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EFFLUENT cum SEWAGE TREATMENT PLANT SYSTEM - 300 KL				
		Specification Number	SP/MISC/7829 (Rev 01)	
		Asset Number	SP/MISC/1/8/7829	
		Location	Factory Oxidation Pond Area	
Supply, fabrication, installation, testing & commissioning of <u>Effluent cum Sewage Treatment Plant with handling capacity of 300 Cum per day (100 KLD Effluent and 200 KLD Sewage)</u> in factory area. All the equipment, piping, pumps, air blowers & electrical panel is included in the scope of work excluding civil work for efficient working of E-STP. The quotation shall also include, inlet, outlet, overflow, vent, moving ladders & railing & making support for piping as required.				
Input Details				
Daily average inflow of effluent		100 KLD		
Daily average inflow of sewage		200 KLD		
Total Daily Inflow		300 KLD		
pH		5.5 - 9		
Biological Oxygen Demand		50 - 500 mg/l		
Suspended Solids		0 - 450 Mg/l		
Chemical Oxygen Demand		100 - 1200 mg/l		
Oil & Grease		0- 120 mg/l		
The Treated water parameter shall strictly comply with the statutory requirement of State pollution control board (UPPCB) - Latest Norms.				
Effluent cum Sewage Treatment Plant shall include the following items but not limited to these unit as may be required by the manufacturer's design.				
Screen Chamber near Oil Skimmer for Effluent				
Screen Chamber near Oxidation Pond				
Oil Skimmer Tank				
Equalization Tank				
Stilling Tank with Fine Screen				
Flask Mixer Tank				
Flocculation Tank				
Primary Settling tank				
Anoxic Tank				
MBBR 1 and MBBR 2 Tank with suitable arrangement				
Secondary Settling tank				
Filter Feed tank				
Sludge Holding Tank				
Decanter Centrifuge System				
Dosing systems, Air Blowers, Pumps & equipment				
Piping, valves etc				
Electrical Panel & Cabling				
Plant room adjacent to ESTP				
All piping, valves & level indicator/controller etc.				
Contractor shall include the cost of all chemicals (consumed during testing & commissioning and the cost of such items of works which are not explicitly mentioned above, but are mandatory to have pollution board approval. Nothing extra shall be payable in this regard. Any statutory fee will be paid by BHEL				
S. No.	Description	Qty/Unit	Vendor to confirm	Remark/ Deviation (if any)
Preliminary Works				
1	Submission of Process and Instrumentation Diagram (P&ID) and Bill of Material (BOM) alongwith the technical offer for evaluation.	01 Set	Vendor to confirm and details to be submitted alongwith the offer	
	Submission of detailed "Ready for Construction" Civil design and drawing duly vetted and approved by Govt Institution to be submitted after placement of PO		Vendor to confirm	

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S. No.	Description	Qty/Unit	Vendor to confirm	Remark/ Deviation (if any)
2	Effluent Transfer Pump from Existing Oil Skimmer to Oxidation Pond Area			
	Supply, installation, testing & commissioning of Centrifugal Self Priming Pump for effluent handling. The pump shall be integrated with high/low water level switches for protection and interlocks, starter with push button arrangement and all accessories suitable for operation on 415+10% V, three phase, 50 Hz. AC supply etc. All panels should have MCB Isolation Star delta/ DOL Starter + Push Button on/off indicating lamp, single phase preventer/Motor Protection Relay as required including all necessary piping, valves and other accessories (clamp supports etc.) complete.			
	Type: Centrifugal Self Priming Pump			
	Capacity : Minimum 5-8 Cum/hr			
	Discharge Head: Minimum 50 MWC			
	MOC:			
	Body: CI Preferable			
	Internal: SS			
	Make of Pump:- Kirloskar/Crompton/KSB/Flowserve			
	Make of Motor:- KSB/ABB / Siemens / GE / Bharat Bijlee / Marathon / Kirloskar Electric / Crompton Greaves			
	Quantity: 1 Set comprises of 2 Number Pumpset (1 Working + 1 Standby)			
	Piping			
	DI Pipe of Dia 100 mm.			
	Length: 750 m			
3	Bar Screen Chamber			
	MOC: RCC with Epoxy Coating (Under BHEL's Scope)			
	Tank dimensions to be furnished by vendor after placement of PO. 50% additional holding volume shall be considered while calculating tank capacity based on the treatment time.			
	Bar Screen Chamber for effluent shall have capacity of handling 100 KLD before Effluent Transfer Pump near Old Oil Skimmer Plant			
	Bar Screen Chamber for sewage shall have capacity of handling 200 KLD			
	Supply, installation, testing & commissioning of 2 Nos Stainless Steel Perforated Screen of appropriate size with suitable lifting arrangement mechanically (size suitable). Bar sizing will be as per vendor's specification. Screen should have provision for hook/rack-pinion mechanism as lifting arrangement etc. complete as required.			
	1 Set contains 2 Number Bar Screen			
		2 Number	Vendor to confirm	
4	Oil Skimmer System			
	MOC: RCC with Epoxy Coating (Under BHEL's Scope)			
	Tank dimensions to be furnished by vendor after placement of PO. 50% additional holding volume shall be considered while calculating tank capacity based on the treatment time.			
	Oil Skimmer Tank for effluent shall have capacity of handling 100 KLD			
	Oil Skimmer Belt type			
	Capacity : Sutibale for 120 mg/l oil removal			
	Quantity: 1 Set comprises of 2 Number Oil Skimmer machine and belt			
		1 Number	Vendor to confirm	
	EQUALIZATION TANK			
	MOC: RCC with Epoxy Paint (Under BHEL's Scope)			
	Tank dimensions to be furnished by vendor after placement of PO. 50% additional holding volume shall be considered while calculating tank capacity based on the treatment time.			
		1 Number	Vendor to confirm	

