

OFFICE OF THE BOARD OF ADMINISTRATORS
SANTIPUR MUNICIPALITY
P.O SANTIPUR, DIST NADIA

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Notice Invitina e-Tender

NIT No.–WBMAD/SM/WSS/20(3rd Call)/2021-22

Memo no:01/5/22/(DS)

Dated: 16.09.2021

E-procurement system quotations are invited by the Chairperson, on behalf of the board of Administrators, Santipur Municipality to obtain rate for the following work from the eligible Agencies and Contractors for proposed Water Supply project within Santipur Municipality under UIDSSMT Scheme, a component of JNNURM Programme. Acceptance cum Work Order will be issued by “The Chairperson, Santipur Municipality” as per our requirement.:

1.	Name of Works :	A.	Operation and Maintenance of 5.81 MGD Water Treatment Plant, 3.75 ML CWR and 400 Kva substation at Santipur Municipal area for the period of 12 months under UIDSSMT Scheme, a component of JNNURM Programme. (Part – I) & Operation and Maintenance of RCC Intake Jetty structure with raw water Pumping Station having capacity to supply 5.81 MGD and 200 Kva substation raw Water by drawing from river Hooghly (Ganga) and supplying upto the Santipur Municipal area, Within Santipur Municipality, Dist.: Nadia, West Bengal. under UIDSSMT component of JNNURM project (Part – II) & Operation & Maintenance of Five (5) no zonal O.H.R (time to time reservoir loading and deliver the drinking water by Opening & closing of different dia. Sluice valve varied from 80 mm dia. to 350 mm dia. , of valve , Boosting pump operating when required , Minor repairing of O.H.R , including repairing of all damaged existing Clear Water , Distribution pipe line network throughout this Municipality including all allied Civil Works (like construction of thrust block , sand filling , brick soling after repairing of leakage or choakage water supply pipe line etc.) , Site Cleaning and guarding the zonal O.H.R. Site Campus and all other assets etc. at Santipur Municipal area .(Approximate length of existing pipe line net work is 149 km throughout the Santipur Municipal Area & pipe dia. Varied from 80 mm to 600 mm & nature A.C. , U.P.V.C. , C.I. , D.I. , C.I.D.F. etc.) (Part-III)
2.	Location of Work:		The water treatment Plant, under Santipur Municipal area, Within Santipur Municipality, Dist.: Nadia, West Bengal. This Treatment Plant receives the raw water from the River Hooghly (Ganga). This plant treats the raw intake water and convert it to potable water and then divert it to the under – ground reservoir at the Santipur (5.81MGD), W.T.P. complex.
3.	Eligibility to participate in the Tender		Each intending bidder has to apply under e-procurement system has to upload PAN Card, Current IT Return, valid trade license, P.Tax, G.S.T. Certificate, valid credentials having experience and technical acumen in Executing & successful Completion of Similar nature of works at least Rs 50.00 (Fifty) lakh in a single contract during last Three financial years. (specially with the same nature of works in the similar field of works at the municipality level) etc. as described in the List of Work, annexed herewith, in addition to other relevant papers as required cases specify. (under My Document folder, NSD. AND Having annual turnover of at least Rs. 50.00 lakh or above in any one year of last three Financial years.
4.	Documents to be		A successful performance and completion certificate

	produced in support of Credential for Tender		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 Tender). Besides this, following documents shall have to be furnished.
		a.	Particulars of Bonafide Contractors, Registered Engineers Co-operative Societies, Consortiums and Partnership firms.
		b.	Valid documents in support of annual Turnover. Corresponding address, fax & telephone nos. Contract mobile no. & Email no. of the Organization.
			<i>All documents in original to be produced in due course of time as & when asked by the Tender Inviting Authority</i>
5.	Earnest Money	a.	Rs. 2,00,000.00 (Rupees Two Lakh only) as an initial Earnest Money Deposit shall accompany with Technical Bid Proposal, in the form submitted through Net banking(ICICI Bank gateway) or RTGS/NEFT in any schedule bank approved by RBI, as per GO No 3975-F(Y) dt. 28.07.2016 of Finance Department., GoWB

