is electronically processed in the e-Procurement portal, EMD of the technically qualified bidders other than that of the L1 and L2 bidders will refund, through an automated process, to the respective bidders' bank accounts from which they made the payment transaction. Such refund will take place within  $T \pm 2$  Bank Working Days where T will mean the date on which information on rejection of financial bid is uploaded to the e-Procurement portal by the tender inviting authority. However, the L2 bidder should not be rejected till the LOI process is successful.

A. 11.1.3.4. If the L1 bidder accepts the LOI and the same is processed electronically in the e-Procurement portal, EMD of the L2 bidder will be refunded through an automated process, to his bank account from which he made the payment transaction. Such refund will take place within  $T \pm 2$  Bank Working Days where T will mean the date on which information on Award of Contract (AOC) to the L1 bidder is uploaded to the e-Procurement portal by the tender inviting authority.

A. 11.1.3.5. As soon as the L1 bidder is awarded the contract (AOC) and the same is processed electronically in the e-Procurement portal.

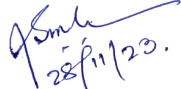
EMD of the L1 bidder for tenders of State Government offices will automatically get transferred from the pooling account to the State Government deposit head "8443-00-103-001-07" through GRIPS along with the bank particulars of the L1 bidder.

In Such transfer will take place within T±1 Bank Working Days where T will mean the date on which the Award of Contract (AOC) is issued.

- A. 11.1.3.6. The Bank will share the details of the GRN No. generated on successful entry in GRIPS with the e-Procurement portal for updation
- A. 11.1.3.7. Once the EMD of the L1 bidder is transferred in the manner mentioned above, Tender fees, if any, deposited by the bidders will be transferred electronically from the pooling account to the Government revenue receipt head "0070-60-800-013-27" through GRIPS for Government tenders.
- A. 11.1.3.8. All refunds will be made mandatorily to the Bank A/c. from which the payment of EMD & Tender Fees (*if any*) were initiated.

**Refund/Settlement Process:**

- A. 11.1.4.1. The ICICI Internet Banking will communicate to the State Government e-Procurement portal all details of the transactions on daily basis.
- A. 11.1.4.2. The Tender inviting Authority of the Government Offices will be using their respective e-procurement User ID and Password to view the EMD and Tender Fees deposited by the bidders in the pooling accounts.
- A. 11.1.4.3. The nodal officer of the Finance Department, Government of West Bengal will be able to view the Department-wise EMD and Tender Fees deposited by the bidders to the pooling accounts and fund transferred downstream at various stages of the tender process to the Government accounts and bidders' accounts, as applicable by using user access as provided by NIC.

  
**Superintending Engineer (West Circle)**  
Municipal Engineering Directorate,  
Government of West Bengal.

SECTION - B

FORM - I

PRE-QUALIFICATION APPLICATION

**To  
The Superintending Engineer  
West Circle,  
Municipal Engineering Directorate,  
Government of West Bengal.**

Ref : Tender for .....(name of work).....

NIeT No..... SI. No..... of The Superintending Engineer..... Circle, Municipal Engineering Directorate, Government of West Bengal

Dear Sir,

Having examined the Statutory, Non-statutory & NIeT documents, I /we hereby submit all the necessary information and relevant documents for evaluation.

The application is made by me / us on behalf of.....

in the capacity..... duly authorized to submit the order.

The necessary evidence admissible by law in respect of authority assigned to us on behalf of the group of firms for Application and for completion of the contract documents is attached herewith.

We are interested in bidding for the work(s) given in Enclosure to this letter.

We understand that:

- (a) Tender Inviting & Accepting Authority/Engineer-in-Charge can amend the scope & value of the contract bid under this project.
- (b) Tender Inviting & Accepting Authority / Engineer-in-Charge reserve the right to reject any application without assigning any reason.

**Enclosure(s): e-Filling:-**

- 1. Statutory Documents.
- 2. Non Statutory Documents.

Date.....

Signature, Name and designation of authorized signatory

For and on behalf of .....

(name of the applicant)

SECTION - B

FORM - II

Information of audited financial statement for the last year to demonstrate the current soundness of the Bidder's financial position

Name of Bidder:

1. The Bidder's Net Worth for the last year calculated on the basis of capital, profit and free reserve available to the firm should be positive.
2. Annual Turn Over

Year(F.Y)	Amount in Rs.	Document Reference as attached (Page no. etc.)
Year-5(2018-2019)		
Year-4(2019-2020)		
Year-3(2020-2021)		
Year-2(2021-2022)		
Year-1(2022-2023)		

3. Bank Solvency Certificate:

Amount in Rs.....

Issuing Bank .....  
 Branch.....

Date of issue of Bank Solvency Certificate .....

Date.....

Signature, Name and designation of authorized signatory

For and on behalf of .....

(name of the applicant)

**AFFIDAVIT - "X"**

(To be furnished in Non-Judicial Stamp Paper of appropriate value duly notarized)

1. I, the undersigned do certify that all the statements made in the attached documents are true and correct. In case of any information submitted is proved to be false or concealed, the application may be rejected and no objection / claim will be raised by the undersigned.
2. The undersigned also hereby certifies that neither our firm.....nor any of its constituent partners have failed to executed more than one works contract under any directorate of Govt. of West Bengal and that neither our firm..... nor any of its constituent partners was terminated by any sub-rule under Clause 3 of Tender Form No. 2911 and that neither our firm ..... nor any of its constituent partners was terminated under any clause of Standard Bidding Documents by the Engineer-in-Charge / Employer during last 3 (three) years.
3. The undersigned would authorize and request any Bank, person, Firm or Corporation to furnish pertinent information as deemed necessary and/or as requested by the Department to verify this statement.
4. The undersigned understands that further qualifying information may be requested and agrees to furnish any such information at the request of The Department.
5. Certified that I have applied in the tender vide **NiET bearing No. WB.....** of the Superintending Engineer, Head Quarter, Municipal Engineering Directorate, Government of West Bengal in the capacity of individual/ as a partner of a firm & I have not applied severally for the same job and also not applied more than two works anywhere per set of required machineries.
6. The undersigned also hereby certifies that the Bid shall remain valid for a period not less than 180 (one hundred eighty) days, after the dead line date for Bid submission.
7. I / we do hereby certify that I shall bring all requisite technical personnel and /or plants/ testing machineries / equipment for all the items of works as per relevant IS / IRC codes of practice and as per BOQ and as per direction of the Engineer-in-Charge at the time of execution of work at site even if upon technical evaluation I am declared as "qualified" without having all the requisite technical personnel and /or plants/ testing machineries / equipment at the time of submission of tender.

Date:

Signature, name and designation of  
Authorised Signatory.

For and on behalf of  
(Name of the Applicant)



SECTION - B

FORM - III

STRUCTURE AND ORGANISATION

---

A. 1 Name of Applicant :

A. 2 Office Address :

Telephone No. :

Mobile No. :

A. 3 Name and address of Banker :

A. 4 Attach an Organization Chart showing the structure of the Company with names of key personnel and technical staff with Bio-Data. :

Note: Application covers Proprietary Firm, Partnership, Limited Company or corporation. Date:

Signature, name and designation Of Authorised Signatory.

For and on behalf of----- (Name of the Applicant)

SECTION - B

FORM - IV

Deployment of Building / Road / Bridge Plant / Machineries / Equipment

Name of Plant / Machine / Equipment	Make	Type	Capacity	Motor / Engine No.	Machine No.	Possession Status		Date of release, <i>if engaged</i>	Present Location of Installation
						Idle	Engaged		
1	2	3	4	5	6	7	8	9	10

Date: .....

.....Signature, name and designation Of.....  
Authorized Signatory.

For and on behalf of  
(Name of the Applicant).....

SECTION - B (Contd...)

Minimum Plant / Machinery and Equipment to be Deployed by the Contractor

It is entirely the responsibility of the Contractor to deploy sufficient plant and mechanical equipment to ensure compliance with his obligations under the Contract:

Successful bidder will have to deploy requisite machinery and equipment during execution of the work at site as per direction of the Engineer-in-Charge.

List of Equipment for Testing Laboratory

Successful bidder will have to provide requisite testing equipments during execution of the work at site as per direction of the Engineer-in-Charge.

Field Testing Instruments

Successful bidder will have to provide requisite field testing equipments during execution of the work at site as per direction of the Engineer-in-Charge.

**DECLARATION "Y"**

(To be submitted in non-judicial stamp paper of appropriate value, duly notarised)

- I, the undersigned, declare that all the statements made in the attached documents in respect of mode of ownership of machineries are true and correct.
- Certified that required specified machineries for the works under this NIeT will be installed at the working site within 45 (*forty five*) days (maximum) from the date of LOA / work Order.
- The undersigned also hereby certifies that neither our firm \_\_\_\_\_ nor any constituent firm had been debarred to participate in tender by Public Works Department, UD&MA Deptt. Or other Govt. deptt. during the last 5(*five*) years prior to the date of this NIeT.
- The undersigned understands and agrees that further qualifying information may be requested and agrees to furnish any such information at the request of the Department.
- Certified that I have applied in the Tender **vide NIeT bearing No. WB..... of the Superintending Engineer, West Circle, Municipal Engineering Directorate, Government of West Bengal** in the capacity of individual / as a partner of a firm and that I have not applied severally for the same job.
- Certified that I have applied in the tender in the capacity of individual / as a partner of a firm.
- Certified that I have access to or have available liquid assets (aggregate of working capital, Cash-in-Hand, uncommitted Bank Guarantees) and / or credit facilities not less than 10% of the estimated cost put to tender. In this respect, I have attached necessary documents with this application.
- I, the under-signed, do certify that all the statements made in the attached documents are true and correct. If any declaration submitted is found / ascertain to be incorrect / fabricated / misrepresented / fraudulent etc., accordingly tender will be liable to be cancelled / terminated immediately & I / my firm / company shall also be liable to be prosecuted under section 197, 199 & 200 of Indian Penal Code, 1860 along with section- 71 & section -73 of Indian Information & Technology Act 2008 & any other applicable law for the time being in force in addition to forfeiture of Earnest Money / Security Deposit.

Date:

Signature, name and designation Of  
Authorised Signatory.

For and on behalf of -----  
(Name of the Applicant/Firm with Seal)

SECTION - B

FORM - V

Experience Profile

Name of the Firm: .....

List of projects completed that are similar in nature to the work applied for executed during the last 5 (five) years.

Name of Employer	Name, Location & nature of work	Name of Consulting Engineer responsible for supervision	Contract price in Indian Rs.	Percentage of Participation of company	Original Date of start of work	Original Date of completion of work	Actual Date of starting the work	Actual Date of completion of work	Reasons for delay in completion (if any)

Date: .....

Signature, name and designation Of  
Authorised Signatory.

For and on behalf of-----  
(Name of the Applicant)

## Section - C

### Special Terms and Conditions

#### **C. 1 General:**

Unless otherwise stipulated, all the works are to be done as per general conditions and general specifications as mentioned in the Departmental Schedule, i.e., Public Works Department Schedule of Rates for Building Works (Volume - I) and Sanitary & Plumbing works (Volume - II) including Materials, Labour & Carriage effective from 1st December 2017 with up-to-date addenda and corrigenda, if any, in force issued by the Superintending Engineer, Planning & Monitoring Circle, PWD & Convener, Combined Schedule Committee of PWD, as applicable for the working area of concerned Circle at the time of uploading of tender.

For general conditions and general specifications of items of works including supply and carriage works, not appearing in the aforesaid specification books, relevant Public Works Department Schedule of Rates for Road & Bridge Works (Volume-III) including Materials, Labour & Carriage in different districts of West Bengal for the working area effective from 1st December 2015 with up-to-date agenda & corrigenda, if any, in force issued from competent authority of PWD or relevant I.S. / I.R.C. Codes of practice or National Building Code in force at the time of uploading of tender will be considered for the appropriate working area.

#### **C. 2 Definition of "Engineer-in-Charge" and commencement of work:**

The word "Engineer-in-Charge" means the Executive Engineer, M.E. Directorate of the concerned Division. The word "Department" appearing anywhere in the tender documents means Municipal Engineering Directorate under UD&MA Department, Government of West Bengal, who have jurisdiction, administrative or executive, over part or whole of the works forming the subject matter of the tender or contract. The word "approved" appearing anywhere in the documents means approved by the Engineer-in-Charge. In case, the work is transferred to any other Division, the Executive Engineer under whom the work will be executed should be treated as the Engineer-in-Charge. The work will have to be taken up within specified time as mentioned in the work order. Failure to do so will constitute a violation of the contract stipulation as regards to proportionate progress and timely completion of work and the contractor will thereby make himself liable to pay compensation or other penal action as per stipulation of the printed tender form. The Superintending Engineer of concerned Circle, Municipal Engineering Directorate, Government of West Bengal will act as Nodal Superintending Engineer. The Executive Engineer, concerned Division, M.E. Directorate, Government of West Bengal shall be the Nodal Engineer-in-Charge of the work. Nodal Superintending Engineer will control the whole work. Deviation of the work if any should be controlled and sanctioned/approved by the nodal Superintending Engineer of MED as per G.O. No.- 5784-PW/L&A/2M-175/2017 Dated 12.09.17.

#### **C. 3 Terms & Conditions in extended period:**

As Clause 5 of West Bengal Form No. 2911 when an extension of time for completion of work is granted by the Engineer-in-Charge for valid reasons over which the contractor has no control, it will be taken as granted by the working contractor that the validity of the contract is extended automatically up to the extended period with all terms and conditions, rates etc. remaining unaltered, i.e., the tender is revalidated up to the extended period.

#### **C. 4 Co-operation with other agencies and damages and safety of road users:**

All works are to be carried out in close co-operation with the Department and other contract(s) that may be working in the area of work. The work should also be carried out with due regard to the convenience of the road users and occupants of the adjacent locality, *if any*. All

arrangements and programme of work must be adjusted accordingly. All precautions must be taken to guard against chances of injury or accidents to workers, road users, occupants of the adjacent locality etc. The contractor must see that all damages to any property which, in the opinion of the Engineer-in-Charge are due to the negligence of the contractor are promptly rectified by the contractor at his own cost and expenses and according to the direction and satisfaction of the Engineer-in-Charge.

**C. 5 Transportation arrangement:**

The contractor will arrange for all means of transport including railways wagons required for carriage and supply of materials and also the materials required for the construction work. The Department may however, at their own discretion grant necessary certificates, *if required*, for booking of railways wagons etc. But, in case of failure of the department to help the contractor in this respect, the contractor will have to arrange at his own initiative so that progress of work is not hampered and no claim whatsoever on this ground will be entertained under any circumstances. If railways facilities are not available, the contractor will have to depend on transport of materials by road as necessary to complete the work without claiming any extra payment from Department in this regard. The contractor must consider this aspect while quoting rate.

**C. 6 Contractor's Site Office:**

The contractor will have to set up an office adjacent to the work as may be approved by the Engineer-in-Charge where all directions and notice of any kind whatsoever, which the Engineer-in-Charge or his representative may desire to give to the contractor in connection with the contract, may be left or sent by post to such office or delivered to the contractor's authorised agent or representative. For such intimation to the contractor's site office, it will be deemed to be sufficient enough to be served upon the contractor. On selection, the contractor shall have to strictly display the work programme in Bar Chart and relevant drawings of the project in the site office.

**C. 7 Incidental and other charges:**

The cost of all materials, hire charges of Tools and plants, labour, Corporation / Municipal Fees for water supply, Royalty or road materials *if( any)*, electricity and other charges of Municipalities or statutory local bodies, ferry charges, Toll charges, loading and unloading charges, handling chargers, overhead charges etc. will be deemed to have been covered by the rates quoted by the contractor inclusive of all taxes, all other charges for the execution of the specified work, including supply of materials and related carriage, complete or finished in all respect up to the entire satisfaction of the Engineer-in-charge of the work. No extra claim in this regard beyond the specified rate as per work schedule in this respect will be entertained.