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S. No.	Description	Qty/Unit	Vendor to confirm	Remark/ Deviation (if any)
5	Effluent Transfer Pump	01 Set	Vendor to confirm	
	Supply, Installation, testing & commissioning of Centrifugal Self Priming Pump for effluent handling. The pump shall be integrated with high/low water level switches for protection and interlocks, starter with push button arrangement and all accessories suitable for operation on 415+10% V, three phase, 50 Hz. AC supply etc. All panels should have MCB isolation Star delta/ DOL Starter + Push Button on/off indicating lamp, single phase preventer/Motor Protection Relay as required including all necessary piping, valves and other accessories (clamp supports etc.) complete.			
	Type: Centrifugal Self Priming Pump			
	Capacity : Minimum 12-15 Cum/hr			
	Discharge Head: Minimum 20-25 MWC			
	MOC:			
	Body: CI Preferable			
	Internal: SS			
	Make of Pump:- Kirloskar/Crompton/KSB/Flowsolve			
	Make of Motor:- KSB/ABB / Siemens / GE / Bharat Bijlee / Marathon / Kirloskar Electric / Crompton Greaves			
6	Quantity: 1 Set comprises of 2 Number Pumpset (1 Working + 1 Standby)	1 Number	Vendor to confirm	
	STILLING TANK with Fine Screen			
	MOC: RCC with Epoxy Paint (Under BHEL's Scope)			
	Tank dimensions to be furnished by vendor after placement of PO. 50% additional holding volume shall be considered while calculating tank capacity based on the treatment time.			
	Fine Screen: Opening size to be designed by vendor for safe operation of Effluent Transfer Pumps.			
	FLASH MIXING TANK WITH AGITATOR			
	MOC: RCC with Epoxy Paint (Under BHEL's Scope)			
	Tank dimensions to be furnished by vendor after placement of PO. 50% additional holding volume shall be considered while calculating tank capacity based on the treatment time.			
	Quantity: 1 Number			
	Speed: 0 - 50 RPM			
7	MOC: SS 304	1 Set	Vendor to confirm	
	Capacity of Motor: 1 HP or above			
	Make of Motor:- KSB/ABB / Siemens / GE / Bharat Bijlee / Marathon / Kirloskar Electric / Crompton Greaves			
	LIME/ALUM/POLY DOSING SYSTEM			
	MOC: FRP			
	Capacity: 500 Litre			
	Dosing Pump Flow Rate: 0-50 Lph @ 4 kg/cm2			
	MOC of Pump: PP			
	1 Set Contains 2 Pumps (1 Working + 1 Standby)			
	Vendor to supply total 3 set, 1 each for Lime, Alum and Poly dosing respectively			
8	Skid mounted dosing system with piping, valves and instruments	03 Sets	Vendor to confirm	
	Make : Minidose/Aquaflow/Edose			
	AGITATOR FOR FLOCCULATION TANK			
	MOC: RCC with Epoxy Paint (Under BHEL's Scope)			
	Tank dimensions to be furnished by vendor after placement of PO. 50% additional holding volume shall be considered while calculating tank capacity based on the treatment time.			
	Quantity: 1 Number			
	Speed: 0-50 RPM			
	MOC: SS 304			