6. Date and Time Schedule :-

Sl. No.	Particulars	Date and Time
a)	Date of uploading of N.I.Q. and Tender Documents online) (Publishing Date)	16/09/2021 after 17.00 Hrs.
b)	Documents download start date	16/09/2021 after 17.00 Hrs.
c)	Date of Pre Bid Meeting with the intending tenderers In the office of the Chairperson, Santipur Municipality, Santipur, Nadia.	24/09/2021 after 13.00 Hrs.
e)	Bid submission start date (On line)	16/09/2021 after 17.00 Hrs.
f)	Bid Submission closing (On line)	02/10/2021 after 10.00 Hrs.
g)	Bid opening date for Technical Proposals (Online)	04/10/2021 after 10.00 Hrs.
h)	Date of uploading list for Technically Qualified Tenderers (online)	To be notified later on
7.	Time of completion	Time of completion of the Contract is 12 months from the date of issue of Work Order.
8.	Site inspection & general information	Intending Bidders are required to inspect the site of the Project with particular reference to location and infrastructure facilities. They are to make a careful study with regard to availability of materials and their sources and all relevant factors as might affect their rates and prices.
9.	Tender documents	A full set of Tender documents consists of 2 Parts. These are;
		I) Part I containing all documents in relation to the name of the firm applied for and credentials possessed by them along with EMD and all relevant documents as depicted in Sl. No. 4
		II) Part II containing following documents;
		a. Bid Price / Price Schedule.(.xls sheet)
10.	Validity of Bid	A Bid submitted shall remain valid for a period of 120 calendar days from the date of publication of Bids. Any extension of this validity period if required will be subject to concurrence of the Bidders.

11.	Withdrawal of Bid	A Bid once submitted shall not be withdrawn within the validity period. If any Bidder/Bidders withdraw his/their Bid(s) within the validity period then Earnest Money as deposited by him/them will be forfeited.
12.	Acceptance of Bid	The Chairperson, Santipur Municipality will accept the Bid. He does not bind himself to accept otherwise the lowest Bid and reserves to himself the right to reject any or all of the Bids received without assigning any reason thereof.
13.	Intimation	The successful Bidder will be notified in writing of the acceptance of his Bid. The Bidder then becomes the "Contractor" and he shall forthwith take steps to execute Formal Contract Agreement in appropriate Municipal Form with the Executive officer, Santipur Municipality and fulfill all his obligations as required by the Contract.
14.	Escalation of Cost	There will be no escalation in cost for materials or labour and the contract price mentioned in the contract stands valid till completion of the O&M of the contract.
15.	Name & address of Authority of the Work	CHAIRPERSON, BOARD OF ADMINISTRATORS / Executive officer, Santipur Municipality, Santipur, Nadia.
16.	Execution of Work	The Contractor is liable to execute the whole work as per direction and instruction of the Engineer, Sri Santanu Chakraborty
17.	Payment	Payment will be made monthly to the Contractor/Agency by the CHAIRPERSON, BOARD OF ADMINISTRATORS/Executive officer, Santipur Municipality.
18.	Influence	Any attempt to exercise undue influence in the matter of acceptance of Bid is strictly prohibited and any Bidder who resorts to this will render his Bid liable to rejection.
Following clauses are to be adhering to by the concerned Bidder during the process of Bidding.		
19.	In case office faces sudden closure owing to reason beyond the scope and control of the Chairperson, any of last date/dates as schedule in Sl. No 6 may be extended up-to/to next and following working day without issuing further and separate notice the Chairperson feels it to be necessary and exigent.	
20.	Imposition of any duty/tax/rule etc. owing to change /application in legislations/enactment shall be considered as a part of the contract and to be adhering to by the Bidder/Contractor strictly.	
21.	Bid Acceptance Authority is the Chairperson, Santipur Municipality.	
22.	In case of any dispute arising from any clauses of similar nature between bid documents and Municipal tender form, the decision of the Chairperson, Santipur Municipality.	
23.	All usual deductions for taxes i.e. GST, IT, and Labour welfare Cess etc. as applicable will be made from the bills from time to time (please refer cl.57 of section C)	
24.	No conditional/ incomplete Bid shall be entertained.	
25.	In the event of e-Filing intending bidder may download the tender document from the website http://wbtenders.gov.in directly by the help of Digital Signature Certificate & necessary cost will be remitted through payment gateway as stated	