**C. 8 Authorised Representative of Contractor:**

The contractor should not assign the agreement or sublet any portion of the work. The contractor, may however, appoint and authorised representatives in respect of one or more of the following purposes only.

C. 8.1. General day to day management of work.

C. 8.2. To give requisition for Departmental materials, Tools & Plants etc., to receive the same and sign hand receipts thereof.

C. 8.3. To attend measurements when taken by the Departmental Officers and sign the records of such measurements which will be taken as accepted by the contractor.

The selection of the authorised representatives will be subject to the prior approval of the Engineer-in-Charge concerned and the contractor will in writing seek such approval of the

Engineer-in-Charge giving therein the name of work, Tender No., the Name, Address and the attested specimen signature of the representative he wants to appoint and the specific purposes as specified here-in-above, which the representative will be authorised for. Even after first approval, the Engineer-in-Charge may issue at any subsequent date, revised directions about such authorised representatives and the contractor will be bound to abide by such directions. The Engineer-in-Charge will not be bound to assign any reason for his revised directions. Any notice correspondence etc. issued to the authorised representative or left at his address, will be deemed to have been issued to the contractor.

**C. 9 Power of Attorney:**

The Provision of the power of attorney, *if any*, must be subject to the approval of the Department. Otherwise the Department will not be bound to take cognizance of such of attorney.

**C. 10 Extension of time:**

For cogent reasons over which the contractor will have no control and which will retard the progress, extension of time for the period lost will be granted on receipt of application from the contractor before the expiry date of contract. No claim whatsoever for idle labour, additional establishment, enhanced cost of materials and labour and hire charges of tools & plants etc. will be entertained under any circumstances. The contractor should consider the above factor while quoting his rate. Applications for such extension of time should be submitted by the contractor in the manner indicated in Clause 5 of the printed form of West Bengal Form No. 2911.

**C. 11 Contractor's Go down:**

The contractor must provide suitable go downs for cement and other materials at the site of work. The cement godown should be sufficient in capacity and it must be water tight with either an elevated floor with proper ventilation arrangement underneath the floor or if solid raised flooring is made, cement is to be stored on bamboo or timber dunnage to the satisfaction of the Engineer-in-Charge. No separate payment will be made for these go downs or for the store yard. Any cement, which is found at the time of use to have been damaged, shall be rejected and must immediately be removed from the site by the contractor as per directed of the Engineer-in-Charge.

**C. 12 Arrangement of Land:**

The contractor will arrange land for installation of his Plants and Machineries, his go down, store yard, labour camp etc. at his own cost for the execution of the work. Departmental land, if available and if applied for, may be spared for the said purpose on the written permission of the ULB authority as per rule.

**C. 13 Use of Government Land:**

Before using any space in Government land for any purpose whatsoever, approval of the Engineer-in-Charge will be required. Departmental land, if available and if applied for, may be spared for the purpose on usual charges as fixed by the Competent Authority. The contractor will have to make his own arrangements for storage of tools, plants, equipments; materials etc. of adequate capacity and will clear and remove on completion of work and will also remove the shed, huts etc. which he might have erected in Government land. If after such use, the contractor fails to clear the land, Department will arrange to remove those installations and adequate recovery will be made from the dues of the contractor.

**Work / Site Order Book:**



The contractor will within 7 (*seven*) days of receipt of the order to take up the work, supply at his own cost one Work Order / Site Order Book to Sub-Divisional Officer / Assistant Engineer concerned, who is authorised to receive and keep in custody the Work Order Book on behalf of the Engineer-in-Charge. The Work Order Book will be kept at the site of work under the custody of Sub-Divisional Officer / Assistant Engineer or his authorised representative. The Work Order Book should have machine numbered pages in triplicate. Directions or instructions from Departmental officers to be issued to the Contractor will be entered (*in triplicate*) in the Work Order Book (*except when such directions or instructions are given by separate letters*). The contractor or his authorised representatives should regularly note the entries made in the Work Order Book and also record thereon the actions taken or being taken by him for complying the said directions or instructions on any relevant points relating to the work. The contractor or his authorised representative may take away the triplicate pages of the Work Order Book for his own record and guidance.

Cases of supplementary items or of claims may not be entertained unless supported by entries in the Work Order Book or any written order from the Tender Accepting Authority.

The first page of the Work Order Book shall contain the following particulars:

- C. 14.1. Name of the Work;
- C. 14.2. Reference to contract number;
- C. 14.3. Contractual rate in percentage;
- C. 14.4. Date of opening of the Work / Site Order Book;
- C. 14.5. Name and address of the Contractor;
- C. 14.6. Signature of the Contractor;
- C. 14.7. Name & address of the Authorized representative (*if any*);
- C. 14.8. Specific purpose for which the contractor's representatives is authorized to act on behalf of the Contractor;
- C. 14.9. Signature of the authorized representative duly attested by the Contractor;
- C. 14.10. Signature of the Sub-Divisional Officer / Assistant Engineer concerned;
- C. 14.11. Date of actual completion of work;
- C. 14.12. Date of recording final measurement;

Entries in C. 14.11.& C. 14.12.above shall be filled in on completion of the work and before the Work Order Book is recorded in the office of the Sub-Divisional Officer / Assistant Engineer.

#### **C. 14 Clearing of Materials:**

Before starting any work, work site, wherever necessary, must be properly dressed after cutting clearing of all varieties of jungles, shrubs, bamboo clusters or any undesirable vegetation from the alignment or site of works. On completion of works all temporary structures or obstructions including some pipes in underground works, *if any*, must also be removed. All scars of construction should be obliterated and the whole site should be left in a clear and neat manner to the satisfaction of the Engineer-in-Charge. Total length (*in case of road project*) should be demarcated by proper chainaging with fixing 200 m post as per direction of the Engineer-in-Charge on both sides of the alignment and Bench Marking at desired locations as per direction of the Engineer-in-Charge. No separate payment will be made for all these works, the cost thereof being deemed to have been included in the rates of various items of works quoted by the contractor in the schedule of probable items of works.

**C. 16 Sundry Materials:**

The contractor must erect temporary pillars, master pillars etc. as may be required in suitable places as directed by the Engineer-in-Charge at his own cost before starting and during the work by which the departmental staff will check levels layout of different works and fix up alignment and the contractor will have to maintain and protect the same till completion of the work. All machineries and equipments like Level Machine, Staff, Theodolite etc. and other sundry material like pegs, strings, nails, flakes instruments etc. and also skilled labour required for setting out the levels, for laying out difference structures and alignment will also have to be supplied by the contractor at his own cost as per direction of the Engineer-in-Charge without any extra claim towards the Department.

**C. 17 Supplementary / Additional items of Works:**

- C. 17.1. Rates of Supplementary Item(s) will be analysed in the 1<sup>st</sup> instant as far as possible from the rates of the allied items of works appearing in the tender schedule.
- C. 17.2. Rates of Supplementary Item(s) will be analysed to the maximum extent possible from the rates of allied items of works appearing in the Public Works Department Schedule of Rates (for Building / Sanitary & Plumbing Works) of probable items of work forming part of the tender document. Rates of SOR for the working area at the time of floating of NIEt will be applicable.
- C. 17.3. In Case, additional items do not appear in the above Public Works Department Schedule of Rates, such items for the works will be paid at the rates entered in the Public Works (Roads) Department Schedule of Rates for the working area at the time floating of NIEt.
- C. 17.4. If the Supplementary Item(s) cannot be computed even after application of clauses stated above, rates of supplementary item(s) will be analysed to the maximum extent possible from the rates of allied items of works appearing in the current PWD Schedule of Rates (for Building / Sanitary & Plumbing / Road Works) of probable items of work for the work area at the time of execution of work.
- C. 17.5. If the rates of the Supplementary Item(s) cannot be computed even after application of clauses stated above, the same will be determined by analysis from market rates of material, labour and carriage cost prevailing at the time of execution of such items of work. Profit and overhead charges (*both together*) at 10% (*ten percent*) will be allowed only. In that case the contractual percentage will not be applicable. In such cases rates should be determined by the Superintending Engineer concerned under whom the work is being executed.

Contractual percentage shall only be applicable with regard to the portions of the analysis based on PWD Schedule of Rates as mentioned in Clauses C. 17.1., C. 17.2., C. 17.3 & C. 17.4. stated above only.

It may be noted that the cases of supplementary items of claim will not be entertained unless supported by entries in the Work Order Book or any written order from the tender accepting authority.

**C. 18 Covered up works:**

When one item of work is to be covered up by another item of work the later item should not be done before the formal item has been measured up and has been inspected by the

Engineer-in-Charge or the Sub-Divisional Officer / Assistant Engineer, as the authorized representative of the Engineer-in-Charge and order given by him for proceeding with the later item of work. When, however, this is not possible for practical reasons, the Sub-Assistant Engineer, if so authorized by the Sub-Divisional Officer / Assistant Engineer may do this inspection in respect of minor works and issue order regarding the later item.

**C. 19 Approval of Sample:**

**Samples of all materials to be supplied by the contractor and to be used in the work will have to be approved by the Engineer-in-Charge and checking the quality of such materials will have to be done by the concerned Department or as directed by the Engineer-in-Charge prior to utilization in the work.**

**C. 20 Water and Energy:**

The contractor will have to arrange at his own cost, required energy for operation of equipments and machineries, for operating pump set, illuminating work site, office, etc. that may be necessary in difference stages of execution of work. No facility of any sort will be provided for utilization of the departmental sources of energy existing at the site of work. Arrangement for obtaining water for the work should also be made by the contractor at his

own cost. All cost for getting energy and / or for any purpose whatsoever will have to be borne by the contractor for which no claim will be entertained.

All materials, tools and plants and all labour (*skilled and unskilled*) including their housing, water supply, sanitation, light, procurement of food for contractor staff & crews, medical aids etc. are to be arranged for by the contractor at his own cost. The cost for transportation of labour, materials and all other incidental items as required for work shall also have to be borne by the Contractor without any extra claim from the Department.

**Amenities for contractors:**

All materials, tools and plants and all labour (skilled and unskilled) including their housing, water supply, sanitation, light, procurement of food for staff & crews, medical aids, etc. are to be arranged by the contractor at his own cost. The cost of transport of labour, materials and all other incidental items as required for work shall also have to be borne by the Contractor without any extra claim from department.

**C. 21 Road open to traffic:**

It should be clearly understood that the contractor will be responsible to keep the road open to all kinds of traffic during execution of the work. The work should be so arranged and the programme of work must be so adjusted as not to disturb the smooth flow of road traffic in any way. If necessary, diversion road should be provided and maintained by the contractor at his own cost for the entire period of work, if not separately provided in the tender. The Contractor should take all necessary precautions including guarding, lighting and barricading as necessary, to guard against the chances of injury or accident to the road user and traffic and ferry users during execution of the work for which nothing extra will be paid except otherwise mentioned in the specific price schedule. The contractor will also have to indemnify the Department against consequences of any such injury or accident, if so happens and which, as per opinion of the Engineer-in-Charge is due to contractor's fault.

Suitable road sign, as and where necessary, should be provided by the contractor at his own cost as per direction of the Engineer-in-Charge and will also be maintained till the completion of the work. Road barriers, with red light at night, are to be placed where the existing surface is disturbed with proper road signs. All these should be done at the cost of the contractor without any extra claim towards the Department.

**C. 22 Drawings:**

All works should be carried out in conformity with the drawings duly approved by this Department. The Contractor will have to carry out all the works according to the Approved General Arrangement Drawing and Detail Working Drawings to be obtained from the Department time-to-time. No works shall be carried out without approved drawing.

**C. 23 Serviceable Materials:**

The responsibility for stacking the serviceable materials (*as per decision of the Engineer-in-Charge*) obtained during dismantling of existing structures/roads and handing over the same to the Engineer-in-Charge of work of this Department lies with the contractor and nothing will be paid on this account. In case of any loss or damage of serviceable materials prior to handing over the same to this Department, full value will be recovered from the Contractor's bill at rates as will be assessed by the Engineer-in-Charge.

**C. 24 Unserviceable Materials:**

The Contractor will have to remove all unserviceable materials, obtained during execution at a place as will be directed. The contractor should dress and clear the work site after completion of work as per direction of the Engineer-in-Charge. No extra payment will be made on this account.

**C. 25 Contractor's risk for loss or damage:**

All risk on account of railway or road carriage or carriage by boat including loss or damage of vehicles, boats, barges, materials or labour, *if any*, will have to be borne by the contractor without any extra claim from the Department.

**C. 26 Idle labour & additional cost:**

Whatever may be the reason, no claim on idle labour, enhancement of labour rate additional establishment cost, cost of Toll and hire and labour charges of tools and plants, railway freight etc. will be entertained under any circumstances.

**C. 27 Charges and fees payable by contractor:**

C. 27.1. The contractor will have to pay all fees required to be given or paid by any statute or any regulation or by-law of any local or other statutory authority which may be applicable to the works and will keep the department indemnified against all penalties and liabilities of every kind for breach of such statute, regulation or law.

C. 27.2. The Contractor will save and indemnify the department from and against all claims, demands, suit and proceedings for or on account of infringement of any patent, rights, design, trade mark of name of other protected right in respect of any constructional plant, machine, work, materials, thing or process used for or in connection with works or temporary works or any of them.

**C. 28 Issue of Departmental Tools and Plants:**

All Tools and Plants required for the work will have to be supplied by the Contractor at his own cost. All cost of fuel and stores for proper running of the Tools and Plants must be borne by the Contractor.

**C. 29 Realisation of Departmental claims:**

Any of sum money due and payable to the contractor (*including security deposit refundable to him/her*) under this contract may be appropriated by the Government and set off against any claim of Government for the payment of sum of money arising out of this contract or under any other contract made by the contractor with the Government. If the entire claim of

Government is not appropriated by this way, claim for balance amount may be appropriated as per Public Demand Recovery Act.

**C. 30 Compliance of different Acts:**

The contractor shall comply with the provisions of the Apprentices Act, 1961, Minimum Wages Act, 1848. Contact Labour (Regulation and Abolition) Act 1970 and the rules and orders issued hereunder from time to time. If he fails to do so, Engineer-in-Charge or Superintending Engineer of the concern Circle of P.W. Directorate may at his discretions, take necessary measure over the contract.

The Contractor shall also make himself responsible for any pecuniary liabilities arising out on account of any violation of the provision of the said Act(s). The Contractor must obtain necessary certificate and license from the concerned Registering Office under the Contract Labour (Regulation & Abolition) Act, 1970.

The contractor shall be bound to furnish the Engineer-in-Charge all the returns, particulars or date as are called for from time-to-time in connection with implementation of the provisions of the above Acts and Rules and timely submission of the same, failing which the contractor will be liable for breach of contract and the Engineer-in-Charge may at his discretion take necessary measures over the contract.

**C. 31 Safety, Security and Protection of the Environment:**

The Contractor shall, throughout the execution and completion of the Works and the remedying of any defects therein:

- C. 31.1. have full regard for the safety of all persons and the Works (*so far as the same are not completed or occupied by the Department*);
- C. 31.2. provide and maintain at his own cost all lights, guards, fencing, warning signs and watching, when and where necessary or required by the Engineer-in-Charge for the protection of the Works or for the safety and convenience of the public or others;
- C. 31.3. take all reasonable steps to protect the environment on and off the Site and to avoid damage or nuisance to persons or to property of the public or others resulting from pollution, noise or other causes arising as a consequence of his methods of operation;
- C. 31.4. ensure that all lights provided by the Contractor shall be screened so as not to interfere with any signal light of the railways or with any traffic or signal lights of any local or other authority.

**C. 32 Commencement of work:**

The work must be taken up within the date as stipulated in the work order and completed in all respects within the period specified in Notice Inviting e-Tender.