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S. No.	Description	Qty/Unit	Vendor to confirm	Remark/ Deviation (if any)
	Capacity of Motor: 1 HP or above Make of Motor:- KSB/ABB / Siemens / GE / Bharat Bijlee / Marathon / Kirloskar Electric / Crompton Greaves			
9	PRIMARY SETTLING TANK MOC: RCC with Epoxy Paint (Under BHEL's Scope) Tank dimensions to be furnished by vendor after placement of PO. 50% additional holding volume shall be considered while calculating tank capacity based on the treatment time. Supply Installation, testing & commissioning of Virgin PP/PVC Bio Media Surface area- Minimum 450 m2/m3 Make : 3mx/PPAQUA/MM AQUA/SAS/SDM/FWSPL/NETROX	1 Number	Vendor to confirm	
		01 Lot	Vendor to confirm	
10	ANOXIC TANK SYSTEM MOC: RCC with Epoxy Paint (Under BHEL's Scope) Tank dimensions to be furnished by vendor after placement of PO. 50% additional holding volume shall be considered while calculating tank capacity based on the treatment time. Pump For Anoxic Tank Re-Circulation Type: Centrifugal Pump Capacity : Minimum 10 Cum/hr Discharge Head: Minimum 10 MWC MOC: Body: CI Preferable Internal: SS Make of Pump:- Kirloskar/Crompton/KSB/Flowserve Make of Motor:- KSB/ABB / Siemens / GE / Bharat Bijlee / Marathon / Kirloskar Electric / Crompton Greaves Quantity: 1 Set comprises of 2 Number Pumpset (1 Working + 1 Standby)	1 Number	Vendor to confirm	
	AGITATOR FOR ANOXIC TANK Quantity: 1 Number Speed: 0-50 RPM MOC: SS 304 Capacity of Motor: 1 HP or above Make of Motor:- KSB/ABB / Siemens / GE / Bharat Bijlee / Marathon / Kirloskar Electric / Crompton Greaves	01 Lot	Vendor to confirm	
11	MOVING BED BIO REACTOR SYSTEM WITH SUITABLE MEDIA MOC: RCC with Epoxy Paint (Under BHEL's Scope) Tank dimensions to be furnished by vendor after placement of PO. 50% additional holding volume shall be considered while calculating tank capacity based on the treatment time. Total number of MBBR Tanks: 2 Supply Installation, testing & commissioning of Virgin PP/PVC MBBR Bio Media Surface area- Minimum 450 m2/m3 Make : 3mx/PPAQUA/MM AQUA/SAS/SDM/FWSPL/NETROX	1 Set	Vendor to confirm	
		02 Lots	Vendor to confirm	
12	SECONDARY SETTLING TANK MOC: RCC with Epoxy Paint (Under BHEL's Scope) Tank dimensions to be furnished by vendor after placement of PO. 50% additional holding volume shall be considered while calculating tank capacity based on the treatment time. Supply Installation, testing & commissioning of Virgin PP/PVC MBBR Bio Media Surface area- Minimum 450 m2/m3 Make : 3mx/PPAQUA/MM AQUA/SAS/SDM/FWSPL/NETROX	1 Number	Vendor to confirm	
		01 Lot	Vendor to confirm	
	AIR PURGING GRID WITH FINE AND COARSE BUBBLE DIFFUSER			