26.	Technical Bid & Financial Bid both will be submitted concurrently duly digitally signed in the Website http://wbtenders.gov.in . Tender document may be downloaded from website & submission of Technical Bid/Financial Bid as per Tender Schedule.
27.	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 Quotation, the cost of visiting the site shall be at the Bidder's own expense. Traffic management and execution shall be the responsibility of the Agency at his/her/their risk and cost.
28.	The intending Bidders shall clearly understand that whatever may be the outcome of the present invitation of Bids, no cost of Bidding shall be reimbursable by the ULB. The Chairperson, Santipur Municipality reserves the right to reject any application for purchasing Bid documents and to accept or reject any or all the offered bid /bids without assigning any reason whatsoever and is not liable for any cost that might have incurred by any Bidder at any stage of Bidding.
29.	Prospective applicants are advised to note carefully the minimum qualification criteria as mentioned in 'Instructions to Bidders' before bidding.
30.	During scrutiny, if it is come to the notice to tender inviting authority that the credential or any other papers found incorrect/manufactured/fabricated, that tenderer will not be allowed to participate in the tender and that application will be out rightly rejected without any prejudice.
31.	Before issuance of the work order, the tender inviting authority may verify the credential & other documents with the original of the lowest bidder if found necessary. After verification, if it is found that such documents submitted by the lowest bidder is either manufacture or false, in that case, L.O.A. / work order will not be issued in favour of the bidder under any circumstances.
32.	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) Municipal Form ii) NIQ iii) Special terms & Condition iv) Technical bid v) Financial bid
33.	Contractor shall have to comply with the provisions of (a) the contract labour (Regulation Abolition) Act. 1970(b) Apprentice Act. 1961 and (c) minimum wages Act. 1948 of the notification thereof or any other laws relating thereto and the rules made and order issued there under from time to time.
34.	Where an individual person holds a digital certificate in his own name duly issued to him against the company or the firm of which he 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 favour, by the rest of the directors of such company or the partners of such firm, to upload such tender. The power of attorney shall have to be registered in accordance with the provisions of the Registration Act, 1908.

**Chairperson
Santipur Municipality**

GENERAL INFORMATION

The site

The water treatment Plant of Santipur, under Santipur Municipal area. This Treatment Plant receives the raw water from the River Hooghly (Ganga). This plant treats the raw intake water and convert it to potable water and then divert it to the under – ground reservoir at the Santipur (5.81MGD), W.T.P. complex from where the potable water is distributed at Municipal area.

1.0) Major Components

The major components of this water treatment plant are as follows:-

- (i) Raw Water control Arrangement (Intake well)
- (ii) Parshal Flume
- (iii) Flash Mixer
- (iv) Chemical House – Chlorination Arrangements, laboratory.
- (v) Tube Shetteler – 2 Nos.
- (vi) Filter House – 8 Nos. beds, 2 Nos. control console
- (vii) Sludge sump cum – pump house and sludge Lagoon
- (viii) Annexe Building : MCC cum PDB
- (ix) Capacitor – Reactor Panel.
 - x) Control Desk & PLC Panel.
 - xi) Backwash pump and Motors Manually operating.
 - xii) Air Blower (2 Nos.), Air Compressor (2 Nos.)
 - xiii) Re-circulation pump (2 Nos.)
 - xiv) Pre & Post Chlorination Pump Motor Sets (2)
 - xv) Alum Solution feed Motor 2 Nos.)

2.0) Short Description of the Major Components

2.01) Raw Water Control Arrangement

Through this unit the raw water flows into the plant is regulated and received for treatment.

There is one RCC collection well. The flow of raw water is regulated by the help of a electrically operated butterfly control valves. One manually operated valve is also provided parallel with the electrically operated butterfly valves for isolating the motorized valve.

2.02) Parshall Flume

The object of this unit is to monitor the raw water flow into the treatment plant by means of the flow meter with flow indicators / integrator and transmitter. The flow meter is provided in conjunction with the flume. In addition to this, arrangements for alum dosing, (any coagulant aided agents if required for dosing) and pre-chlorination have been provided here.

5.81) Flash Mixer

The object of flash mixer is to provide instantaneous and thorough mixing of chemicals (alum 1 other Coagulant aided agent etc.) that are added to raw water for coagulation. There are 2 nos. Flat Mixers each agitator.

2.04) Chemical House (Chlorination arrangement)

This is a two storied building consists of chlorine storage room, alum storage room, chlorinator room, Chemical laboratory, alum recirculation pump, alum solvent tanks.

There are also chlorine cylinder storage room including manually operated crane for movement of chlorine cylinders 2 Nos. of chlorine cylinders for pre-chlorination and 2 Nos. of chlorine cylinders for post - Chlorination are connected to the chlorinator at upstairs through Chromium steel pipes and valves for injecting the chlorine gas. There are 4 Chlorinators - 2 nos. for Pre-Chlorination and 2 Nos. for post chlorination. Chlorine gas is fed to the Chlorinators and the gas mixed with water injected through injector to the receiving well for pre-chlorination and also to the clear water channel for post chlorination.

There is also a leak detector in chlorinator and connected with the alarm in the M.C.C. Room.