**C. 33 Programme of work:**

Before actual commencement of work the contractor shall submit a programme of construction of work with methodology clearly showing the required materials, men and equipment. The contractor will submit a programme of construction in the pattern of Bar Chart or Critical Path Method and a time table divided into four equal periods of progress of work to complete the work within the specific period for approval of the Engineer-in-

Charge who reserves the right to make addition, alterations and substitutions to such programme in consultation with the contractor and such approved programme shall be adhered to by the contractor unless the same is subsequently found impracticable in part or full in the opinion of the Engineer-in-Charge and is modified by him/her. The contractor must pray in writing, showing sufficient reasons therein for modification of programme.

The work shall have to be executed strictly as per the time limit mentioned in this document failing which shall invite appropriate penalty as applicable.

The conditions laid down in Clause 2 of the printed tender form regarding the division of total period and progress to work and the time table there for as provided in the said clause shall be deemed to have been sufficiently complied with the actual progress of work and does not fall short of the progress laid down in the approved time table for one fourth, half and three fourth of time allowed for the work.

**C. 34 Setting out of the work:**

The contractor shall be responsible for the true and perfect setting out of the work and for the correctness of the position, levels, dimensions and alignments of all parts of work, if any rectification or adjustment becomes necessary the contractor shall have to do the same at his own cost according to the direction of the Engineer-in-Charge. During progress of works, if any, error appears or arises in respect of position, level, dimensions or alignment of any part of the work contractor shall at his own cost rectify such defects to the satisfaction of the Engineer-in-Charge. Any setting out that may be done or checked by either of them shall not in any way relieve the contractor from their responsibility for correctness and rectification thereof.

**C. 35 Precautions during works:**

The contractor shall carefully execute the work without disturbing or damaging underground or overhead service utilities viz. Electricity, Telephones, Gas, Water pipes, Sewers etc. In case disturbances of service utilities is found unavoidable the matter should immediately be brought to the notice of the Engineer-in-Charge and necessary precautionary measures as would be directed by the Engineer-in-Charge shall be carried out at the cost and expenses of the contractor. If the service utilities are damaged or disturbed in any way by the contractor during execution of the work, the cost of rectification or restoration of damages as would be fixed by the Engineer-in-Charge concerned will be recovered from the contractor.

**C. 36 Testing of qualities of materials & workmanship:**

All materials and workmanship shall be in accordance with the specifications laid down in the contract and also as per specification mentioned in the relevant Schedule of Rates for Building Works (Volume - I) and Sanitary & Plumbing Works (Volume - II) and relevant IS / IRC codes and the Engineer-in-Charge reserves the right to test, examine and measure the materials / workmanship direct at the place of manufacture, fabrication or at the site of works or any suitable place. The contractor shall provide such assistance, instrument, machine, labour and materials as the Engineer-in-Charge may require for examining, measuring and testing the works and quality, weight or quantity of materials used and shall supply samples for testing as may be selected and required by the Engineer-in-Charge without any extra cost. Besides this, he will carry out tests from outside Government Laboratory as per instruction of Engineer-in-Charge. The cost of all such tests will have to be borne by the agency and that must be considered during quoting rate.

**C. 37 Site Condition:**

The contractor before tendering must visit the site and satisfy himself as to the extent of the proposed construction difficulties and problems, if any, to start, to continue and complete the

work within the time as stipulated in this tender without dislocation of normal traffic during day as well as to night. The execution of the work should be planned and phased so that there are no undue hazards to the movement of normal traffic over the road. No additional payment will be entertained on this account.

Difficulties and inconveniences in transporting materials over the bad roads, Kutcha roads, incomplete roads and over the weak and damaged culverts should be taken into consideration by the Contractor. The materials for the work may be required to carry over kutcha roads. These approach roads should be maintained by the Contractor at his own cost.

Difficulties in collection of different materials in lot, over the road flank due to insufficient space if there be any, should be noted by the bidder. No extra rate or extra time will be allowed on these accounts. The bidder should quote his rate taking into consideration regarding security of the materials. Nothing will be entertained under any circumstances beyond the respective tendered provisions.

**C. 38 Preliminaries:**

During execution of the work, contractor will remain responsible for providing reasonable facilities to traffic on the road and also lighting and guarding of the road during night for its safety while the work is in progress and no extra rate will be paid on this account before taking up the work.

Approximately half of the road width including one flank should be kept clear to the traffic from all obstructions and the surface should be properly cleaned and leveled as far as possible.

Sign Boards / Direction Boards are to be erected at required points of specified size indicating in red letters on a white back ground as per direction of the Engineer-in-Charge, cost of which will have to be borne by the agency.

Road barriers should be placed wherever the existing road surface is disturbed with proper road signs. During night, these should be provided with light, Night Guard / "Chowkidar" for watching the barrier etc. should also be maintained by the Contractor to give due warning to road users, especially at night.

**C. 39. Specification for Building, Sanitary & Plumbing Works& Ancillary Works and Quality Control Tests:**

All works and all quality control tests should conform to specifications mentioned in the BOQ and in the NIeT and in the relevant "Schedule of Rates, Building, Sanitary & Plumbing Works of PWD, Government of West Bengal read with relevant Corrigenda and Addenda". Where the above BOQ, NIeT& SOR is silent about specification or quality control tests of any particular item of work, the same should conform to the specifications and quality control test laid down in the relevant, "Schedule of Rates of Road & Bridge Works PWD, Government of West Bengal read with relevant Corrigenda & Addenda / relevant IS / IRC Codes of practice."

**C. 40 Timely completion of work:**

All the supply and the work must have to be completed in all respects within the time specified in Notice Inviting e-Tender from the date of commencement as mentioned in work order. Time for completion as specified in the tender shall be deemed to be the essence of the contract.

**C. 41 Procurement of materials:**

All materials required to complete execution of the work will have to be supplied by the contractor after procurement from authorised and approved source.

**C. 42 Rejection of materials:**

All materials brought to the site must be approved by the Engineer-in-Charge. Rejected materials must be removed by the Contractor from the site within 24 hours from the issue of order to that effect. In case of non-compliance of such order, the Engineer-in-Charge will have the authority to cause such removal at the cost and expense of the contractor and the contractor will not be entitled to claim for any loss or damage on that account.

**C. 43 Implied elements of work in items:**

Except of such items as are included in the Specific Priced Schedule of probable items and approximate quantities no separate charges will be paid for traffic control measures, shoring, shuttering, dewatering, curing etc. and the rates of respective items or works are deemed to be inclusive of the same.

**C. 44 Damaged cement:**

Any cement lying at contractor's custody, which is found at the time of use to have been damaged, will be rejected and must immediately be removed from the site by the contractor or disposed of as directed by the Engineer-in-Charge at the costs and expenses of the contractor.

**C. 45 Issue of Departmental Materials:**

Departmental materials will not be issued under any circumstances.



**C. 46 Forced Closure:**

In case of forced closure or abandonment of the works by the Department, the contractor will be eligible to be paid for the finished works and reimbursement of expenses actually incurred but not for any losses.

**C. 47 Tender Rate:**

The contractor should note that the tender is strictly based on the rates quoted by the Contractor on the priced schedule of probable item of work. The quantities for various other items of works as shown in the priced schedule of probable items of works are based on the drawings and designs prepared by the Department. If variations become necessary due to design consideration and as per actual site conditions, those will have to be done by the contractor at the time of execution at the rate prescribed in the tender condition. No conditional rate will be allowed in any case.

**C. 48 Delay due to modification of drawing and design:**

The contractor will not be entitled for any compensation for any loss due to delay arising out of modification of the drawing, addition & alterations of specifications, delay in issuance of drawings, etc.

**C. 49 Additional Conditions:**

A few additional conditions under special terms and conditions:

- C. 49.1. Rate quoted will be inclusive of clearing site including removal of surplus (*both serviceable & unserviceable*) earth, rubbish, materials etc. as per direction of the Engineer-in-Charge.
- C. 49.2. Rate quoted will be inclusive of all Taxes.
- C. 49.3. Display board (*Informatory*) of size 150 cm X 90 cm is to be provided at starting and end chainage of the work-site with aluminum plate hoisted on steel tubular pipe/ angle post to a height of 1.5 Meter at the cost of the contractor including fitting, fixing, painting, lettering etc. complete as per direction of the Engineer-in-Charge.
- C. 49.4. The Contractor is to display caution board maintaining I.S. / I.R.C. norms at his own cost as per direction of the Engineer-in-Charge.
- C. 49.5. Deep excavation of trenches left out for days should be avoided.
- C. 49.6. Labour Welfare CESS will be deducted @ 1% (*one percent*) of gross bill value as per rule, *if applicable*.
- C. 49.7. The whole work will have to be executed as per Departmental drawings available in this connection at the tendered rate.
- C. 49.8. Income Tax will be deducted from each bill of the contractor as per applicable rate and rules in force.

**C. 50 Royalty:**

The Contractor will have to comply the relevant rules and regulations and laws of the land in this regard.

**C. 51 Night Work:**

The contractor shall not ordinarily be allowed to execute the work at night. The contractor may however, have to execute the work at night, if instructed by the Engineer-in-Charge. For true technical or emergent reasons, the work may require to be executed during the night also according to the instruction of the Engineer-in-Charge. In that case the contractor shall have to arrange for separate set of labour with sufficient and satisfactory lighting arrangement for the night work. No extra payment whatsoever in this respect will be made to the contractor.

**C. 52 Working condition:**

During execution of work, contractor will remain responsible for providing unhindered passage to traffic on road adjacent to site, providing lighting and guarding arrangement during night for safety and no extra cost will be paid on this account.

Work may be required to be executed at night also. Accordingly sufficient lighting arrangement is to be made by the bidder and the cost of such arrangement shall be deemed to have been included in the rates of relevant items.

It is to be noted that there will not be any electrical facility at work site. Bidder should make his own arrangement for water, necessary power of lighting, welding, running of pumps etc. and the cost for such arrangement shall be deemed to have been included in the rates quoted by the bidder.

**SECTION-D**

# **Additional Terms & Conditions and specification for Civil, Electrical & Mechanical works**

## **1. Technical Specification for Civil Works**

1. Civil works ( OHR & CWR & Pump House cum Switch Room )is to be executed as per Drawing & Specifications duly approved by **the Superintending Engineer, West Circle , M.E.Dte. / Executive Engineer , Birbhum Division , M.E.Dte.**
2. All Electro – Mechanical works including Pumps Motor Control Panel etc should be as per approved drawing and specification.
3. **L1 bidders have to execute work as per approved Civil structural drawing L1 bidder have to furnish G.A drawing including OHR , CWR & Pump House cum Swith Room cum Operator Room with Toilet & Bath Room facilities and internal Electrification works etc etc. dully approved by competent authority before execution of works at site.**

## **SECTION – F**

### **Technical Specification of Major Electro-Mechanical Equipmentsfor CLEAR WATER Pumping Station.**

**This is indicative not exhaustive, will be finalized in detail engineering.**

#### ***1.0. VERTICAL TURBINE (VT) PUMP***

- 1.1 The pumps shall be of vertical wet pit type with mixed flow impeller. Pumps shall be placed vertically submerged in the wet pit and mounted on the top of the CWR Floor. The pump shall be self-service water lubricated type. Self-lubricated type guide bearings are to be provided at suitable positions of the shafts and shall not be more than 1.5 M (approximately) apart. Since the service water may carry minor solid particles, the guide bearings shall have suitable passages within them to expel / pass these minor solid particles by self-working pressure, and the same will not stuck inside the bearings deteriorating them. The specific gravity of clear Water shall be considered as 1.00 (Max.).
- 1.2 The pump battery shall contain suitable no pump sets out of which each pump shall deliver 100 % of the demand and also the system shall have minimum 50% stand-by Pumps.

1.3 Pumps shall be vertically driven with shaft directly & flexibly coupled with adequate rating, V1, SCIM. The pump rotational speed shall not be more than 1500 rpm (syn).

1.4 The pumps shall be of non-pull out type. The individual pump discharge line shall run over the floor and shall be connected with the common delivery manifold. The pump discharge head/ motor stool / sole plate shall be rigidly grouted on the Pump floor. The foundation plan and foundation pockets required to be kept with the civil construction, and the successful bidder on receipt of the order shall furnish the pump-motor foundation plan authenticated by the OEM. The said foundation will take care and encounter the horizontal back thrust as may be generated during start/stop of the same (at shut off condition may be considered).

1.5 The pump impeller shall be securely held on the pump shaft as per provision of the pump manufacturer's design so as to prevent sliding of the impeller along the shaft during operation.

1.6 The pumps shall be of having a fairly steep H-Q curve. The tenderer shall furnish the evaluated specific speed of the pump at the specific trim at duty point. The pump H-Q characteristics curve shall be stable all throughout. There shall be a margin of at-leas 25% in between the run-out flow and the duty point flow.

1.7 The pump efficiency shall be reasonably high. The head-discharge-efficiency- KW absorbed-NPSHR shall be guaranteed without any tolerances at the duty point working at water level condition mentioned in the Obligatory Data.

The tenderer shall have to confirm the maximum power absorbed by the pump on the entire range starting from the shut-off to run-out without any positive tolerance

1.8 The suspension length of the pump assembly shall be such that it can safely work at the lowest low-level condition considering worst of (i) the NPSHR of the offered pump at the maximum water discharge condition on the entire operating range & (ii) minimum submergence requirement. It shall have one suitable basket type strainer preventing entry of foreign particle and of any solid in the pump.

- 1.9 The vertical column pipe assembly shall be of suitable dia. fabricated from adequately mm thick MS plate, flanged type, and anti-corrosive epoxy painted both inside and outside. The column piping shall be of individual length not more than 1.5 M each for effective and easy handling.
- 1.10 Suitable diameter stainless steel (SS316L) rigidly hold from the Pump floor, secured at intermediated points by fastening it with the pier liner, shall be provided with each pump assembly.
- 1.11 The total suspension length including the bottom basket strainer if any, shall be fixed by the tenderer considering the minimum submergence requirement working at the lowest low level, the required bottom clearance at the indicated level etc. The total suspension length, as has been considered in the offer backed by technical justification shall be placed with the technical offer.
- 1.12 The pump assembly shall be provided with suitable anti-friction roller thrust bearing, non-reverse ratchet assembly, bowl bearing, suction bell bearing, shafts sleeves including sleeve at gland packing point, seal ring / wearing ring, provision for impeller adjustment nut, double throat air-valve at column vent point and other important features as provided by the manufacturer. Suitable motor stool, motor sole plate with facility of pulling out the column and bowl assembly through it, anchoring bolts, nuts, washers, fixing bolts all complete are to be provided.
- 1.13 The pump rotating assembly shall be statically and dynamically accurately balanced. The impeller balancing shall be within the grade G- 6.4 as per IS: 11723. No hole or any piece being welded / bolted on the pump impeller for balancing shall be allowed. The shaft should be ground all over and perfectly aligned. Special care should be taken that the entire pump assembly do not experience vibration beyond the permissible limit as per IS:11724, of such class roto-dynamic unit while in operating even in worst operating condition at any combination.
- 1.14 The pump motor shall be considered as a single unit and the vibration limit should be within the limit specified in above IS.

- 1.15 The noise level shall be within the permissible limit of IS: 12065. The thrust bearing shall be designed in such a manner to be worked safely on any working condition even at the respective shut off.
- 1.16 The pump shall also withstand the condition of any back flow on it.
- 1.17 The static and dynamic loading of the pump motor assembly with other allied components shall be clearly indicated.
- 1.18 The pump shall be capable of continuous operation. The pump shaft, line shaft shall be accurately sized. Replaceable sleeves are to be provided at desired point. The Stuffing box shall be self sealed design provided with packing ring and preferably with Split type gland.
- 1.19 The impeller of the offered pump shall not be either on the lowest trim or the highest trim of the same pump family offered.

1.20 The wetted portion of the pump shall have a proper finish. The pump shall have a minimum efficiency of 80% at duty point. Pumps offered with lesser efficiency at duty point shall not be accepted.