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S. No.	Description	Qty/Unit	Vendor to confirm	Remark/ Deviation (if any)
13	Supply, installation, testing & commissioning of Air diffuser system twin lobe -type air blower pressure of 0.5 kg/Sqcm Flow Capacity: 150 Cum/hr at pressure 0.5 kg/Sqcm Make:-Ingersoll RAND/ACME/EVEREST Make of Motor:- KSB/ABB / Siemens / GE / Bharat Bijlee / Marathon / Kirloskar Electric / Crompton Greaves Quantity: 1 Set comprises of 3 Number Air Blower (2 Working + 1 Standby) The systems should be integrated with valves, NRV , PRV, suction filters, anti-vibration pads and necessary pipings etc complete. Providing and fixing all piping (as described below) and isolation control valves for making the system complete. cPVC : Submerged air piping MS Epoxy : Air piping Air Purging Grid Air dispersion system shall be provided for Equalization Tank, Sludge holding Tank and MBBR Tank. MOC: UPVC completed with piping, valves, air bubbling nozzles and other accessories.	01 Lot	Vendor to confirm	
13				
14	SLUDGE HOLDING SYSTEM Sludge Holding Tank MOC : RCC with Epoxy Paint (Under BHEL's Scope) Tank details, numbers and dimensions to be furnished by vendor after placement of PO. Sludge Recirculation / Transfer Pumps Type: Centrifugal/Diaphragm Pump (as per Manufacturer's Design) Solid handling Capacity: 8-15 mm Flow rate : Minimum 6 Cum/Hr Head = Minimum 12 MWC MOC: Body: CI Preferable Internal: SS Make of Pump:- Kirloskar/Crompton/KSB/Flowserve Make of Motor:- KSB/ABB / Siemens / GE / Bharat Bijlee / Marathon / Kirloskar Electric / Crompton Greaves Quantity: 1 Set comprises of 2 Number Pumpset (1 Working + 1 Standby)	01 Set	Vendor to confirm	
14	Type: Centrifugal/Diaphragm Pump (as per Manufacturer's Design) Solid handling Capacity: 8-15 mm Flow rate : Minimum 6 Cum/Hr Head = Minimum 12 MWC MOC: Body: CI Preferable Internal: SS Make of Pump:- Kirloskar/Crompton/KSB/Flowserve Make of Motor:- KSB/ABB / Siemens / GE / Bharat Bijlee / Marathon / Kirloskar Electric / Crompton Greaves Quantity: 1 Set comprises of 2 Number Pumpset (1 Working + 1 Standby)	01 Lot	Vendor to confirm	
14				
15	FILTER FEED SYSTEM Filter Feed Tank MOC : RCC with Epoxy Paint (Under BHEL's Scope) Tank details, numbers and dimensions to be furnished by vendor after placement of PO. Filter Feed Pump Type: Centrifugal Pump Capacity : Minimum 12-15 Cum/hr Discharge Head: Minimum 15-20 MWC MOC: Body: CI Preferable Internal: SS Make of Pump:- Kirloskar/Crompton/KSB/Flowserve Make of Motor:- KSB/ABB / Siemens / GE / Bharat Bijlee / Marathon / Kirloskar Electric / Crompton Greaves Quantity: 1 Set comprises of 2 Number Pumpset (1 Working + 1 Standby)	01 Set	Vendor to confirm	
15	Type: Centrifugal Pump Capacity : Minimum 12-15 Cum/hr Discharge Head: Minimum 15-20 MWC MOC: Body: CI Preferable Internal: SS Make of Pump:- Kirloskar/Crompton/KSB/Flowserve Make of Motor:- KSB/ABB / Siemens / GE / Bharat Bijlee / Marathon / Kirloskar Electric / Crompton Greaves Quantity: 1 Set comprises of 2 Number Pumpset (1 Working + 1 Standby)	01 Lot	Vendor to confirm	
15				
16	MULTIGRADE SAND FILTER Supply, installation, testing & commissioning of vertical self supporting Dual Media Filter (DMF) fabricated from MSEF (6-8 mm thick), complete with pressure gauges at inlet & outlet, sample cock, Valves, G.I face piping with Valves & all accessories, with initial charge of filter media for Dual media filter with multi grade quartz sand & anthracite, lining inside with Epoxy , testing & commissioning complete as required. (1 working) Capacity: 15 Cum/Hr Loading rate of filter: 16 Cum/Sqm/Hr Max. operating pressure: 5 kg/Sqcm	01 Lot	Vendor to confirm	
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S. No.	Description	Qty/Unit	Vendor to confirm	Remark/ Deviation (if any)
	Intermediate Kit (consist seal rings & gaskets) (Commissioning Spares)			
	Material of Construction			
	Conveyor: SS 316			
	Impeller: SS 316			
	Feed Tube: SS 316			
	Casing/Vessel: SS 304			
	ELECTROMAGNETIC FLOW METER			
	Supply, Installation, Testing & Commissioning of on line full bore type Electromagnetic flow meter mounted in plumbing plant room with electrical control panel with the following features: Monitoring the total flow, Flow rate, etc. It shall include all type of Plumbing & Electrical connections, accessories, wiring, conduits & supports complete with all respect.			
	Location of 1st EMF: Between Equilization tank and MBBR Tank			
	Location of 2nd EMF: Between Treated Water Tank and Storage Area			
	Flow element Liner: PTFE			
	Display: Digital			
	Power Supply: 230 V AC			
	Electrode Material: SS 316			
	Connection Type: Flange End			
	Output: 4-20 mA, RS 485			
20	Accuracy: + 0.5%	01 Set	Vendor to confirm	
	Enclosure: Weather proof IP 67			
	Mounting Location: Open to Sky			
	Mounting Orientation: Horizontal pipe			
	Working Temperature: 0 - 80 Degree Celsius			
	Flow Range: 5 Cum/Hr to 50 Cum/Hr.			
	Maximum Line Pressure: 5 Kg/Sqm			
	Pipe Flow: Capable of measuring in partially filled pipe.			
	Display Flow Unit: Cum/Hr, LPH			
	Totalizer function: Forward Totalizer			
	Calibration Certificate Required: Yes			
	Application: Industrial Effluent			
	Line Diameter: 100 mm			
	Quantity: 2 Number			
	TREATED WATER STORAGE TANK			
	MOC: RCC with Epoxy Coating (Under BHEL's Scope)			
	Tank dimensions to be furnished by vendor after placement of PO. 50% additional holding volume shall be considered while calculating tank capacity based on the treatment time.	01 Set	Vendor to confirm	
	Treated Water Transfer Pump			
	Type: Centrifugal Pump			
	Capacity: Minimum 12-15 Cum/hr			
	Discharge Head: Minimum 100 MWC			
21	MOC:	01 Set	Vendor to confirm	
	Body: CI Preferable			
	Internal: SS			
	Make of Pump:- Kirloskar/Crompton/KSB/Flowserve			
	Make of Motor:- KSB/ABB / Siemens / GE / Bharat Bijlee / Marathon / Kirloskar Electric / Crompton Greaves			
	Quantity: 1 Set comprises of 2 Number Pumpset (1 Working + 1 Standby)			