A modern laboratory for the analysis of water is provided at Chemical House. Tenderers have to perform the tests as indicated in elsewhere and or as per instructing of - in - charge. Alum storage space has a weighing machine and cages for lifting of Alum by electrically operated crane to the alum tanks. There are 2 Nos. of alum tanks having facilities of agitation and float operated level indicator in local as well as in M.C.C. room. For the control and measurement of the discharge of alum solution with valves.

2.05) Tube Shetteler.

There are 2 Nos. of Tube Shetteler. Continuous sludge bleeding arrangement is also there with valves for dis-sludging.

3.06) Filter House

It is a two storied building along with 2 Nos. of filter beds. Main control room is also situated in this building. In the ground floor there are 2 Nos. re-circulation pumps for waste water. One pump is for operation and the other one is stand by.

There is a sum – pump also 2 Nos. air compressor, 2 Nos. air blower with– One for operation and the other one is stand by, 3 Nos. clear water feeding pump for alum solution and 2 pumps with for feeing of water to chlorinators.

Filter Beds consist of gravel, grit and sand. The inlet channel of 2 Nos. beds have 600 mm. Pneumatically operated penstock valves at the inlet channel and filter waste. The filter beds also have 2Nos. 400 mm. dia Pneumatically operated sluice valves for passing filter water to clear water channel. Rate controller has been provided at filter water to clear water channel. Rate controller has been provided at filter water incoming chamber, Loss of head, rate of flow, Air pressure measurement instruments are housed in a consol control situated in the filter platform and the same is connected with control room. Pipes and valves are installed in the pipe gallery in the filter house. The Main Control Room is situated in the first floor of filter house. The L.T. distribution panel is receiving the L.T. supply form the main transformer substation through A.C.B. and with different out going feeder (L.T. distribution Switch Board). The control panel installed at the same room is for total plant control mainly starting of various motors. Valves, instrumentation for all pneumatic lines, water flow measurement, water level indicator, alum solution level control, wash water connect along with announcing facilities form remote. The central panel is equipped with flow recorder (circular chart type) for recording raw water inlet and clear water out let. PH. Turbidity, Cl₂ meter, all electrically control and instrumentation have the facilities of operation both from remote control console and local control panel as well.

2.07) Sludge sump cum pump house and sludge lagoon.

The object of sludge sump is to collect Sludge from Tube Settler and dispose it off by pumping. There are 2 Nos. pump with , out of which 1 No. pump is stand by. There are also 2 Nos. air blowers of which one is stand – by.

2.08) Programmable Logic Controller (PLC)

System Integration and functioning of programmable logic controller (PLC) is to control the auto back wash of 2 nos. rapid gravity filter unit after getting loss of head (LOH) signal sequentially in auto mode. Monitoring display of alarm, status

of operation of all valves & actuators, flash mixture, Tube Shetteler, alum agitator, and air blowers etc. Data logging of raw water inlet flow, turbidity & PH, clear water flow, filtrate water flow & LOH with respect to reach bed, wash water flow, alum tank level etc. Auto operation of back wash pumps with its valves & actuators, air blower with its valves 3 actuators & 10 Nos. pneumatic valves for each filter bed.

The following data to be submitted

- i) One Hard copy showing instantaneous process valves for regularly.
- ii) Soft copy which showing all the recorded valves for last three months to be submitted as stored in PIC.

GENERAL TERMS & CONDITIONS

1.1) TENDER DOCUMENTS :

The notice inviting tender, Santipur Municipality Form No. 1, the general information, the general terms and conditions, the special terms and conditions, the technical specification of works and the schedule or work will form together the set of Tender Documents.

1.2) SUBMISSION OF TENDER PAPERS :

On due date and time the tenderers should submit the papers so received signing on each page and filing up their rates on the Schedule of works both in figures and words. The tender paper should be submitted in sealed cover indicating the name of the job and the due date on the top of the cover.

1.3) PRICES, TAXES & DUTIES :

The offered rates shall be inclusive of all taxes, duties, levies, GST charges, fees etc. and inclusive of all demand.

1.4) EARNEST MONEY :

Rs.2, 00,000.00 (Rupees Two Lakh only) as an initial Earnest Money Deposit shall accompany with Technical Bid Proposal, in the form of Rs. 2,00,000.00 (Rupees Two Lakh only) as an initial Earnest Money Deposit shall accompany with Technical Bid Proposal, in the form submitted through Net banking (ICICI Bank gateway) or RTGS/NEFT in any schedule bank approved by RBI, as per GO No 3975-F(Y) dt. 28.07.2016 of Finance Department, GoWB.