1.21 The pump shaft shall be accurately machined and ground all over. The portion of the pump that will come under the contact with pumped liquid shall be protected by replaceable sleeves.

Suitable pump casing wearing ring and/or impeller neck ring as per the manufacturer's design shall be provided. Each pump shaft shall be adequately supported, both at driving and non-driving ends, on anti-friction type ball/roller bearings capable to withstand the worst thrust loading for the pump operation from shut-off to run-out.

1.22 The pump shall be suitable for valve open starting and also to take care of the condition of back water flow in it, if any. Grease injection nipples and grease collector at each bearing points shall be provided.

1.23 The overall noise level of the pump-motor unit shall be within the stipulations of the relevant BIS limit all round measured from a distance of 1.5 M.

1.24 The identical parts of the pumps shall be inter- changeable type.

1.25 The supply of the pump shall be completed by the pump manufacturer with the following components and accessories: -

Suitable motor stool, pump motor sole plate with facility of pulling out the column and bowl assembly through it, anchoring bolts, nuts, washers, fixing bolts all complete are to be provided. Sole Plate of the total pump-motor assembly, motor stool with all foundation bolts, nuts, washers, wedges, leveling shims and other erection materials as required. It may be noted that there shall be no other thrust encountering device on the pump discharge pipe branch and the common delivery header excepting the pump foundation bolts. The pump foundation bolts shall be adequate enough to withstand all the thrust that may occur during pump operation including start/stop. Additionally one MSDF short-piece with adequate stiffeners shall be provided just after the pump delivery flange and the same shall be anchored with pump / intermediate floor to minimize the back – thrust.

Suitable flexible coupling with bolts, nuts, pins, keys etc. for coupling the drive and driven unit.

Air-vent cock, priming cock suitably placed.

Self sealed packing box provided with packing rings, lantern rings, split type glands, gland cooling water connection with cock, valves etc., all service pipes, valves, fittings, drain plug, lifting lugs etc. as required for safe operation of pumps.

Any other accessories & component considered by the manufacturer for safe, efficient operation of pumps

1.26 The pumps shall be capable for continuous operation at any stated level condition.

1.27 The material of construction of the pump is given below. If the tenderer feels that the MOC other than what have been stated will give better service and performance, he may offer the pumps with the MOC as per his choice, backed by technical justifications, but the same shall only be made as an alternative offer.

- |                                    |   |                               |
|------------------------------------|---|-------------------------------|
| a) Pump casing                     | : | CI as per IS 210 Grade FG 260 |
| b) Impeller                        | : | SS, CF8M                      |
| c) Pump Shaft & Intermediate shaft | : | SS 410                        |
| d) Sleeves                         | : | SS 410 hardened               |
| e) Shaft Pins, Keys                | : | SS 410                        |
| f) Shaft Coupling                  | : | SS 410                        |



- g) Bearing ( Except thrust bearing ) : Self-lubricated type with cut-less nitrile rubber in SS /Bronze shell (straight grooves preferred)
- h) Wearing ring / seal ring : Materials having at least 50 BHN hardness difference to the nearest component
- i) Impeller Nut : CI IS 210 GR. FG 260
- i) All hardware used in total pump Assembly (nuts/bolts/fasteners etc.) : SS-410
- k) Column pipes : MS, fabricated from adequately thick steel plate with anti- corrosive epoxy painted both inside and outside after proper surface finish

1.29 All materials, casting used for manufacture of the pumps with allied components & accessories shall be of best tested quality and the contractor has to submit the test certificate for the MOC at the time of shop test as well as with the supplies.

Ultrasonic test to the shafts are to be conducted and test certificate to be furnished.

The dynamic balancing of the rotating unit with coupling, key etc. is to be conducted and test certificate is to be submitted on shop test.

Dye-penetration test to the impeller are to be conducted and the test certificate are to be furnished with the supply.

Hydrostatic tests at a pressure not less than 1.5 times of the shut-off pressure for duration of 30 minutes are to be performed and test certificates to be furnished.

The pump performance test of all the pumps for head, efficiency, power consumed etc. versus discharge shall be conducted as per IS: 9137 in presence of the departmental representatives and in full load, full speed with the job motor and preferably with full column setting.

The duration of the performance test at shop shall be not less than 8 hours continuous operation and the temperature monitoring of both pump and motor shall be conducted.

The tenderer should indicate the maximum column setting, they can accommodate in their factory test bed.

The NPSHR test as per IS: 9137 for at least one pump as per by the manufacturer choice of the department at various discharge conditions including duty point shall be conducted by the manufacturer and test report shall be submitted. The duration of the performance tests of all pumps shall be not less than 2 / 3 hours each, during which the temperature, noise, vibration shall be monitored and tested.

The minimum submergence test as per IS: 9137 shall be conducted to at least one pump as per choice of the department at various discharge conditions including at duty point during the joint shop test of the pumps.

Vibration analysis to all pump motor sets are to be made in all load conditions both during the shop-testing as well as at site after the pump sets have been fully commissioned.

After the performance tests, one pump as per choice of the department shall be stripped off and the internal components shall be checked

Apart from the stated shop tests all field tests including noise, temperature rise, and vibration analysis shall be conducted by the contractor.

- 1.30 The tenderer shall fill-up the guaranteed performance figure / data given in the separate section and submit with the technical offer

### **1.31 *Hydraulic test at shop***

- 1.31.1 All pressure parts shall be subject to hydraulic testing at a pressure of 150% of shut off head or 200% of rated head (effective head) whichever is higher, for a period not less than 30 minutes.

- 1.31.2 Performance test are to be conducted to cover the entire range of operation of the pumps. These shall be carried out to a span of at least 125% of rated capacity up to pump shut off condition. A minimum of five combinations of head and capacity are to be achieved during testing to establish the performance curves including the design capacity points and the two extremities of the Range of operation specified. For range of operation, stipulation in relevant Clause may be followed.

- 1.31.3 Tests shall be conducted with actual drive motors / shop motors at full load and full speed.

- 1.31.4 Reports and test certificates of the above tests shall be submitted to the Engineer-in-charge for approval of the employer.

- 1.31.5 All rotating components of the pumps shall be subjected to dynamic balancing tests, & to be specified in Data Sheets.

### **1.36 *Performance test at shop***

- 1.36.1 Each pump shall have to be tested to determine the performance curves of the pumps. These tests are to be conducted, in presence of Employer or his representative, as per the requirements of the Hydraulic Institute

Standard/ASME Power Test Code PTE 8.2/BS-599/I.S.S., latest edition/  
relevant universally accepted codes.

1.36.2 The Contractor shall conduct necessary arrangements for establishing such test with adequate size of sump, to establish the suitability of suction conditions , flow correcting devices for measurement of flow.

1.36.3 The Employer or his authorized representative shall be given full access to all tests. Prior to performance tests, the Contractor shall intimate the Owner allowing adequate time so that if the Employer so desires, his representatives can witness the test.

### **1.37      *PERFORMANCE GUARANTEE, TOLERANCE AND PENALTIES***

#### **1.37.1      Performance Guarantee and Tolerance**

The Bidder shall guarantee the effective head at the specified designed capacity and also the corresponding pump efficiency, pump input power. Unless otherwise mentioned, the Bidder shall specify the allowable tolerance considered by him on the guaranteed performance on other operating points, which shall not be more than those specified in IS9137.

#### **1.38      *Rectification of Deficient Performance***

The tenderer shall indicate the guaranteed efficiency of the pumps offered by him. While carrying out shop performance tests, the permissible limits of errors in measurement shall be in conformity with Class-B of BS:599 without any penalty whatsoever. Apart from that a negative tolerance of maximum (–) 3% on quoted efficiency shall be acceptable only with penalty. Variation more than (–) 3% will render the pump liable for rejection.

If the shop performance tests indicate any failure of the pump to achieve the guaranteed efficiency, the Contractor will be given a time, to be decided by the Owner, to make up the deficiency at his cost by incorporating necessary modification, alteration and replacement.

### **1.39      *CLEANING, PROTECTION AND PAINTING***

#### **1.39.1      Cleaning before shipment**

Surface of all parts shall be cleaned to remove scale, dirt, oil, water, grease and other foreign objects prior to final assembly of the equipment. All

openings shall be covered to guard against damage and entry of foreign objects.

### **1.39.2 Painting**

All surfaces shall thoroughly be cleaned in a manner approved by the manufacturer for necessary paint coating to be applied on the surface. In case of any prevalent Standard/Codes on selection and application of painting/coating, the same shall be strictly adhered to.

The colour code for finished painting on the external surface(epoxy) shall be subject to Employer's approval. Necessary finish paintings including touch up paints, if not applied at shop, shall be done by the Contractor from sealed containers for site application.

### **1.39.3 Packing for shipment**

All parts shall be properly boxed, crated or otherwise protected for transportation to suit the mode of transportation. Exposed finished surfaces shall be thoroughly greased before transportation.

## **1.40 TESTS AND INSPECTION**

1.40.1 The manufacturers shall conduct all tests required to ensure that the equipment furnished shall conform the requirements of this specification and in compliance with requirements of applicable Codes and Standards. The particulars of the proposed tests and the procedures for the tests shall be submitted to the Employer for approval before conducting the tests. The pump is to be tested on the test bed of manufacturers' works in presence of the EIC representatives. All relevant cost of such inspection by two representatives of EIC has to be borne by the manufacturer / contractor.

## **1.50 SPARE PARTS**

1.50.1 The tenderer is to supply spare parts as per list enclosed vide list of spareparts as per tender specification.

1.50.2 The spare parts as mentioned are to be supplied within the completion period of the contract along with the main equipment.

1.50.3 Cost of spare parts as above are to be mentioned separately.

1.50.4 Replacement of spare parts during contract period would be borne by the Tenderer at their own cost.

List of spare parts for each station.

- i) Rotating Unit: 01nos
- ii) TNC/on off push button/ switch: 4nos
- iii) Bearing: 04 sets

- iv) Indicating lamp “20” nos.
- v) Contactor: 06 nos.

## **1.60 DRAWINGS, CURVES & INFORMATION REQUIRED**

- 1.60.1 Characteristic curves of pumps showing effective head, pump input power, efficiency, submergence/NPSH, against capacity ranging from shut off condition to at least 125% of rated capacity along with a tentative General Arrangement Drawing showing relevant details shall be submitted with the offer.
- 1.60.2 The successful bidder shall furnish the following drawings/data for Employer’s approval after award of the contract.
- 1.60.3 All data furnished during bidding stage shall be treated as final and binding on the Contractor if, however, any, minor change is essential during detail design stage for any improvement in the system, such changes shall be carried out only after obtaining approval of the Employer.
- 1.60.4 The G.D2 values of the impeller of the pump and Rotor of the motor at 1500 R.P.M. (syn.) are to be furnished.

## **1.51 INSTRUCTION MANUALS**

- a) The instruction manual shall present the following basic categories of information in a comprehensive manner prepared for use by operating and/or maintenance personnel:
  - i) Instruction of Erection
  - ii) Instruction for pre-commissioning check up, operation, abnormal conditions, maintenance and repair.
  - iii) Write up on Controls and interlocks provided, if any
  - iv) Recommended inspection points and periods of inspections.
  - v) Schedule of preventive maintenance.
  - vi) Ordering information for all replacement parts.
  - vii) Recommendation for type of lubricants, lubricating points, frequency of lubrication and lubricant changing schedule.
  - viii) Trouble Shooting Procedure.

- b) The information shall be organized in a logical and orderly sequence. A general description of the equipment including significant technical characteristics shall be included to familiarize operating and maintenance personnel with the equipment.
- c) Necessary drawings and/or other illustrations shall be included or copies of appropriate final drawings shall be bound in the manual. Test, adjustment and calibration information as appropriate shall be included and shall be identified to the specific equipment. Safety and other warning notices and installations, maintenance and operating cautions shall be emphasized.
- d) A parts list shall be included showing part nomenclature, manufacture's part number and/or other information necessary for accurate identification and ordering of replacement parts.
- e) Instruction manual shall be securely bound in durable folder.
- f) If a standard manual is furnished covering more than the specific equipment purchased, the applicable model (or other identification) number, parts number and other information for the specific equipment purchased shall be clearly identified and highlighted. Sectional drawing to suitable scale and characteristic curves for the particular equipment supplied must be included in the Instruction manual.

**13.00.00 PROPOSAL DATA**

13.01.00 To complete the proposal, the Tenderer must fill up the following DATA SHEET / CHECK LIST furnished hereinafter.

***DATA SHEET / CHECK LIST OF THE PUMPS BEING OFFERED***

( FOLLOWING DATA SHEET ARE TO BE FILLED UP SEPARATELY FOR EACH CATEGORY OF PUMPS IF THERE BE ANY)

**1.00.00 GENERAL**

- 1.01.00 Manufacturer :
- 1.02.00 Model No. :
- 1.03.00 Type of Pump :
- 1.04.00 Non Pullout : Yes/No
- 1.05.00 Impeller Type : Closed/Semi  
open/Open
- 1.06.00 No. of Pumps offered :
- 1.07.00 Efficiency of Pump at duty condition :

for solo operation

1.08.00 Efficiency of Pump at duty condition :

in parallel operation

:

2.00.00 **PERFORMANCES**

2.01.01 Guaranteed capacity -  $M^3/hr$  without tolerance :in  
single operation & parallel operation

2.01.02 Guaranteed head - MWC at rated discharge :  
discharge, without tolerance in single operation

parallel operation.

2.01.03 Input to the Pump (KW) at duty condition in :  
single operation & parallel operation

without tolerance

2.01.04 Pump input power at worst operating conditionon  
the range of operation (without positive tolerance)

2.01.05 Pump input power at shut off :

2.01.06 Range of operation of Pump :

2.01.07 Recommended Motor KW :

2.02.08 Pump rated speed (RPM) :

2.01.09 Pump specific speed for duty condition :

2.01.10 Pump shut off head for duty condition :



2.01.11 Minimum submergence required in MWC at worst flow condition :

**2.02.01 PUMP NPSHR**

2.02.02 -do- at highest water level condition :

2.02.03 -do- at lowest water level condition :

2.02.04 -do- in the operating range, without positive tolerance :

2.02.05 Pump duty : continuous/intermittent :

**3.00.00 FLEXIBLE JOINTS AND SHAFT**

3.00.01 Flexible Coupling

3.00.02 Type :

3.00.03 Make :

3.00.04 Factor of Safety adopted :

3.00.05 Degree of Flexibility :

3.00.06 Extent of Play allowed :

3.00.07 Shaft diameter :

3.00.08 Material :

3.00.09 Factor of Safety adopted :

**4.00.00 THRUST BEARING**

4.00.01 Type :

4.00.02 Whether separate thrust bearing for pump motor provided or not :

4.00.03 Method of lubrication

4.00.04 Whether the thrust bearing is capable for worst loading of both phases :

4.00.05 Axial thrust at duty point (kg) approx :

4.00.06 Whether thrust bearing temperature detector provided :

5.00.01 Are the pumps suitable for parallel operation :

5.00.02 Whether non-Reserve Ratchet is provided in pump or not :

5.00.03 Type of lubrication for pump :

5.00.04 Whether pre lubrication arrangement provided

**6.00.00 EXPECTED LIVES UNDER NORMAL OPERATION AND MAINTENANCE**

6.00.01 Impellers :

6.00.02 Pump Bowl Casing :

6.00.03 Shaft :

6.00.04 Thrust Bearing :

6.00.05 Whether pump performance curve (H-Q, Q-P, Q-n, Q-NPSHR) authenticated by the pump manufacturer provided with the offer along with :  
system resistance curve

6.00.06 Whether the copy of the pump family curve, authenticated by the pump manufacturer provided with the offer :

6.00.07 Whether the Pump H-Q curve superimposed on the system head curve submitted with the offer :

**7.00.00 GENERAL**

7.00.01 Are companion flanges, air release valves, sole plate, arrangement for thrust encounting devices provided :

7.00.02 Whether lifting lugs, eye bolts etc. provided :

7.00.03 load data

7.00.04 Weight of total pump assembly (empty) :

7.00.05 Weight of water total column :

7.00.06 Total Static Load :

7.00.07 Total dynamic Load :

7.00.08 Maximum horizontal back thrust at maximum water level condition :

**2.0 MOTORS**

## **2.01.00 SCOPE**

- 2.01.01** This specification covers the general requirements of the drive motors.
- 2.01.02** Motor shall be furnished in accordance with both this general specification and the accompanying driven equipment specification.
- 2.01.03** In case of any discrepancy, the driven equipment specification shall govern.