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22	Providing and fixing all interconnecting piping with all required isolation, control valves for making the system complete functional as per site. Other than the specifically mentioned systems, all effluent piping shall be of Schedule 40 UPVC. Dosing piping shall be CPVP/UPVC Usage of rubber hoses, pipes, flexible hoses for handling of effluents is strictly prohibited. The systems should be integrated with valves, foot-valve, NRV, PRV, suction filters, anti-vibration pads and necessary pipings etc complete as per requirement.	01 Lot	Vendor to confirm	
		01 Lot	Vendor to confirm	
23	Supplying, installation, testing and commissioning of Y-strainer of CI body fabricated out of 1.6 mm thick stainless steel sheet with 3 mm dia holes with stainless steel flanged (if required). Y Strainer to be strategically placed for safe guarding of pumps and other critical equipment without hampering normal operation of plant.	01 Lot	Vendor to confirm	
24	Supply Installation, testing & commissioning of Electrical Control panel Electrical Panel			
	Supply, installation, testing & commissioning of Floor mounted electrical Panel , cubicle type, made out of 2 mm thick CRCA sheet, totally enclosed, IP-55, free standing, dust and vermin proof, indoor, compartmentalised, suitable for operation on 3 phase and neutral, 415 V, 50Hz AC system with busbars, including internal wiring with suitable size wires / cable, interconnection, duly powder coated painting etc. including supply & installation of following switchgears, metering instruments and accessories as per specifications with interlocking arrangement with supply pumps, suction pumps, modulating or shut-off valves including necessary wiring, magnetic switches & sensors complete to make the system functional with following interlocking. Potential free contacts have to be provided for BMS compatibility.	01 Lot	Vendor to confirm	
	E-STP PANEL (Location: E-STP Plant Room) INCOMING One (1) No. MCCB on 1.5 times actual full load power consumption of E-STP plant with adjustable thermal magnetic release having overcurrent and short circuit protection & Earth Fault Protection. 0-500 Volts Digital Volt Meter Digital Ammeter Range: 1.5 times of actual full load power consumption of E-STP plant Phase indicating light shall be protected by 2 Amps SP MCB's. KWH meter with suitable CTs.	01 Set	Vendor to confirm	
	Supply, Installation, testing & commissioning of Cable Tray as per requirement.			
	Supply, Installation, testing & commissioning of Electric Wire as per requirement.			
	MPCB for all motors etc.: Schneider/ABB/L&T/Siemens			
	Contactor for drives.: Schneider/ABB/L&T/Siemens	01 Lot	Vendor to confirm	
	Main switch on/off: Schneider/ABB/L&T/Siemens only			
	Single Phase Preventer: Schneider/ABB/L&T/Siemens only	01 Lot	Vendor to confirm	
	All wires & cables shall be of Make- KEI / Havells / Polycab / Finolex / Gemscab / Cords only			
	Electric supply 3 PH, 415 V, 50Hz, AC will be provided by BHEL at one place only. Interconnecting power cabling from nearby power source (identified by BHEL) to drives and panels to be done by vendor. Earthing will be done by BHEL. All electrical/control cables shall be properly tagged in cable trays with STP plant (vendor scope) secured with cable ties.			
	All drives to be protected with overload trip. OLR to be provided with Make - Schneider/ABB/L&T/Siemens			
	Under voltage/Over Voltage/Single Phase/MPR - Schneider/ABB/L&T/Siemens			
	All required instruments should be calibrated through OEM or NABL certified agencies.			
	All electronic switches (pressure and level) make must be- Danfoss/E&H/Baumer/Honeywell/Wika/Yokogawa/ Switzer. Pressure/temperature gauges make must be- E&H/Baumer/Honeywell/Wika/Yokogawa/ GIC.			
	If the party is offering any item of equivalent make other than mentioned above the same should be clearly indicated in the offer and will be accepted only in case specifically approved by BHEL.			
	Supply, Installation, testing & commissioning of Online BOD, COD, TSS, IOC Meter and pH meter as per requirement- One set			