1.5) **EXECUTION OF CONTRACT AGREEMENT :**

The successful quotationer shall have to execute a Tender agreement with Santipur Municipality in 4 (four) copies in Municipality Tender Form. The agreement papers shall be purchased from the office of the Chairperson, Santipur Municipality, Santipur, Nadia.

1.6) **TERMS OF PAYMENT :**

The payment shall be made on the basis of work done. However, running account bills not earlier than one month succession may be paid. The payment will involve deduction of statutory tax / levies e.g. I.T., W.C.T., G.S.T., S.T. CESS etc. as per prevailing rates at sources.

1.7) **SITE ORDER BOOK :**

The contractor shall maintain "Site Order Book" in Triplicate with serial no. of pages to be kept at work site where the – in – charge or his authorized representative shall record order, directions to be carried out.

1.8) **DURATION OF CONTRACT :**

The duration of the tenure of the contract shall be for a period of 12 months as indicated in the NIT / and Schedule of work.

1.9) **VALIDITY OF OFFER :**

The offer shall be kept valid for 120 days for acceptance for the date of opening of Tender.

SPECIAL TERMS & CONDITIONS

1.0) **SCOPE OF WORK :**

1.1) The scope of work unless otherwise stated in items of works elsewhere generally mean the effective and smooth operation of the plant to produce potable water as per down stream demand. The operation of the plant shall be in shifts (6.0 a.m. to 6.0 a.m.) spreaded throughout the 24 hours / as per requirement in a date or part and / or as directed by Concern Engineer.

1.2) Operational timing of the plant will be intimated to the contractor from time to time by the department. Close interaction amongst the other working contractor in the plant, the Raw Water pumping station, the clear water pumping station shall be strictly maintained.

- 1.3) Water supply being an essential service, no unnecessary interruption can be permitted. Malfunctioning of any equipments observed at any point of time throughout the date shall be forthwith brought to the notice of the department and remedial measure to this effect shall be taken without any loss of time to maintain uninterrupted water supply.
- 1.4) Technical persons for operation of the plant, proper data logging. Water quality checking for raw water as well as treated water, day to day regular maintenance for up keeping the components and equipments at proper running Condition, attending break down, maintenance and periodic overhauling etc. shall be maintained by the contractor in shifts throughout the day.
- 1.5) All types of skilled, semiskilled and unskilled labours to assist the technical personal and supervisor for the job mentioned above for loading and unloading, proper stacking the Pac / Alum Cakes and Chlorine Tonners in proper position, lifting the same for making alum for dozing and unloading the chlorine cylinder (Tonner) including proper stacking of the same etc. shall be provided by the contractor.
- 1.6) The watch and ward personnel for guarding the plant and machineries round the clock shall have to be arranged by the contractor. Entrance / Exist gates of plant and Administrative Building. In addition the guarding arrangement of entry and exit gate of plant campus, guarding the property of the ULB in the campus & protecting entry of unauthorized person from entering into the campus excluding guarding arrangement inside the CWR & Pump house round the clock.
- 1.7) Electricians with his helper for daily checking and up keeping of all electrical equipments, relays, switches etc. shall be provided in each shift. The contractor should provide one qualified supervisor for each shift for total monitoring of the operation and maintenance of the plant.
Any instruction passed to the shift supervisor by the department shall be deemed to have been passed to the contractor and contractor should comply those instructions forth – with.
- 1.8) Departmental store including alum, chlorine gas tonner shall be handed over to the shift supervisor against proper indent placed sufficiently ahead.
- 1.9) The contractor shall undertake all routine and preventive maintenance work as well as attend to any break down maintenance work by engaging his skilled, semi – skilled and unskilled labour, cost of which shall be included in the offered rates.

- 1.10) For any maintenance work spare and hardwares required & approved by the in charge amounting not exceeding to Rs.5,000.00 (Rupees Five thousand only) in each occasion shall have to be supplied by the contractor within his scope of tender.

Spares costing more than Rs.5,000.00 (Rupees Five thousand) only shall either be supplied by the department or the contractor will be asked to execute the same as extra work and in that case the cost of the spares so supplied for extra work shall, be ascertained from the lowest quoted rate approved by the Chairman.

The said purchase from authorized dealers and /or manufacturer, submitted to the department plus. The transportation charges and the labour element for replacing the spares, overhauling as will be necessary shall be inclusive within the scope of tender. The aforesaid purchase voucher should be duly certified and audited by an audit firm for payment and no extra claim should be admitted for the same.