## **2.02.00 STANDARDS**

All motors shall conform to the latest applicable IS/BS/DIN Publications.

## **2.03.00 TECHNICAL SPECIFICATION FOR DRIVE MOTORS**

- 2.03.01** The drive electrical motors shall be of squirrel cage induction type vertical axis TEFC IE2 to suit the size of the pump and shall be able to drive the pump. The rating of the motor shall be minimum 55KW(Zone-1), 90KW(Zone-2), 75KW(Zone-3), 75KW(Zone-4), 90KW(Zone-5) 1500 RPM (Syn.), 415V  $\pm$  10%, 3 Phase, 50 Hz  $\pm$  5%,
- 2.03.02** The motor shall be designed for Star / Delta starting arrangements. The motor starting current shall be guided by IS 12615.
- 2.03.03** All the motors shall be rated for continuous duty operation (duty: S1) IE2. However, due to the operational schedule of the pumping station, the pump motor unit may demand for 8/10 start and stop in a day with a minimum time gap of 20 minutes for one stop after prolong operation and restart the same. The motor shall also be capable of one immediate hot restart and three equal spaced starts per hour.
- 2.03.04** The motor KW rating shall have at least 20% margin over the maximum pump input at duty point or 10% margin over the maximum pump input in the worst case of operation whichever is higher. The overload capacity of the such selected motor rating shall be 10% continuous by allowing temperature rise up to Class-F limits. If the tenderer feel that the above rated motor is not satisfying stated loading, they may offer their rating of motor.
- 2.03.05** The motor characteristics shall match the requirements of the driven equipment.
- 2.03.06** The motor should deliver rated output and accelerate the full speed with 85% of the rated voltage at motor terminal. The accelerating time of the motor should not be more than 3 sec.
- 2.03.07** With 85% rated voltage at motor terminal, the motor shall be capable of working satisfactorily at full load at least 5 minutes without injurious heating or stalling. For 3% voltage imbalance in power supply, the motor shall not be de-rated by more than 10%.
- 2.03.08** The locked rotor withstand time under hot condition at 110% rated voltage shall be more than motor starting time by at least 2.5 sec. Hot thermal

withstand curve shall have a margin of at least 10% over the full load current of the motor to permit relay setting using motor rated capacity.

**2.03.09** The motor shall be TEFC type having protection group of IP 55. Motor shall be suitable for rotation in both the direction.

2.03.10 The insulation of the stator winding of the motor shall be of Class-F but the heat exchanging arrangement shall be such that the temperature rise is limited to that of Class-B as IS:325 over the ambient temperature. The ambient temperature may be considered as 45°C and the relative humidity may vary from 80% to 100%.

2.03.11 The rotor of the motor should be sturdy in construction so as to ensure trouble free operation as indicated in relevant clause without any rotor bar fracture inside or outside the rotor slots or rotor bar end brazing failure or development of cracks in the brazed joint of the rotor bar with shorting ring. The rotor bar of the rotor shall be 99.99% electrolyte grade Cu and shall be well machined, insulated tightly placed and evenly press fitted inside the rotor slots, the later being broached to have smooth finish. The rotor shall be slotted end ring design. The rotor bars in the form of temple bars shall be used. Proper brazing materials shall be used.

The rotor shall be dynamically balanced with all the fans and with key in the shaft extension.

The rotor must carry a guarantee of at least 20,000 starts as per the operations schedule mentioned in relevant clause without any rotor bar failure or any other type of rotor failure.

2.03.12 The motor shall be provided with anti-friction bearing, grease lubricated both at driving and non-driving ends.

The bearings shall be provided with seals to prevent leakage of lubricant or entrance of foreign matter like dirt, water etc. into the bearing area.

Grease lubricated bearings shall be pre-lubricated and shall have provision for on-service positive lubrication with drains and grease collectors to guard against over lubrication.

The type and number of bearing the lubricant details (limited to normally available types of IOC or, any standard make). Quantity and frequency of bearing lubrication should be clearly indicated in the offer as well as to be displayed in the rating plate of the motor.

2.03.13 The motor should be smooth in operation and the noise level should not exceed 85 db at 1.5M from the motor. The vibration level of the pump and motor should be within the specified the limit of IS:11724 and must be within 75 microns.

The motor should have adequate number of terminal boxes for main power cable, control cable & signal cable. The motor main terminal box shall be rotatable in steps of 90°. The main terminal box should be suitable for 2 nos. 3 core, 1.1 KV grade, 70 sq.mm, 150sqmm, 120sqmm, 120sqmm, 150sqmm. Aluminium conductor, armoured, XLPE Cable. The terminal boxes shall be with removable cover with access to connection. No compound shall be used in the terminal box for easy handling. The motor terminal boxes shall be furnished with suitable cable lugs and double compression brass glands to match with the cable size. The terminals shall be clearly identified by phase markings and termination indication corresponding to direction of rotation.

The maximum system fault current for a duration of 1.0 sec. shall be considered.

The motor shall be equipped with built-in anti-condensation space heater of adequate rating suitable for operation at 240V AC supply. Separate terminal box for

the space heater connection are to be provided.

The frame of each motor shall be provided with two separate and distinct grounding pads suitable for accommodation of grounding conductors of suitable size GI flat. The main cable terminal boxes shall have separate grounding pads.

- 2.03.14 The rating plate of the motor should contain, the minimum information as indicated in the relevant IS. Apart from the same, the information as indicated in relevant clause as well as the temperature rise in °C under rated condition, method of measurement, degree of protection shall be furnished.
- 2.03.15 The successful tenderer should furnish the motor load-efficiency curve, torque-speed curve load-power factor curve, thermal withstand curve (hot and cold), current-speed curve and current-time curve.
- 2.03.16 The dimensional drawing of the offered motor, terminal box drawings, load data, GD2 value of the drive unit and the driven unit shall be furnished to the EIC for approval.
- 2.03.17 Apart from the standard accessories provided by the motor manufacturer and those accessories mentioned in preceding paras, one local lock switch is to be provided with each motor having proper connection with the motor connecting switchgear so that the motor breaker can not be closed when the lock switch is in operation. The motor shall also be provided with suitable lifting lugs eye bolts having adequate provision for lifting installation.

- 2.03.18 The motor shall be provided with RTD's and BTD's for alarm and trip ( for rating 132 KW and above). The leads shall be brought out to a separate terminal box.
- 2.03.19 The routine tests as per IS:325 shall be conducted to each motor. Temperature rise test are to be conducted on at least one motor of each rating. The motor vibration tests shall be conducted mounting the motor on the shop motor stool. All the above tests are to conducted at the manufacturer's shop in presence of the departmental representatives. Apart from the shop testing, normal field testing are to be carried out during installation, pre-commissioning and commissioning. All necessary arrangements for the tests are to be made by the contractor.
- 2.03.20 Motors upto 7.5 KW shall be of DOL starting and beyond 7.5 KW shall be Star-Delta Starting

***CHECK LIST OF THE MOTORS BEING OFFERED***

- 1.01.00 Manufacturer of the Motor
- 1.02.00 Rates output in KW
- 1.03.00 No of Poles
- 1.04.00 Speed
- 1.05.00 Nos. offered
- 1.06.00 Type of duty & duty designation (as per IS 325)
- 1.07.00 Whether the motor is capable for operation after one hot restart and/or three equispace hourly restarts.
- 1.08.00 Supply conditions
- 1.08.01 Rated voltage (Volts)
- 1.08.02 Allowable variation in voltage (%)
- 1.08.03 Frequency (Hz)
- 1.08.04 Allowable variation in frequency considered
- 1.09.00 No. of phase

- 1.10.00 Stator connection
- 1.11.00 Currents
  - 1.11.01 Full load current
  - 1.11.02 No load current
  - 1.11.03 Starting current % of full load current
- 1.12.00 Efficiency at 100% & 75% load
- 1.13.00 Power factor at 100% & 75% load
- 1.14.02 No load power factor
- 1.15.00 Method of starting
- 1.16.00 Starting torque (% of full load torque)
- 1.17.00 Maximum torque (% of full load torque)
- 1.18.00 Acceleration time (sec.) from dead stop to full load speed
- 1.19.00 With 100% terminal voltage
- 1.20.00 With 85% terminal voltage
- 1.21.00 Safe stall time - cold/hot
- 1.22.00 Class of insulation
- 1.23.00 Ref Ambient (temperature EC)
- 1.24.00 Temperature rise in (EC) by resistance method & class which limited
- 1.25.00 Type of enclosure
- 1.26.00 Degree of protection
- 1.27.00 Installation
- 1.28.00 Shaft orientation & mounting
- 1.29.00 Space heaters - No proposed

- 1.29.01 Number
- 1.29.02 Rating (Watts)
- 1.29.03 Voltage, Phase, Frequency
- 1.30.00 Whether separate terminal box provided for
- 1.31.00 Bearings
  - 1.31.01 Driving end
  - 1.32.02 Non-driving end
  - 1.32.03 Anticipated life (hours)
- 1.33.00 Recommended lubricant
- 1.34.00 Whether separate lubricant nipple provided
- 1.35.00 Interval of lubrication (hours)
- 1.36.00 Whether winding temperature detectors & bearing temperature detector provided  
( Rating 132 KW & above )
- 1.37.00 Whether separate terminal box for BTDs & RTD's provided
- 1.38.00 Approx. weight of the motor (kgs)
- 1.39.00 Dynamic load (kgs)
  - 1.39.01 Normal running condition
  - 1.39.02 Starting condition
  - 1.39.03 Short current condition
- 1.40.00 GD2 value of motor (kg M<sup>2</sup>)
- 1.41.00 GD2 value of load to motor shaft (kg M<sup>2</sup>)
- 1.42.00 Painting



1.43.00 Earth terminal & lifting lug provided (Y/N)

1.44.00 Technical leaflets/literatures provided or not

2.00.00 **TESTS**

2.01.00 Upon completion, each motor shall be subjected to standard routine tests as per I.S. In addition, type test (Temperature rise) of at least 1 no. motors as per choice of the customer, shall be performed. Further any special tests called for in the driven equipment specification shall be performed. The manufacturer/tenderer has to bear all expenses for such testing to witness the tests for max. two representatives of EIC to the manufacturer's premises.

2.02.00 3 (Three) copies of routine test certificates and type test certificate shall be submitted for approval prior to the despatch of the motors from the manufacture's factory.

3.00.00 **SPARES**

Spare parts are to be supplied as specified separately. Recommended spares for five (5) years operation shall be quoted along with the bid clearly identifying the part nos. with recommended quantities.

4.00.00 **DRAWINGS, DATA & MANUALS**

Drawings, data & manuals for the motors shall be submitted as indicated below:

4.01.00 Along with the bid:

Individual motor data as per Check List

4.02.00 After Award of the Contract for Approval:

- a) Dimensional General Arrangement Drawing
- b) Foundation Plan & Loading
- c) Cable end box details
- d) Load Vs Efficiency & power factor, Current Vs Time / Speed curves
- e) Thermal withstand curves hot & cold
- f) Speed torque characteristics at 80% & 100% voltage
- g) Complete motor data

## **03.00 VALVES AND SPECIALS**

### **03.01.01 Delivery side of pumps**

The delivery side of each pump shall be provided with 1 no. Electrical Actuator operated butterfly valve and 1 no. non-return valve, 1 no. Dismantling joint & short pieces wherever required. The diameter of the valves and joints shall be selected based on velocity of 2.0 m/sec with nearest sizes as per IS. OR as per Scope of Work.

### **03.01.02 Non-Return Valve**

The non-return valve as mentioned here in before shall be manufactured conforming to IS: 5312 (Part-I) / equivalent international standard. The valves will be used for handling clear water and to maintain unidirectional flow. The valve shall be maintenance free, leak proof and shall have low life cycle cost. The PN rating of valves shall be PN 1.0/1.6. as per pressure.

The non-return valve shall be single door, Ductile Iron, double flanged, conventional non-slam design. The body, door, cover shall be of ductile iron (Gr. GGG 40). The seat and body shall withstand fluid pressure of 10/16kg / cm<sup>2</sup> and 16/24 kg / cm<sup>2</sup> respectively. The body seat, door face rings, bearing block, disc shaft, hinge pin, plug and fasteners shall be of SS 316. The bearings shall be suitable for maximum thrust imposed by the shaft during testing and in service.

The end connection shall be drilled flanged type as per IS or BS or equivalent standard. The non-return valve shall have features for quick closing (up to 85%) and slow closing from 85 to 100%. It shall have by pass valve with cock. The valve shall be marked to indicate the direction of flow.

The design and construction of the non-return valve shall be non-slam type and the disc shall be so balanced that the it will not bump against the valve body while the pump is in operation.

The surface protection of the valve shall be done by either epoxy powder coating or epoxy painting (min. paint thickness - 250 micron) for both inside and outside.

All bolts and nuts for flange connection(s) of entire pipe line ( delivery & common manifold ) where applicable shall be of carbon steel having tensile strength 300 N/ mm<sup>2</sup>.

The valves are subject to satisfactory hydrostatic test at manufacture's works and in presence of the department's representative for acceptance.

The MOC of other accessories to complete the individual delivery piping like Y or T bends, flanged end short piece, flanged end enlarger/ reducer or any other components required to complete the job in all respect shall be MS as per IS 226.

### **03.02.01 Butterfly Valve**

The butterfly valves shall be DIDF, PN 1.0.1.6, conforming to IS 13095 of 1996 / BS 5155. The seat pressure shall be 10/16 kg/cm<sup>2</sup> and body pressure shall be 16/24 kg/cm<sup>2</sup>. The valve shall operate smoothly & steadily in both directions, free from flow induced vibrations. The butterfly valve shall be double flanged, double eccentric design. The body, disc materials shall be of ductile iron (Gr. GGG 40). It should provide tight shut off closures & shall be suitable for frequent operation as well as from throttled duty conditions. The valve disk should rotate 90° from full open to full close. The valve disk shall be solid streamlined slab design, and to have minimum head loss. The seat ring shall be of stainless steel (SS) with micro finished nickel / Monel overlay. The seating shall preferably be integral. The disc seal shall be of elastomeric EPDM. The EPDM seal on the disc must be of easy replaceable type with the facility of replacement at site. The shaft bearings shall be medium free, steel backed PTFE / bronze and suitable for maximum axial thrust imposed by the shaft during testing and in service. The fasteners shall be of SS 304.. The valve shall have suitable and adequate capacity of gear box actuator with hand wheel and indicating pointer. The gear box actuator unit shall be of so sealed type with necessary attachments such that external water do not enter the gear box housing to spoil the mechanism. The gear box shall be directly coupled to electrical actuators. The electrical actuators shall be complete with motor starter with reversing control gear, mechanical indication showing the amount of valve opening and shall have the following components.

- a) 415V  $\pm$  12.5% 3 phase, 50 Hz, AC motor.
- b) Reduction gearing arrangement.
- c) Torque & limit switch mechanism.
- d) Valve position indicator.
- e) Arrangements for pick up signals for displaying the % opening of the valves in the suitable meters to be placed on control desk.
- f) The hand wheel with clutch mechanism for manual operation. The manual operation shall be automatically declutched when actuator motors in operation.
- g) Motors shall be of outdoor construction, IP68 protection group.