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S. No.	Description	Qty/Unit	Vendor to confirm	Remark/ Deviation (if any)
25	Usage/Application: ETP / STP	01 Set	Vendor to confirm	
	Voltage: 24 VDC			
	Current: 3A			
	Frequency: 50-60 H			
	Digital Input / Output: Through MODBUS TCP/IP and RTU			
	Data Storage: On internal SD Card of minimum 60 days data storage. 4 - 20 mA signal output for integration with Scada.			
	Operating Temperature: 20 Degree C to 70 Degree C			
	Protection: Minimum IP 55			
	Measuring Range: COD : 2 to 8750 mg/L, BOD : 0.5 to 8750 mg/L, TSS : 5 to 2500 mg/L, TOC : 1 to 7500 mg/L, pH 0 -14.			
	Storage Temperature: 0 to +65 Degree C			
	Individual analysers may be supplied as per availability with data intergration and monitoring on a single 6 inch LCD HMI.			
ERECTION AND COMMISSIONING				
26	All the erection and commissioning will be carried out by vendor with his own labour in BHEL-Jhansi. Laying & termination of all power & control cables shall be in the scope of vendor.		Vendor to confirm	
	Erection & Commissioning shall be done by supplier at BHEL works. Erection and commissioning shall be completed within 02 months from the date of call of commissioning (COC) given by BHEL after completion of all civil works (BHEL scope). Vendor may depute competent person for monitoring and accessing the progress of civil works and completion of civil front for joint declaration of call of commissioning. However, total supply scope must be completed before COC.		Vendor to confirm	
	Supplier to bring all the tools & tackles required for installation & commissioning. Unloading, positioning and installation of all the main and sub- equipment at their proper place, with due care to be arranged by vendor.		Vendor to confirm	
	All standard industrial safety guidelines must be followed by vendor in compliance with BHEL's HSE policy. All height works, hot works, electrical works shall be done by trained operators with proper supervision. Use of personal protective equipments are mandatory during site E&C works inside BHEL factory.		Vendor to confirm	
	If any special tool required for O&M it should be supplied by supplier along with E-STP on Free of Cost basis. Testing equipment and services required for startup, commissioning and testing of the system is in vendor's scope. Any specific consumable required for the operation and commissioning of the system to be arranged by vendor.		Vendor to confirm	
	Commissioning of E-STP plant is in vendor scope. Commissioning shall be declared completed by BHEL Engineer In-Charge after satisfactory performance of all integrated equipment under rated capacity and demonstration of final treated effluent parameters as per latest UPPCB norms. VENDOR shall be fully responsible for proving out of components as per drawing and other requirements specified by BHEL to the full satisfaction of BHEL. Plant continuous trial operation of 24 hours shall be completed before final commissioning. Final commissioning of the plant shall be declared only after proving of all UPPCB parameters and receipt of CTO of this plant from UP-PCB.		Vendor to confirm	
	First fill up of oil, greese & gas will be in the scope of supplier till commissioning.		Vendor to confirm	
	Successful proving of all function at site as per this specification by the supplier shall be considered as part of commissioning.		Vendor to confirm	