- 1.11) For any maintenance work related to civil components of the treatment plant including drainage of the WTP units such as Tube Shetteler / clariflocculator, Filter House, Annex building etc. with sludge line from 2nos. of Tube Shetteler& Filter House to sludge pump house & from there to sludge pond is to be done by the contractor at his cost for smooth O & M of the treatment plant.
- 1.12) The consumable like lubricants of approved grade, reagents for water quality test viz. 'PH' determination, Jar Test, Residual Chlorine test, Turbidity test, gland packing, gaskets, oil seals, nuts bolts washer, broomstick, cotton waste, jute, duster, soap, battery, torch, incandescent lamp, Tube light, Tube light choke, Tube light starter, pilot lamps, fuse wire, H.R.C fuses of different ratings, C.T.C. charges for flow recorders, charts recorder ink, weigh bridge card and ink, welding electrodes etc. shall have to be supplied by the contractor.
- 1.13) All tools and tackle (Both for Mechanical and Electrical) will be necessary for daily operation and maintenance, periodic maintenance, break – down maintenance etc. shall be provided by the contractor. The contractor shall also provide the safety attachment e.g. hand gloves for working on electrical lines, goggles and welding hoods, rubber gloves, gum boots safety apron, ear plugs, air breathing apparatus in properly filled condition (Air breathing apparatus / gas masks shall be provided by the department). First Aid Box etc. shall be provided by the contractor.

- 1.14) It shall be mandatory to the contractor to depute trained personnel for handling chlorine gas observing all safety parameters and keep daily round of the filled up and empty tonner.
- 1.15) General cleanliness of treatment plant area (chemical house, filter house, Tube Shetteler / clariflocculator, sludge pump house, weigh bridge, including surroundings and adjacent areas) shall have to be maintained regularly by the contractor by sweeping and washing, on regular basis. Daily operation of illumination system of the building, checking and maintenance of all the electrical fittings including the replacement of damaged wiring as and when necessary shall be within the scope of the contract. The contractor should also take care of disilting sludge accumulation chamber and surface drains adjoining the Tube Shetteler / clariflocculator
- upto the sludge disposing point. Oil levels are to be checked and level is to be made up by using the recommended grade of oil for reduction gears and oil lubricated purpose. Contractor have be clean any floating matter immediately when it will be noticed. All channels for Raw water to Filtered water are to be kept free from any algae, weeds and other foreign materials.
- 1.16) The contractor shall also check the major greasing points once in a week to Plummer black, M.S. Shutter sides, hand operated spindle of valves, chain drive, bearings, motors, addition to Carbon bushes of the current collector box should be checked for abrasion and wear and tear for every three months and if necessary to be replaced at departmental cost.
- 1.17) The contractor shall also check the “V” belt drives, couplings for tension and alignment and adjust periodically.
- 1.18) The contractor shall also ensure that adequate quantities of the appropriate lubricant oil and grease oil, chlorine, alum are available at stock with inventories of at least 7 days.
- 1.19) The contractor should also clean the sludge from Tube Shetteler / clariflocculator bottom in every 6 (Six) months or as directed by Concern Engineer after dewatering the Shetteler / clariflocculator at his own cost.
- 1.20) The contractor also clear the sludge at the bottom of sludge well and recirculation tank of spoiled back wash at the direction of in charge at his own cost.

- 1.21) Raw, Water Control Arrangement 400 min. dia Butterfly valve and Electrical Actuator arrangement in connection with the intake well should be operated in every alternate day.
- 1.22) Alum solution dosing through constant Header box should be operated (Taper needle and float valve arrangement) as mentioned in the original process.
- 1.23) Rate of Flow Meter for all of filter beds control table, discharging potable water /hour, regulating and checking regularly.
- 1.24) Loss of Head (L.O.H) for filter washing system for each filter should be regulated routine – wise regularly.
- 1.25) Constant bleeding arrangement in each clarifier should be kept operational properly.
- 1.26) The contractor will maintain the alum carrying box with necessary sal batten, SS, bolt, rope etc. the cost will be including in the contract. The boxes have to be checked in each month.
- 1.27) This may however be categorically noted that the scope of work written here have only out lien the intent of the work and the contractor shall take sole responsibility for smooth, effective trouble free, uninterrupted operation and maintenance of the vital Water Treatment Plant, executing the job as per direction of in charge keeping close liaison with other contractors.
- 1.28) Any missing item, not mentioned here, but is necessary for successful operation and maintenance of the plant shall be undertaken by the contractor and for the same no extra claim shall be entertained.
- 1.29) The details of the above process may be seen after making prior engagement with the Concern Engineer , of this Municipality, for the purpose of dropping tender only. The tenderers are advised to visit the plant making proper appointment with the concern Engineer to acquire knowledge on the plants, equipments of the operation, maintenance requirement for the plant. On receipt of the tender it shall be presumed that the tenderers have all educate themselves, with the plant, machineries, operation and maintenance of the plant.