The motors and gearing arrangement shall be of adequate to open and close the valve under full unbalance pressure and to overcome the seating torque. The torque switch should function as a full proof design by tripping the motor in case of over torque condition

### **03.02.02 ELECTRICAL ACTUATOR**

1. The actuator motor for the BFV shall be suitable for use on 415  $\pm$  10% Volts, 3

phase, 50 HZ power supply and shall have high torque and low inertia squirrel cage motor having minimum class F insulated, 15 minutes rated and shall be with temperature sensing protection by a thermostat / thermistor directly embedded in all phases of the stator winding.

2. The actuator motor shall be provided with complete environmental protection during prolonged period of inactivity to prevent condensation and must have IP 68 degree of protection for continuous submergence.
3. The actuator motor must have high starting torque and it shall be suitable for 60 Starts / hour. The actuator gear box assembly shall be of the totally enclosed oil bath lubricated type and shall be suitable for operation at any angle.
4. The actuator assembly shall have a mechanically independent hand wheel drive for emergency manual operation of the valve by declutching the actuator motor drive by integral lever or otherwise. The drive shall be restored to power drive mechanism automatically on starting of the actuator motor.
5. The actuator assembly shall be provided with following limit switches
  - i. torque limit switches for 'open' and 'close'
  - ii. Position limit switches

All switches shall have contact ratings of 10 amps at 250 volts AC inductive.

6. The actuator assembly shall have integral reversing contactor starter, local control facilities and terminals for remote control and indication circuit at remote end. The starter shall be both mechanically and electrically interlocked and shall have adequately rated contactors to suit the actuator motor rating. The motor shall positively be protected from any earth leakage and single phasing. All electrical shall be mounted on a readily accessible printed circuit board to facilitate withdrawal of starter assembly without any electrical disconnection. Local control shall comprise of one pad lockable three position L/R selector switch and push button switches for open, close and stop. All external wire connections shall be within the scope of the contractor.
7. The actuator assembly shall have facilities to indicate the position of the valve in remote control desk (percentage opening of the valve). The actuator assembly shall have one mechanical dial indicator to indicate the position of the valve. In addition, end of travel indication shall be illuminated with red indicating valve open and green indicating valve closed. The valves and actuators are subject to satisfactory shop test at manufacture's works and PG

test at site in presence of the department's representative for acceptance.

The electrical actuators shall have the following components.

- a) 415V  $\pm$  12.5% 3 phase, 50 Hz, AC motor.
- b) Reduction gearing arrangement.
- c) Torque & limit switch mechanism.
- d) Valve position indicator.
- e) Arrangements for pick up signals for displaying the % opening of the valves in the suitable meters to be placed on control desk.
- f) Remote operation facility with selector switch and local control console.
- g) The hand wheel with clutch mechanism for manual operation. The manual operation shall be automatically declutched when actuator motors in operation.
- h) Motors shall be of outdoor construction, IP 68 protection group suitable for continuous submergence.

The motors and gearing arrangement shall be of adequate to open and close the valve under full unbalance pressure and to overcome the seating torque. The torque switch should function as a full proof design by tripping the motor in case of over torque condition.

#### **03.04 M.S. DISMANTLING JOINT ASSEMBLY AT INDIVIDUAL DELIVERYLINE AND MANIFOLD**

One M. S. dismantling joint of suitable diameter is to be fixed in each of the individual delivery and one no along with the Flow meter & BFV on the Clear water delivery main for the ease of dismantling and fitting of Flow meter during maintenance and to relieve the pipe line stresses. The expansion range for each of the dismantling joint shall be minimum 40 mm. The M. S. dismantling joint shall be complete with long stud (SS 304) holding

arrangements with split flange matching with the site requirement. The hydrostatic test pressure of the DJ shall be 10/16 kg/cm<sup>2</sup>. One leak proof concrete chamber if required as per site condition is to be constructed. The Dimension of the Chamber would however depend on the final alignment and level of the site condition

### **03.05 PUMP DELIVERY SIDE PIPING AND COMMON DELIVERY MANIFOLD**

The pump individual delivery side piping, valves and joints and Common Delivery Manifold shall be shall selected based on velocity of 2.0 m/sec and 1.55 m/sec respectively (Approx.) with nearest sizes as per IS. OR as per scope of work.

The pipes shall be made up of M.S. 8/12 mm thick plates for individual delivery line and Common Delivery manifold, painted both inside and outside by anticorrosive epoxy paints. The pipes shall be of welded joints and shall consist of necessary companion flanges so as to connect the piping with the DJ, NRV, BFV's of the individual pump delivery branch. The pump individual delivery side piping shall be connected to be common delivery manifold as per the layout. Necessary gaskets of suitable thickness shall have to be provided to all flange joints complete with all necessary nuts, bolts, washers etc. The length shall be ascertained from the layout and from the dimensions of the valves/specials.

The common delivery manifold shall of such diameter as per the Technical offer. The manifold shall be fabricated from 8/12mm thick MS plates. The common manifold shall have blank flange / Dish end on one side with adequate stiffening ( as applicable) and the other side would be extended from the centre line of the last pump to install one each Dismantling Joint, Butterfly valve, Air Release Valve and further as required to install one Full bore Electromagnetic flow meter. The length of the manifold must be extended at least one meter on one side after the interconnections with the delivery pipe lines from the pumps at the one extreme end and in the other end it will be extended up to the specified length.

The common delivery manifold shall be provided with one no. 80 mm dia air release valve (double throat) with isolating Gate valve suitably placed. The pipe where ever laid underground shall be painted with anticorrosive paints at the inside and outside shall be wrapped and coated with anti-corrosive tape of not less than 4mm thick so as to prevent the pipes from corrosion.

(Necessary surface finish for proper painting and wrapping coating shall be made by the contractor and careful laying shall be done so as to prevent damages during laying).

### **03.06 Pressure Gauge (Dial Type):**

The individual discharge line and common delivery manifold shall be provided with pressure gauge (6" dial) of bourdon type.

The bourdon tube shall be of SS 316. The gauge shall have cast aluminium weather proof case and casing shall be black stove enamelled. The accuracy shall be of  $\pm 1\%$ . The full-scale range shall be from 0 -10/16 Kg / Sq.cm. The pressure gauge shall have 3-way cock and fitting.

### **04.00 LT DB at WBSEDCL Room for Receiving Power.For Each Station(I-V)**

**04.01** The LT IC/OG is required to Receiving Power from WBSEDCL and provide power to the Pump Houses MCC cum PDB and auxiliary loads for desired locations.

**04.02** The LTDB shall be suitable for 415 V  $\pm 10\%$ , 50 Hz  $\pm 5\%$ , 3 phase, 4 wire supply system. The incoming power shall be provided from the WBSEDCL supply.

**04.03** Incoming feeder termination shall be done with XLPE insulated armoured aluminium cable as required.

The LTIC/OG panel details are as under:

Incomer & Outgoing: 415 V, 3 phase 4 wire , 50 HZ, 400A MCCB for receiving & delivering power

The panel shall be side entry and rear out type single panel MCCB feeder with micro-processor base adjustable O/L, E/F and Short Circuit.

### **5.0 415 V Multi panel MCC cum PDB (400A) at Pump House for each Station(I-V)**

**5.1** The MCC cum PDB is required to provide power to the Pump Motors, auxiliary load and Main Lighting Distribution Board at Pump House.

**5.2** The MCC cum PDB shall be suitable for 415 V  $\pm 10\%$ , 50 Hz  $\pm 5\%$ , 3 phase, 4 wire supply system. The incoming power shall be provided from the outgoing feeder & PDB at at

substation



**5.3** The MCC cum PDB shall be 2 mm CRCA sheet steel enclosed, floor mounted type, self-supporting, fully compartmentalised, dust & vermin proof, cubicle pattern, non-draw out and modular in construction. It shall be finished painted with powder coated paint after necessary chemical treatment for rust free surfaces and application of anti-rust chemical coating. The base frame of the panel shall be made of ISMC – 75 channels.

**5.4** The MCC cum PDB shall be dead front type with concealed type hinged doors at front and bolted covers at the rear. All hinged doors shall be interlocked with the respective switchgears such that the same cannot be opened while the feeder is ON.

**5.5** It shall have rear access and the cable termination arrangement shall be provided at the rear of the respective feeder modules. For incomers, extended bus bars shall be installed preferably from the top of the panel as per respective specifications. The vertical dropper bus bars shall be placed in between two vertical aligned feeder modules.

**5.6** The bus bar for the MCC cum PDB shall be TPN, made of E91E grade Aluminium alloy insulated with 1.1KV grade heat shrink type PVC colour coded sleeve. The rating of the bus bar shall be 400A for phases and 200 A for neutral. The current density of the bus bar shall not exceed 1Amp / sq mm. The bus bars shall be supported on non-hygroscopic type resin moulded insulators and the distance between insulators shall be so designed to make the bus bar system capable of withstanding a short circuit fault current of 50 KA (r.m.s.) for 1 sec. The front bus bar chamber shall be fully shrouded to avoid accidental contact with the live bus bars.

The minimum clearance between bus bars and bus bar to earth shall be as per IS.

**5.7** Incoming & Outgoing feeder termination shall be done with extended bus bar arrangement if required. The cable termination chamber shall be provided with cable supporting clamps. Each incoming ACB shall receive 240 sq.mm., 1.1 KV grade 3.5 core XLPE insulated armoured aluminium cable. The control wiring of the panel shall be done with 1100 V grade PVC insulated 2.5 sq mm flexible copper wire with copper lugs and ferrule marking at each end.

All hinged door shall be earthed with flexible copper wire.

**5.8** A continuous earth bus of size 50 x 8 mm and made of aluminium shall run throughout the length of the panel with drilled holes at the end for connecting the same with the station earth bus bar.

**5.9** Feeder details with mounted components

feeder details are as under:

**5.10** 400A incoming feeder 1no. comprising of following components:

- |      |   |        |
|------|---|--------|
| i)   | 415 V, 4 pole, 400A, 50 KA MCCB with adjustable O/L, S/C, E/F1 No(P111) |        |
| ii)  | 96 sq mm, suitably scaled Ammeter with cramped scale & selector switch  | 1 No.  |
| iii) | 96 sq mm, 0 – 500 V Voltmeter with selector switch                      | 1 No.  |
| iv)  | Current Transformer of suitable ratio & 5A secondary, Class: 1.0, 15 VA | 3 Nos. |
| v)   | Current Transformer of suitable ratio & 5A secondary, Class: 5P10, 10VA | 3 Nos. |
| vi)  | Red, Yellow, Blue phase indicating lamp                                 | 3 Nos. |
| vii) | ACB ON / OFF / TRIP / Earth Fault Trip Indicating Lamp                  | 4 Nos  |

**5.12** 55 KW (Zone-1),90 KW (Zone-2),75 KW (Zone-3),75 KW (Zone-4),90 KW (Zone-5) KW Star – Delta Starter Motor feeders, each comprising of following components:

(Number of feeders shall be no. of Pump sets installed plus one spare)

- a) Adequate rating (Min one size higher than the selection as per Type-II Coordination), 50 KA MCCB with microprocessor-based trip unit with adjustable overload, short circuit & earth fault rated upto 50<sup>0</sup> C without deration - 1 No.

- |   |   |        |
|---|---|--------|
| b) Adequate rating (Min one size higher than the selection as per Type-II Coordination Air Breaker Contactor with 240 V AC Coil arrangement   | - | 3 Nos. |
| c) Clustered LED type indicating lamp for ON / OFF / TRIP / EARTH FAULT TRIP  | - | 4 Nos. |
| Start / Stop Push Button  | - | 1 Set  |
| d) 96 Sq mm suitably scaled including cramped scale Ammeter with selector switch  | - | 1 No.  |
| e) True Digital Microprocessor based Motor Protection relay suitable for 5A CT secondary and having thermal overload protection, instantaneous short circuit protection, inverse and definite time negative sequence current protection, instantaneous and definite time earth fault protection, locked rotor protection, loss of load protection and reverse phase sequence protection (Type P211 or equivalent) | - | 1 No.  |
| f) High speed master trip relay type VAJH 13 or equivalent  | - | 1 No.  |
| g) CT of appropriate rating and 5A Secondary, Class 1.0, 10 VA  | - | 3 Nos. |
| h) CT of appropriate rating and 5A Secondary, Class 5 P 10, 15 VA   | - | 3 Nos. |
| i) Local /Remote selector switch  |   | 1 No.  |

5.13 MCCB / MCB feeder of following rating for each.

- |  |                    |        |
|--|--------------------|--------|
| i) a) 32 A TPN MCCB with Microprocessor based O/C & E/F releases<br>(Adjustable O/L) rated upto 50 <sup>0</sup> C without duration |                    | 3 Nos. |
| b) # A TPN MPCB for Actuator.  |                    | 4 Nos  |
| d) 63 A TPN MCCB with Microprocessor based O/C & E/F releases<br>(Adjustable O/L) rated upto 50 <sup>0</sup> C without deration    |                    | 3 Nos. |
| e) ON / OFF / Trip Indicating Lamp (For each feeder)   | As per requirement |        |
| f) 16 A DP MCB   |                    | 3 Nos. |

## **08.00 CABLE:**

**M.V. power cables shall be with XLPE insulation, stranded aluminium / copper onductor and armoured**

### **08.01 M.V. Cables and Jointing**

M.V. Cables shall be 1.1 KV grade XLPE insulated and armoured of Al / Cu. conductor 3 core / 3½ / 4 core as required. The core shall be stranded and the installation shall be suitable for the working condition. The cable wherever laid in underground trenches shall be of minimum 600 mm width x 800 mm average depth or with cable tray arrangement where necessary and in suitable size cable tray in the pump floor / Sub-station building / between Pump House & Substation Building. Where cable is laid in masonry trench, the cable trenches (where applicable) shall be filled up with sand or covered with chequered plate/RCC slab according to the direction of Engineer-in-Charge. Where necessary cables shall be supported on clamps of approved type and shall be properly protected with G.I. conduit or other protective covering as per direction of Engineer-in-Charge.

All Jointings should be of 'dry type' to be done with hydraulic crimping machine where applicable & done in accordance with the provision of I.E. rules. All jointing materials and other accessories shall be included in the quoted price.

### **08.02 Control cable and jointing**

All Control cables shall be XLPE insulated of 1100 volts grade multi strand copper conductor and armoured of suitable size. The control cable should be terminated with proper sockets, glands etc. At least 2 cores shall be kept as spare in all control circuits.

## **09.00 FLOW SENSOR**

There shall be one number of Full bore Electromagnetic flow meter on the common delivery manifold. The flow meters is to be installed and

commissioned for measuring the instant flow rates as well as the total flow for a period of time of the station passing throughout the common manifold. The flow rates shall be indicated in m<sup>3</sup>/hr & total flow in cubic meter. The flow sensor shall be suitable to measure Clear water. The flow meter shall be electromagnetic inline type to provide indication, totalization and signal transmission of the liquid. The display is required at the Control Desk around 50 mtr. away from the transmitter installation point on the pipe line. Amplification of signals, if necessary, are to be incorporated. The flow meter must be capable of measuring velocity of water upto 3 m / sec with accuracy of  $\pm 0.5\%$ . Flow sensitivity must be  $\pm 0.3$  m/s at any flow rate. The linearity of the instrument shall be 0.1% of scale. The sensor must have enclosure of class IP-68. The tenderer shall clearly indicate the position of flow sensor. The data sheet for flow sensor is as follows.

The flow meter will be full bore electromagnetic type should be capable to handle flow of Clear Water.

Type:- Pulsed DC electromagnetic.

Accuracy:-  $\pm 0.5$  % of measure value.

Repeatability:-  $\pm 0.2$  %

Size of flow meter:- As per designed diameter of the common delivery manifold.

Sensor type:- In line full bore electromagnetic.

Process connection:- Flanged type.

Weather protection class:- IP68 NEMA 6 P or as per the specified by EIC.