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	Anything else which might be required by vendor for installation and commissioning shall be arranged by vendor.		Vendor to confirm	
	Any other pump or any other equipment specifically required to complete the work shall be in the scope of vendor. The makes of any item required in this case shall be in line with various makes mentioned above.		Vendor to confirm	
	Maximum noise level should be with in 80 db at normal load condition, 1 mtr. away from the E-STP plant with correction factor for back ground noise, if necessary. Supplier to demonstrate compliance to noise level, if so required.		Vendor to confirm	
	GUARANTEE			
27	Material (against any manufacturing and design defect) and work carried out & performance shall be guaranteed for the period of 24 months from the date of commissioning.		Vendor to confirm	
	Any defect due to faulty material / bad workmanship shall be rectified free of cost to the entire satisfaction of BHEL.		Vendor to confirm	
	SUPPLY AND PACKAGING			
28	Supply should complete within 02 months from the date of drawing approval by BHEL.		Vendor to confirm	
	All components shall be suitably packed so that the material reaches BHEL without any damage/loss in transit. All electrical/electronic components shall be transported in water sealed containers.		Vendor to confirm	
	INSPECTION			
29	Pre-dispatch inspection shall be carried out by the representative of BHEL as per specification at supplier's works.		Vendor to confirm	
	Minimum 15 days advance notice to be given by supplier for inspection at supplier's works.		Vendor to confirm	
	TRAINING			
30	Training of BHEL operators in operation of complete equipment & accessories, mechanical and electricals systems and O&M etc by the supplier's experts / engineers during execution at BHEL works.		Vendor to confirm	
	DOCUMENTATION			
	Submission of Process and Instrumentation Diagram (P&ID) and Bill of Material (BOM) alongwith the technical offer for evaluation.		Vendor to confirm	
31	After placement of order by BHEL, the vendor to complete detailed designs and submit the drawings/data sheets (Detailed Civil Layout, Civil Foundation Drawing, Civil Structural Drawing and P&ID) with complete Bill of material along with rating, specification of all equipments/ components within 30 days from the date of purchase order.		Vendor to confirm	
	List of mandatory spares with price list shall be submitted along with technical offer. This shall not be included/ considered during price bid evaluation.		Vendor to confirm	
	The operating manuals for ESTP is required to be submitted, including a full description of the items/equipment used or installed.		Vendor to confirm	

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32	QUALIFYING CONDITION To be considered technically qualified for this tender, the bidder must meet the following Pre-Qualification Requirements (PQR) and submit documentary evidence in support thereof: 1. Experience Criteria The bidder should have successfully executed similar works within the last seven (7) years, ending on the last day of the month preceding the month of issue of this tender, meeting any one of the following criteria: •(a) One (1) similar completed work having a value not less than INR 75.54 Lakhs (excluding GST) OR •(b) Two (2) similar completed works, each having a value not less than INR 47.22 Lakhs (excluding GST) OR •(c) Three (3) similar completed works, each having a value not less than INR 37.77 Lakhs (excluding GST) 2. Definition of Similar Work "Similar Work" shall mean: Supply, Installation, Testing, and Commissioning (SITC) of Effluent Treatment Plant (ETP) / Sewage Treatment Plant (STP) / E-STP having a minimum capacity of 300 KLD (Kilo Litres per Day) or higher.		Vendor to confirm and submit	
	3. Documentary Evidence The bidder shall submit the following documents in support of the above experience criteria: 3.1 Work Order & Execution Proof •Copy of Purchase Order (PO) / Work Order (WO) clearly indicating scope, value, and date •Supporting proof of execution such as: oTax Invoice(s) or oCompletion of supply documents or oGeM CRAC (where applicable) 3.2 Completion / Performance Certification •Commissioning Certificate / Work Completion Certificate / Performance Certificate issued by the client •Certificates must clearly indicate: oPO/ WO reference no. oDate of completion/commissioning oScope of work executed oCapacity of plant installed oPO/WO Value and Final Executed Value		Vendor to confirm and submit	