2.0) BRIEF DESCRIPTION OF O&M ACTIVITIES :

The raw water coming through M.S. Pipe controlled by butterfly valve is passed through par shall flumes where pre-chlorination as well as alum (any coagulant aided agents if required for dosing) are done. Next the raw water is passed to Tube Shetteler / clariflocculators through flash mixers.

After this the raw water is passed to filter beds for filtration and finally the filtered water is fed to the reservoir.

3.0) THE ENTRY PASS :

The treatment plant complex is a protected place and no un authorize entry shall be permitted as such the contractor upon receipt of the order should forth – with apply to the in charge stating the names of the personnel who shall be entrusted with the duty of operation and maintenance work, for issuing proper entry passes to them.

For any casual labour, the contractor should apply well in advance for such entry pass. On expiry of the job the entry passes should be returned to the in charge and shall not be divulged to for any other purpose.

4.0) HANDING OVER :

In case of handing over of the plant to Santipur Municipality or any other local body, the contractor is bound to maintain the plant under their control as per the existing terms and conditions.

TECHNICAL SPECIFICATION

1.0) The time of operation of the treatment plant should be followed as per direction of in charge. Deployment of suitable qualified and experienced.

- i) Supervisors
- ii) Operators
- iii) Electrician
- iv) Mechanics
- v) Electrical Helper

vi) Laboratory Technician

for smooth operation of the plant as intimated to the firm / contractor by in charge or his representative time to time, for daily and periodic maintenance of the plant and equipment including upkeepment and guarding, are to be made by the contractor.

- 2.0) Log book is to be maintained to record the readings of different meter, gauges etc. and the status of equipments operated. The log book is to be place before the departmental representative for verification and signing.

Constant vigilance on the equipments shall have to be kept so that no damages occur to the equipments and plant.

- 3.0) Raw water vigilance on the equipments shall have to be kept so that no damages occur to the equipments and plant.

- 4.0) Alignment of the pump and drive is to be checked semiannually.

Periodic inspection of the packing of the pump and valves is to be made and repacking is to be done as and when necessary.

- 5.0) UNSERVICEABLE SCRAP MATERIALS :

The contractor will maintain Register to record all spare parts which will be installed /replaced.

The unserviceable /scrap materials are to be returned to the Department and the same to be recorded in the Register except which are consumable. Accounts of the same shall be settled prior to payment of final bill as well as release of Security Deposit Money.

- 6.0) CONSUMABLE MATERIALS :

6.1) A register to be maintained for consumable items where the use of the consumable items to be maintained along with quantity and date. The Register should be certified by the in charge or his authorized representative.

- 7.0) Periodic check on the oil / grease of the pump and motor bearings including checking of the condition of the same, replacement / replenishment to the correct quantity is to made.

- 7.1) The insulation resistances of all electrical equipments are to be periodically megger tested. If insulations of cable terminal ends found to be damaged for overheating, investigate and rectify.
- 7.2) The zero setting of all meters are to be periodically checked. Any damage occurred due to faulty operation and maintenance the contractor shall have to be set right by the firm / contractor, immediately at his cost and risk.
- 7.3) Any civil & structural work gets damaged during operation and maintenance work of the plant the contractor should mend the damage good at Departmental.
- 7.4) Any preventive maintenance work necessary as per advice of the respective manufacturers of the equipments /machines and as per requirement of works for smooth operation and proper maintenance of the plant, with allied equipment is to be carried out by the contractor, cost of which is inclusive in the rates.
- 8.0) The Chlorine, Alum, Poly aluminum Chloride(liquid Pac), Poly Electrolytes and bleaching powder for the operation of the plant will be supplied by the contractor.
- 9.0) QUALITY OF WATER (ANALYSIS AND TESTING)
The SANTIPUR MUNICIPALITY will provide an equipped Laboratory for testing the following Physical Chemical and Bacteriological Characteristic of water. All reagent and other chemicals to be provided by the contractor.
- 9.1) QUARTERLY TESTS
- 1) Total dissolved solid
 - 2) Total Alkalinity
 - 3) Chlorides
 - 4) Fluorides
 - 5) Sulphate
 - 6) Nitrate
 - 7) Mineral Oil
 - 8) Presumptive Coliform count / 100 ml. of water
 - 9) Faecal coliform count /100 ml. of water
- 9.2) QUARTERLY (OTHER) TESTS

- 1) Arsenic
- 2) Iron
- 3) Lead
- 4) Copper
- 5) Cyanide

The above tests are to be performed once in every three months.