Minimum conductivity:- 20 us/cm

Full scale velocity:- 1 to 5 m/sec.

Process temperature:- 50 °C max.

Process pressure:- 10 Bar max.

Electrodes:- SS 316 L/ SS 316.

Coil housing :- SS304

Flange MOC:- Carbon steel .

Flow sensor tube:- SS304

Cable between sensor and transmitter:- Copper cable of single Length as required as per site condition between sensor and transmitter.

Flow transmitter:- Microprocessor based, wall mounted.

Type of display of transmitter:- Display should be LCD or LED type and the size should be suitable for making it visible from at least 6m distance.

Out put:- 4-20 mA DC

Power supply :- 240 V AC 50 Hz and shall be supplied from the MCC cum PDB at a approximate distance of 50 m.

Input:- From flow tube

Web server:- The flow meter should be compatible for connection with web server for remote facility display facility.

Protection class :- IP 68.

Calibration shall be accredited according to ISO/IEC 17025.

### **10.00 *Flow meter/ Flow sensor or Flow Tube fixing chamber***

For fixing of Flow Tube at the delivery manifold, leak proof chamber of adequate dimension is to be constructed if required as per site condition with a rung-ladder of suitable length for getting down.

### **11.00 MECHANICAL TYPE LEVEL INDICATOR**

The Mechanical level Indicator shall be equipped with for continuous monitoring of sump level.

The level indicator shall be securely mounted on the pump floor platform. It shall be capable to monitor the sump level continuously. Range of measurement from LWL to HWL shall be around 05 Mtr.

### **12.00 *EARTHING***

The total installation shall be effectively earthed by providing a ring main earthing. Each earthing set shall consist of one G.I. pipe of not less than 2" dia and 10' length. The electrode shall be buried below the ground upto the depth of moist earth which shall not be less than 8'-0" from ground level and must be 6'-0" away from any building structure. The bottom portion of the electrodes shall be properly perforated and one cast iron cap properly screwed of approved type and design and shall be fitted on the top of the

electrode, connection leads to the earth bus inside the station. After fixing and drawing out of the earth leads, the top portion of the earth, electrode upto 1 ft. shall be properly brick pitched and shall be fitted with water proof bituminous compound. The connecting lead shall be GI strip 75 x 8 mm and shall be laid at a depth of not less than 600 mm from ground level. The leads shall be connected to GI earth bus bar inside the pumping station by means of proper welds. The nos. of individual earthing connected to the Earth bus should such that after installation the earth resistance of the system must be well below one ohm.

One GI bus bar 75mm wide and 8 mm thick shall be provided so that the frames of all electric motors, switch gears, transformers and other electrical accessories and installation shall be connected to this station earth bus by two separate GI strip of adequate dimension. All metallic cover frames, equipments, installation etc. shall be earthed to the full satisfaction of Engineer-in-charge and the Govt. Electrical Inspector.

The earthing and bonding shall be according to the I.E. Rules 1956 with ammendment of 1990. All non current carrying metal parts associated with H.V. installation shall be effectively earthed to the grounding system to achieve:

- a) Limit the touch and step potential to tolerable values;
- b) Limit the ground potential rise to tolerable values so as to prevent danger due to transfer of potential through ground, earth wires, cablesheath etc.
- c) Maintain the resistance of the earth connection to such a value as to make operation of the protective device effective.

The same must be approved by the Govt. Electrical Inspector and shall pass the statutory tests.

The successful tenderer shall have to submit the detailed and fully dimensioned drawing of the whole electrical system showing the proper earthing duly approved by the Govt. Electrical Inspector before commencement of the actual installation work.

The distance between each individual Earth Pits should not be less than 3 meters

## **13.00 LIGHTING SYSTEM**

### **13.01 Luminaries**

The scope includes indoor lighting of pump house, SS, Annex area and reasonable area lighting around the Pump House and Substation Building. Industrial Medium bay luminaries with LED 150W lamps are to be provided in a row alternatively in the beams at each of the pump house ceiling. Motor/ Operating floor lighting should be provided with LED T/L industrial type fixtures and to be fixed on the wall at a level above the lintel. The positions are to be finalized as per requirement and direction of the E.I.C. The illumination level would be 150 Lux.

The SS Room(5mx5m) lighting should be provided with LED T/L type fixtures with reflectors tentatively 2X18W with watt cool day light type (Brilliant White). Illumination level would be 200-250 Lux.

In the corridors, toilet, LED T/L with are to be provided to generate an illumination level of 150 Lux.

Area illumination level 100 LUX with suitable LED fittings.

All the entrance/exists of pump house shall be provided with LED down lighter or bracket mounted fittings with LED lamps of minimum 45 W as per site condition ( minimum 90W for unloading bay entrance).

## **13.02 WIRING**

All wiring installation work must be as per relevant I.S. with proper distribution network, M.C.B. are to be used in distribution boxes and there must be colour segregation for power/netural/ground wires.

- 13.03** In strategic locations of the substation building / pump house, adequate number of 415 / 240 volt TPN / SPN MCB Distribution board shall be placed with multiple ways of different current rating (MCB ) along with a incoming switch from where power to be fed to different switch board.
- 13.04. Individual switch board shall comprise of multiple number of switch (6/10 Amps rated) as the case may be, which shall be used for switching 'ON' and "OFF' operation of the lights / fans / receptacles etc. The individual switch board shall be double door design so as to cover up the switch / regulator etc i.e. switches / regulator etc shall be accessible on opening the door cover.
- 13.05 The above stated distribution board shall be fed from independent switch fuse unit / MCB / MCCB located in the PDB.
- 13.06 440 volt, 15 Amps and 240 volts/15 Amps socket outlet shall be provided where ever required and power shall be taken from the individual way of the distribution board.
- 13.07 The minimum required size of the conductor for internal distribution point wiring shall be as follows:



Sl. No	Type of fitting /wiring	Minimum size of wire
1.	LED Fluorescent	2 nos. 1 core -1.5 mm <sup>2</sup> copper & 1 no. Earth wire of 1.0 mm <sup>2</sup> copper
2.	LED Flood light fitting	2 nos. 1 core -2.5 mm <sup>2</sup> copper & 1 no. Earth wire of 1.0 mm <sup>2</sup> copper
3.	Receptacle-5A	2 nos. 1 core -2.5 mm <sup>2</sup> copper & 1 no. Earth wire of 1.0 mm <sup>2</sup> copper
4.	Receptacle-15A	2 nos – 1 core-4 mm <sup>2</sup> copper & 1 no Earth wire of 1.0 mm <sup>2</sup> copper

## **14.00 Ventilation & Fire fighting System:**

**14.01** Ventilation: The entire pump house including all electrical rooms and the Sub Station Rooms shall have proper ventilation arrangement. The scope shall include the supply and fixing of following equipments complete with GI conduit wiring / armoured cable including all other accessories as required.

- a) 3 - phase suitable Exhaust fans including proper louvers, duct work, rain cowl and bird protection screen ----- As required for the Pump House to ensure 10 Air changes/Hr..
- b) Single phase suitable Exhaust fans including proper louvers, duct work, rain cowl and bird protection screen As required for all the rooms of Sub Station as per the direction of EIC.
- c) Wall mounting type control panel for exhaust fan and others      2 Sets, one each for pump House and substation.
- e) 18" Pedestal fan with regulator and all other accessories      3 Nos.

**14.02** Fire Extinguisher

- a) ABC type Portable type fire extinguisher consisting of welded cylinder, squeeze lever discharge valve, internal discharge tube, discharge nozzle

suspension bracket, duly  
charged and pressurized with ISI marked.

b) ABC stored pressure type fire extinguisher 6.5 Kg capacity with discharge hose and nozzle and consisting of welded cylinder, squeeze lever discharge valve, internal discharge tube, discharge nozzle suspension bracket, duly charged and pressurized with ISI marked.

c) Dry type fire extinguisher 6.5 Kg capacity with discharge hose and nozzle and consisting of welded cylinder, squeeze lever discharge valve, internal discharge tube, discharge nozzle suspension bracket, duly charged and pressurized with ISI marked.

d) Fire buckets (9 litre capacity) made from 24 SWG GI Sheet including wall mounting bracket and filling of sand.

### ***16.00 Tamper proof Kinetic air release valve***

Air valve for clean, cold potable water up to 50°C PN

10 / 16

DN 80 – 200

Double chamber valve with twin float (Rubber / Vulcanite coated timber core / SS 304) -automatic operation with water.

Two-orifice venting system with 3 functions (supply and release of air as well as automatic venting during operation) Flange connection dimensions to IS 1538 Table 4 & 6

Body and Cover made of CAST IRON IS 210 Gr. FG 260 Seal

made of EPDM

Corrosion protection:

Inside and outside with liquid epoxy coating; thickness >250 µm, colour: RAL 5005 blue

Accessories:

Must have a metal seated gate valves (description as above for Sluice Valves upto 800 mm) of same diameter for isolation purpose, complete with gasket and fasteners (steel galvanized)

## **17.00 OVERHEAD CRANE**

### **17.01 Manually Operated Travelling Crane**

The HOT. Crane will be minimum 3 M.T. capacity Manually Operated Travelling Crane (H.O.T.) with a lift from the operating floor level and up to the level above the installed motors. The long travel & the Cross Travel along with height of lift of the crane shall be finalised after freezing of the Pump House layout drawing. Suitable type of Crain rails, girders and all other accessories as necessary for installation and operation of the crane are to be designed & provided by the contractor within the lump sum quoted amount. The two travels of the main hoists i.e Long, Cross and the hoisting operation shall be manually operated. The buffers must be spring loaded operation. The HOT Crane should be tested at manufacturer's works / site as per relevant IS. The same may be witnessed by the EIC. The Contractor has to arrange for such testing at his own cost.

### **List of Vendors**

<b>Sl. No.</b>	<b>Equipment</b>	<b>Make</b>
01.00	Pump	Kirloskar / Mather & Platt / WPIL Ltd.
02.00	Motor	Siemens / ABB / Marathon /Crompton
03.00	Control Desk/ MV Switchboard / MCC cum PDB	Sellwin / PCE Projects/ Roycco Eng. / RNR
04.00	ACB/MCCB	L&T / Siemens / ABB / Schneider
05.00	Fuse Switch Unit	L&T / Siemens / ABB / Schneider
06.00	Breaker control switch	Kaycee / Recom / Alstom
07.00	Relays Siemens(Reyrolle) / BCH	Schneider / ABB / ER/
08.00	Contactore	L&T/ Siemens / ABB / Schneider

09.00	Meters	AE / IMP / Enercon/ Secure
10.00	Cable :	
10.01	HT & LT Cable	Gloster / Polycab / Havells / UCL
10.02	Control / Signal Cable	Gloster / Polycab / Havells / UCL
11.00	Pressure Transmitters	Siemens / ABB / Honeywell / Micro
System		
12.00	Digital Indicators	Micro System / Mecro
13.00	Temperature Scanner	Pecon/ Micro System / Laxon / Chino / Masuka Instruments Pvt. Ltd.
14.00	Radar type Level Monitoring System	Siemens / Khrono / Rosemount
15.00	Flow meter, Indicator, ABB/Siemens	Krohne / Endress Hauser/
	Totaliser	
16.00	Control Fuses	GE/Siemens
17.00	Current Transformer	Kappa /JAWS / Schneider
18.00	Capacitor	Unistar / L&T / Epcos
19.00	Butterfly Valves, Non-Return Valve & Sluice Valve	IVC / Kirloskar / Fluidtech/IVI/Sigma Flow
20.00	Valve Actuators	Rotork / Auma
21.00	Gauges	Bell / Taylors / H. Guru
22.00	Fire Extinguishers	Surex / Minimax / Cease Fire / Fire
Shield		
23.00	Submersible Sump Pump	KSB / MBH/ Kirloskar/Texmo
24.00	Air Conditioner	Carrier / LG / Voltas
25.00	Lighting system	
26.01	Light Fitting	Philips / Bajaj/C.G/KLITE
26.02	Wire	Finolex / KDK / Havells
26.03	Switches	Anchor / Havells / Cab
27.00	Ventilation System	P.N. Chakraborty & Co. / Universal Air PASCO
System /		
28.00	Exhaust Fan / Ventilation Fan	Alstom / EPC / Pasco / Marathon

29.00	Crane	Surekha / Pilcare / India Engineering & Implements Co.
30.00	H.T. Switchgear	Siemens / Schneider/ ABB
31.00	Power Transformer	Schneider / KEC/ Voltamp (Vadodara) /
32.00	Battery	Exide/Amaron
33.00	Battery Charger	Caldyne / Electro Service

**Technical Specification /Scope of Work for Major E/M Equipments.**

**This is indicative not exhaustive, will be finalized in detail engineering.**

<b>Estimate for electro mechanical work for new OHR feeding system at zone I-V under Bolpur Municipality</b>						
<b>Sl.No.</b>	<b>Description of Items</b>	<b>Qty.</b>	<b>Unit</b>	<b>Rate</b>	<b>Amount</b>	<b>Remarks</b>
1	Supply & installation of VT Pump & Motor set of 200m <sup>3</sup> /hr at a head of 60 mtr	2	No			
2	Supply & installation of VT Pump & Motor set of 400m <sup>3</sup> /hr at a head of 60 mtr	2	No			
3	Supply & installation of VT Pump & Motor set of 450m <sup>3</sup> /hr at a head of 40 mtr	2	No			
4	Supply & installation of VT Pump & Motor set of 500m <sup>3</sup> /hr at a head of 35 mtr	2	No			
5	Supply & installation of VT Pump & Motor set of 500m <sup>3</sup> /hr at a head of 40 mtr	2	No			
	<b>MS pipe &amp; special</b>					
7	Supply ,installation , testing and commissioning of 200mm dia. 8mm thick MS pipe & special	1	Each			

8	Supply ,installation , testing and commissioning of 300mm dia. 8mm thick MS pipe & special	4	Each			
9						
a)	Supply ,installation , testing and commissioning of 200mm dia.MS dismantling joint	3	no			
b)	Supply ,installation , testing and commissioning of 250mm dia.MS dismantling joint	6	no			
c)	Supply ,installation , testing and commissioning of 300mm dia.MS dismantling joint	6	No			
10	<b>Non Return Valve</b>					
a)	Supply ,installation , testing and commissioning of 200mm dia.MS NRV	2	no			
b)	Supply ,installation, testing & commissioning of 250 mm dia non return valve	4	Each			
c)	Supply ,installation, testing & commissioning of 300 mm dia non return valve	4	No			
11	<b>Butterfly Valve.</b>					
a)	Supply ,installation, testing & commissioning of 200 mm dia actuator operated butterfly valve	3	Each			
b)	Supply ,installation, testing & commissioning of 250 mm dia actuator operated butterfly valve	6	no			
c)	Supply ,installation, testing & commissioning of 300 mm dia actuator operated butterfly valve	6	No			
12	<b>Flow Meter.</b>					
a)	supply, installation, testing & commissioning of 200mm dia Electro Magnetic flow meter with totalizer.	1	no			

b)	supply, installation, testing & commissioning of 250mm dia Electro Magnetic flow meter with totalizer.	1	Each			
c)	supply, installation, testing & commissioning of 300mm dia Electro Magnetic flow meter with totalizer.	1	No			
13	<b>MCC Cum PDB</b>					
a)	Supply, installation, testing & commissioning of 415V MCC cum PDB at pump house.	1	Each			
b)	Supply, installation, testing & commissioning of 415V MCC cum PDB at pump house.	4	Each			
14	Supply, installation, testing & commissioning of 1.1KV grade cables.	1	lot			
15	Supply, Installation, Testing & Commissioning of Earthing System for sub station & pump house equipment including lightning protection.	5	Each			
16	Supply, Installation, Testing & Commissioning of Illumination System including all sorts of wiring items of the pump house, substation, and Yard.	5	Each			
17	Supply, Installation, Testing & Commissioning of Ventilation System at substation and pump house.	5	Each			
18	Supply, Installation, Testing & Commissioning of Misc Items like Fire Extinguisher, Safety Equipment, Glow Sign Board etc. for CWPS	5	Per lot			
19	Supply, installation, testing & commissioning of 3ton single grider HOT crane	5	Each			
20	Charges for Diesel Generator set/ Temporary power for construction purpose.	5	no			

21	MS structural work for pipe & valve support, cable tray, raised platform etc.	5	No			
22	Commissioning the whole installation including Trial Run of pumps for one month with 8 hrs at a stretch operation as per specification & direction of E.I.C.	5	Item			
23	Operation & Maintenance of the whole Installations for the period of five Years(after trial run )deploying adequate number of working personnel for round the clock operation as per requirement, specification & direction of E.I.C.	60	/month			

## **TECHNICAL SPECIFICATION**

### DEEP TUBE WELL 57 Nos.

**This is indicative not exhaustive, will be finalized in detail engineering.**

#### **01.00 Submersible pump motor set**

Discharge Q=50m<sup>3</sup>/hr (Tentative) Head=

Not less than 50 Mtr.

#### **Pump MOC**

Multi Stage,

Impeller-SS

Diffuser-CI

Pump Shaft-SS

Casing-CI

Column Pipe-MS,ERW heavy C class 80mm dia.

Adaptor-MS

Make- Texmo/KSB/MBH



## **02.00 MOTOR (Squirrel cage)**

Stator-SS

Speed-2900 r.p.m

Voltage-415 ,3ph 50Hz

OD-196mm

Stating- Star-Delta Cable-

2x3 core 6 Sq.mm

## **3.0 VALVES AND SPECIALS**

### **3.01.01 Delivery side of pumps**

The delivery side of each pump shall be provided with 1 no Sulice Valve , 1 no. non-return valve, 1 no. Dismantling joint & short pieces wherever required. The diameter of the valves and joints shall selected based on velocity of 2.0 m/sec with nearest sizes as per IS.

### **3.01.02 Non Return Valve**

The non return valve as mentioned here in before shall be manufactured conforming to IS: 5312 (Part-I) / equivalent international standard. The valves will be used for handling Raw water and to maintain unidirectional flow. The valve shall be maintenance free, leak proof and shall have low life cycle cost. The PN rating of valves shall be PN 1.0.

The non return valve shall be single door, Ductile Iron, double flanged, conventional non slam design. The body, door, cover shall be of ductile iron (Gr. GGG 40). The seat and body shall withstand fluid pressure of 10kg / cm<sup>2</sup> and 15 kg / cm<sup>2</sup> respectively. The body seat, door face rings, bearing block, disc shaft, hinge pin, plug and fasteners shall be of SS 316. The bearings shall be suitable for maximum thrust imposed by the shaft during testing and in service.

The end connection shall be drilled flanged type as per IS or BS or equivalent standard. The non return valve shall have features for quick closing (up to 85%) and slow closing from 85 to 100%. It shall have by pass valve with cock. The valve shall be marked to indicate the direction of flow.

The design and construction of the non return valve shall be non slam type and the disc shall be so balanced that the it will not bump against the valve body while the pump is in operation.

The surface protection of the valve shall be done by either epoxy powder coating or epoxy painting (min. paint thickness - 250 micron) for both inside and outside.

All bolts and nuts for flange connection(s) of entire pipe line ( delivery & common manifold ) where applicable shall be of carbon steel having tensile strength 300 N/mm<sup>2</sup>.

The valves are subject to satisfactory hydrostatic test at manufacture's works and in presence of the department's representative for acceptance.

The MOC of other accessories to complete the individual delivery piping like Y or T bends, flanged end short piece, flanged end enlarger/ reducer or any other components required to complete the job in all respect shall be MS as per IS 226.

### **3.04 M.S. DISMANTLING JOINT ASSEMBLY AT INDIVIDUAL DELIVERY LINE AND MANIFOLD**

One M. S. dismantling joint of suitable diameter is to be fixed in each of the individual delivery and one no along with the Flow meter & Sulice Valve on the River Bed water delivery main for the ease of dismantling and fitting of Flow meter during maintenance and to relieve the pipe line stresses. The expansion range for each of the dismantling joint shall be minimum 40 mm. The M. S. dismantling joint shall be complete with long stud (SS 304) holding arrangements with split flange matching with the site requirement. The hydrostatic test pressure of the DJ shall be 10 kg/cm<sup>2</sup>. One leak proof concrete chamber if required as per site condition is to be constructed. The Dimension of the Chamber would however depend on the final alignment and level of the site condition

### **3.05 PUMP DELIVERY SIDE PIPING AND COMMON DELIVERY MANIFOLD**

The pump individual delivery side piping, valves and joints and Common Delivery Manifold shall be shall selected based on velocity of 2.0 m/sec and 1.55 m/sec respectively with nearest sizes as per IS.

The pipes shall be made up of M.S. 8 mm thick plates for individual delivery line and Common Delivery manifold, painted both inside and outside by anticorrosive epoxy paints. The pipes shall be of welded joints and shall consist of necessary companion flanges so as to connect the piping with the DJ, NRV, BFV's of the individual pump delivery branch. The pump individual delivery side piping shall be connected to be common delivery manifold as per the layout. Necessary gaskets of suitable thickness shall have to be provided to all flange joints complete with all necessary nuts, bolts, washers etc. The length shall be ascertained from the layout and from the dimensions of the valves/specials.

The common delivery manifold shall of such diameter as per the Technical offer. The manifold shall be fabricated from 8mm thick MS plates. The common manifold shall have blank flange / Dish end on one side with adequate stiffening ( as applicable) and the other side would be extended from the centre line of the last pump to install one each Dismantling Joint, Butterfly valve, Air Release Valve and further as required to install one Full bore Electromagnetic flow meter. The length

of the manifold must be extended at least one meter on one side after the interconnections with the delivery pipe lines from the pumps at the one extreme end and in the other end it will be extended up to the specified length.

The common delivery manifold shall be provided with one no. 80 mm dia air release valve (double throat) with isolating Gate valve suitably placed. The pipe where ever laid underground shall be painted with anticorrosive paints at the inside and outside shall be wrapped and coated with anti corrosive tape of not less than 4mm thick so as to prevent the pipes from corrosion.

(Necessary surface finish for proper painting and wrapping coating shall be made by the contractor and careful laying shall be done so as to prevent damages during laying).

## 15.0 SLUICE VALVES

The sluice valves shall be manufactured from closed grain grey cast iron ( FG 260 ) conforming to IS-14846 of the year 2000. Flange ends as per IS 1538 or as per other standards to match with other flanges. The body seat shall be of S.S. AISI- 410 stem shall be of S.S. AISI-410 & the stem nut shall be of 9% AI-Bronze conforming to I.S. 305:1981/BS 2874. Body shall be of. Other details are to be submitted for approval.

The seat pressure shall be 10 kg/cm<sup>2</sup> and body pressure shall be 15 kg/cm<sup>2</sup>. The valves should pass through hydrostatics test for duration of 5 minutes. Materials of construction test certificates shall be provided during supplies. The sluice valves shall be rising spindle type with gearing arrangement / hand wheel for easy manual operation.

### Technical Specification /Scope of Work for Major E/M Equipments of Tube Well

**This is indicative not exhaustive, will be finalized in detail engineering.**

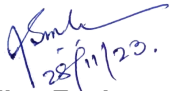
Sl.No.	Description of Items	Quantity	Unit
1	Supply & delivery of pumping machinery submersible pump excluding panel for unmanned operation , MK-Texmo/KSB/MBH c) From 16 HP to 20 HP inclusive of column pipe, valves special ,submersible cable connection from motor to starter & starter to main switch	57	No
2	Supply, Delivery & Installation of 415 V, 3 Phase, 50 hz Auto-manual 20 KW Star-Delta starter Control Panel for Sub. P/M Set. (as per enclosed details) Mk-Sellwin/Electromech/ AC Power/Roycoo Engg./RNR as per direction of EIC. Ref:	57	No

3	Supply, Delivery at site 1.1 KV grade Al armoured cable of size 3.1/2 core 35 sq mm confirming to 1554/7098(PT) 1988 Mk-Havel or equivalent.	1140	Mtr
4	Supply of HT rubber mat of size 3' x 6'.	1026	Sq.Ft
5	Supply & delivery of 1200 mm sweep A.C Ceiling Fan (Orient PSPO, Summer cool / New bridge ) without regulator with all accessories.	57	No
6	S & F MS top clamp 12 x 80 mm section for Sub P/M Set in two halves.	114	Sets
7	S & F of safety clamp for the P/M Set 6 mm x 40 mm section.	57	No
8	Replacement by S & F of pressure gauge of range 0-200 sq in with cock.	57	No
9	Split type M.S fabricated suitable tube well cover for the tube well non-sign with necessary damping arrangement including holes for column pipe, air pipe & cable entry.	57	item
10	Construction of supporting pillar supporting platform for the resting of valves for easy operation with neat cement finish as per direction of EIC.	114	Nos
11	Supply, painting best quality weather thermal resistance paint appv quality two coats with necessary smoothening of surface and application primer incl material, labour and hire charge of tools & plants etc all complete.	171	Sq M
12	Replacement by S & F of protecting device comprising of wire rope clamps etc. Ref:-Do-	57	No
13	Flange joint to CI/DI/MS pipes and specials incl supply of rubber gasket, nuts,bolts,washers etc of quality to make the joint water tight as reqd hydraulic pressure and direction of EIC.	456	Nos
14	installation of pumping machinery with valves, pipe & pipe specials short piece, depth gauge, pressure gauge including hoisting of column pipe, making all electrical and water line inter-connection complete as per direction including supply of necessary materials as reqd. for the work.	57	No
15	Supplying and fixing sheet steel main switch on angle iron frame on wall 100/125 amp 415 V TPN with fuse on L & N Make-Havells/Flora.	57	No
16	Supplying and fixing sheet steel main switch on flat iron frame on wall 15/16 amp, 240 V DP with fuse on L & N Make-Havells/Flora.	57	No

17	Supplying and fixing compression type gland complete with brass gland, brass ring & rubber ring for dust & moisture proof entry of XLPE/PVC cable for 3 1/2 core upto 35 sq mm.	456	Nos
18	Finishing end of XLPE/PVC armoured cables by crimping method incl. Supplying fixing solderless socket(dowels make), tapes, anti corrosive paste & jointing materials 35 sq mm 3.1/2 core.	456	Sets
19	Laying of two cables upto 35 sq mm in underground trench in single tire formation (horizontal) the trench size 680 mmx 760 mm average depth, with brick protection on the top of the each cable with 8 (eight) nos per mtr and 4(four) nos bricks per mtr as separator between the bricks and cables and also trench to be filled up with shifted soil, levelling up and restoring surface duly rammed.	342	Mtr
20	Laying of cable upto 3/3.5 core 35 sq mm - 50 sq mm on wall/surface incl. S&F MS saddle with earthing attachment in 2x10 SWG GI (hot dip) wire making holes etc. as necessary mending good damages and painting.	570	Mtr
21	Supply & Fixing bulkhead light fitting (Havells make) with die cast aluminium housing & frosted glass on wall/ceiling incl. 8 Watt CFL / 100watts GLS lamp complete set.	114	Sets
22	Supplying & fixing of 250 V, 4' long 40 W single / double FL. Tube light fittings complete with all accessories incl. FL. Tube (Phillips make). TMC 055 2 x TL-D 36W EBE.	57	No
23	S & D at site of TW single board size 14" x 16".	114	Nos
24	Supply & Fixing 240 V 6 A Piano key type switch (Brand approved by EIC) on existing sheet metal switch board having bakelite/perspex top cover by screws after making using for switch by cutting bakelite/perspex cover and making necessary connections as required.	228	Nos
25	Supply & Fixing 240 V 16/20 A Piano key type switch (Brand approved by EIC) on existing sheet metal switch board having bakelite/perspex top cover by screws after making housing for switch by cutting bakelite/perspex cover and making necessary connections as required.	228	Nos

26	Supply & Fixing 240 V, 20 A Plug Socket (Brand approved by EIC) without plug top and switch on existing sheet metal switch board having bakelite/perspex top cover by screws after making housing for combined plug switch by cutting bakelite/perspex cover and making necessary connections with PVC wire and earth continuity wire etc.	57	No
27	Supply, delivery, testing and commissioning of LED type 60 W street light luminaires including LED lamp etc all complete. Mk-Phillips/C.G or any reputed make as per direction of EIC.	114	No
28	Supplying & Fixing Out door type CFL luminaire (Havells make-LHRC4185099) with deep drawn aluminium housing anodised inside & clear acrylic cover and accessories incl. for 85 watts CFL lamp incl. S&F 32mm dia GI pipe bracket, clamp, nut & bolts etc.	57	No
29	Distribution wiring in 1.1 KV grade 2x22/0.3 (1.5 sqmm) single core stranded 'FR' PVC insulated & unsheathed copper wire (Brand approved by EIC) in suitable size PVC casing-capping (Precision make) with 1x22/0.3 (1.5 sqmm) single core stranded 'FR' PVC insulated & unsheathed copper wire for ECC, incl. necy. PVC clips, fittings etc. to light/fan/call bell point with piano key type switch (Anchor make) fixed on sheet steel fabricated switch board with Perspex/bakelite top cover on wall incl. necy. connections and making earthing attachment and mending good damages to building works. [PVC casing-capping and Switch board both on surface]. Average run 6 mtr.	456	Pnt.
30	Supply of fabricated MS Kiosk made from 14 SWG MS Angle incl. Providing Al busbar of 60 A rating for main supply transmission with proper stamping and to be fixed on pedestal as per direction of EIC.	57	No
31	Earthing with 50 mm dia GI pipe 3.64 mm thick x 3.04 Mts. long and 1 x 4 SWG GI (Hot Dip) wire (4 Mts. long), 13 mm dia x 80 mm long GI bolts, double nuts, double washers incl. S & F 15 mm dia GI pipe protection (1 Mts. long) to be filled with bitumen partly under the ground level and partly above ground level driven to an average depth of 3.65 Mts. below the ground level By TATA-Medium GI pipe.	171	Sets

32	Supplying & fixing earth busbar of galvanized (Hot Dip) MS flat 25 mm x 6 mm on wall having clearance of 6 mm from wall including providing drilled holes on the busbar complete with GI bolts, nuts, washers, spacing insulators etc. as required.	34.2	Mtr
33	Connecting the equipments to earth busbar including S & F GI (Hot Dip) wire of size No. 4 SWG on wall/floor with staples buried inside wall/floor as required and making connection to equipments with bolts, nuts, washers, cable lugs etc. as required and mending good damages.	570	Mtr
34	Supply, delivery at site and storage of glowing plastic sign board for identification mark as per direction of EIC.	684	Sq.Ft
35	Erection of glowing plastic sign board for identification mark as per direction of EIC.	684	Sq.Ft
36	Supply & fixing, fitting of lightning arrester/conductor of G.I stick of size 1x5 Mtr long x 25 mm dia with G.I flange at bottom of size 75 x 75 x 5 mm thk.with copper discharge points including grouting by cement mortar 1:4 as per direction of EIC.	57	Job
37	Connecting the equipments/body to earth busbar including S&F 25 mmx6mm galvanized (Hot Dip) M.S flat on wall/ floor with GI shaddles as required and making connection to equipments with bolts,nuts and washers etc.	684	Mtr
38	Supply and installation of Injector/ Diaphragm type Automatic Chlorinator for feeding controlled dosages of chlorine solution in pumping delivery line. i) Capacity 9-100 lph , 10kg/cm2 test pressure Make:Swellor or Equi.	57	Each
39	Cost of suppling & lying of D.I pipes including supply of valves and specails D.I K-9 pipe.	2137.5	/mtr.

  
 28/11/23.  
**Superintending Engineer** , West Circle,  
 Municipal Engineering Directorate,  
 Government of West Bengal.