9.3) REGULAR TEST

9.3.1) GENERAL

It is imperative to analyse regularly the operational parameters and maintain systematic record as a ready reckoned.

Since the analytical data are vital for achieving a specified treated water quality, close co-ordination is required between the staff of the laboratory /operation wing and the representative of the Department.

Sampling and testing should be done as per the method prescribed in the following standard books.

- i) Manual on Water Supply and Treatment (Third Edition), CPHEEO, Ministry of UD, Gol
- ii) Method of sampling and test (Physical and Chemical) for Water used in industry IS : 3025 – 1964.

9.3.2) SAMPLING POINTS

Samples of raw water, clarified water and filtered water are drawn from the respective sampling points, if provided. In case the sampling points are not provided the sample be collected from the point mentioned below.

Raw Water	Inlet of the measuring flume.
Clarifier Water	Clarifier launder channel
Filtered Water	Inspection Chamber
Chlorinated filtered water	Clear water reservoir

9.3.3) SAMPLING PROCEDURE

Samples are to be taken at regular intervals to check whether the plant is giving the desired output and any corrective measures are called for, it

is essential that the coloured samples be truly representative of the product.

- a) Samples are to be collected in clean dry and stoppered bottle.
- b) The samples tubes are to be rinsed thoroughly before collection of samples.
- c) While selecting samples from the sampling trough, the lines are to be flushed at least 5 minutes before the samples are collected. This enables the removal of accumulated solids (if any in the line).
- d) Stopper the bottle after collection of sample.
- e) Attach a tag on the bottle indicating date, time, name of sample, place of collection and tests to be carried out.

9.3.4) OPERATIONAL PARAMETERS AND ANALYTICAL SCHEDULE

The following schedule of tests are recommended under normal operation plants, of the Start up and upset condition may demand more frequent analysis.

Sl no.	Sample	Frequency
I)	Raw Water	8 hours
II)	Clarified Water	4 hours
III)	Filtered Water	4 hours
IV)	Filtered Water after Chlorination	4 hours

9.3.5) The following tests are recommended for samples as indicated below :

- 1) RAW WATER
 - a) pH
 - b) Turbidity
 - c) Chlorine demand
 - d) Total Alkalinity
 - e) Jar Tests
- 2) CLARIFIED WATER
 - a) pH
 - b) turbidity
 - c) total Alkalinity

- 3) FILTERED WATER
 - a) pH
 - b) Turbidity
 - c) Total Alkalinity
 - d) Chlorine demand

- 4) FILTERED WATER AND CHLORINATION
 - a) pH
 - b) residual Chlorine

5) EFFICIENCY TEST FOR COAGULANT AIDED AGENT

9.4) Cost of necessary reagents are to be borne by the contractor. The contractor will provide chemist for the above test. Sample also may be needed to send to Govt. laboratories for the test, if necessary. In that case the cost of the Govt. laboratory tests only will be borne by the department. The quality of alum to be tested as and when necessary mainly the Alumina content (Al_2O_3) content and insoluble matter. The Department also send the same sample to Govt. Laboratories to check the result if necessary at the cost of the department. Cost of bacteriological test / pathological test to be carried from any recognized Govt. Laboratory, is to be born by the department.

10.0) Irrespective of the fact whether, the contractor himself is a degree or diploma holder in eng, he / they shall engage experienced superintendent, supervisor etc. for the whole plant and a licensed electrician (1st Class) for each shift.

The contractor shall also engage experienced Water Analyst (Chemist and Bacteriologist) and Laboratory Technicians etc. for running the plant laboratory for each shift.

11.0) The contractor shall prepare a daily statement (proforma to be given by the in charge) showing there in the consumption of alum and poly – electrolyte (if required) and also the cost – economy analysis.

12.0) All staff during work will have to carry Photo Identity Card in a manner that is visible at the front of the Personnel.

13.0) Security Personnel should be always on Uniform during work with Name Tag in front.

14.0) Duty roster of operating and other staff to be submitted to the in charge or his representative at last working day of the week for the next week.

- 15.0) Alum, chlorine stock to be maintained by the contractor and to be signed by the in charge or his representative at last working day of every week.
- 16.0) Consumption of Alum & Cl₂ in respect to Raw Water turbidity and filtered water production to be calculated and to be furnished to the in charge or his representative at last working day of every week.

**Chairperson
Santipur Municipality**