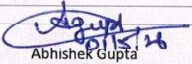
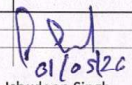
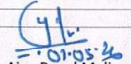
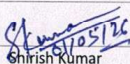
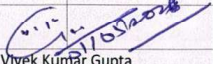
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	4. Client Details for Verification The bidder shall furnish the following details for each submitted reference work: • Name of client organization • Complete address • Contact person name • Contact number • Email ID 5. Verification by Purchaser • The purchaser (BHEL) reserves the right to: - o Independently verify the submitted credentials directly with the end-user - o Seek additional clarifications/documents, if required - o Conduct site visits for physical verification of the installed systems • The bidder shall: - o Facilitate such verification by coordinating with their clients - o Ensure necessary site access permissions, entry formalities, and interaction arrangements at the client's premises • Failure to facilitate verification may lead to rejection of the bid. 6. Important Notes • Only completed and successfully commissioned works shall be considered for evaluation • Values mentioned are exclusive of GST • In case of foreign currency contracts, conversion to INR shall be done using the RBI reference rate as on the date of completion of the work • Incomplete, ambiguous, or insufficient documentary evidence may lead to disqualification		Vendor to confirm and submit	
			Vendor to confirm	
	 Abhishek Gupta		 Ishudeep Singh	 Ajay Dayal Mali
	Manager (FCX)		Manager (HSE)	Manager (TCX)
	 Shrish Kumar		 Vivek Kumar Gupta	
	Manager (WEX)		DGM (WEX)	

SEWAGE TREATMENT PLANT SYSTEM - 300 KL

Specification Number SP/MISC/7831 (Rev 01)

Asset Number SP/MISC/1/8/7831

Location Township Oxidation Pond Area

Supply, fabrication, installation, testing & commissioning of Sewage Treatment Plant with handling capacity of 300 Cum per day in township area. All the equipment, piping, pumps, air blowers & electrical panel is included in the scope of work excluding civil work for efficient working of STP. The quotation shall also include, inlet, outlet, overflow, vent, moving ladders & railing & making support for piping as required.

Input Details

Total Daily Inflow	300 KLD
pH	5.5 - 9
Biological Oxygen Demand	50 - 500 mg/l
Suspended Solids	0 - 450 Mg/l
Chemical Oxygen Demand	100 - 1200 mg/l
Oil & Grease	0- 120 mg/l

The Treated water parameter shall strictly comply with the statutory requirement of State pollution control board (UPPCB) - Latest Norms.

Sewage Treatment Plant shall include the following items but not limited to these unit as may be required by the manufacturer's design.

Screen Chamber
 Equalization Tank
 Stilling Tank with Fine Screen
 Anoxic Tank
 MBBR 1 and MBBR 2 Tank with suitable arrangement
 Settling tank
 Filter Feed tank
 Sludge Holding Tank
 Dosing systems, Air Blowers, Pumps & equipment
 Decanter Centrifuge System
 Piping, valves etc
 Electrical Panel & Cabling
 Plant room adjacent to STP
 All piping, valves & level indicator/controller etc.

Contractor shall include the cost of all chemicals (consumed during testing & commissioning and the cost of such items of works which are not explicitly mentioned above, but are mandatory to have pollution board approval. Nothing extra shall be payable in this regard. Any statutory fee will be paid by BHEL.

S. No.	Description	Qty/Unit	Vendor to confirm	Remark/ Deviation (if any)
Preliminary Works				
1	Submission of Process and Instrumentation Diagram (P&ID) and Bill of Material (BOM) alongwith the technical offer for evaluation.	01 Lot	Vendor to confirm and details to be submitted alongwith the offer	

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S. No.	Description	Qty/Unit	Vendor to confirm	Remark/ Deviation (if any)
	<u>Submission of detailed "Ready for Construction" Civil design and drawing duly vetted and approved by Govt Institution to be submitted after placement of PO</u>		Vendor to confirm	
2	Bar Screen Chamber MOC: RCC with Epoxy Coating (Under BHEL's Scope) Tank dimensions to be furnished by vendor after placement of PO. 50% additional holding volume shall be considered while calculating tank capacity based on the treatment time.	1 Number	Vendor to confirm	
	Supply, installation, testing & commissioning of 2 Nos Stainless Steel Perforated Screen of appropriate size with suitable lifting arrangement mechanically (size suitable). Bar sizing will be as per vendor's specification. Screen should have provision for hook/rack-pinion mechanism as lifting arrangement etc. complete as required. 1 Set contains 2 Number Bar Screen	01 Set	Vendor to confirm	
3	EQUALIZATION TANK MOC: RCC with Epoxy Paint (Under BHEL's Scope) Tank dimensions to be furnished by vendor after placement of PO. 50% additional holding volume shall be considered while calculating tank capacity based on the treatment time.	1 Number	Vendor to confirm	
	Sewage Transfer Pump Supply, installation, testing & commissioning of Centrifugal Self Priming Pump for effluent handling. The pump shall be integrated with high/low water level switches for protection and interlocks, starter with push button arrangement and all accessories suitable for operation on 415+10% V, three phase, 50 Hz. AC supply etc. All panels should have MCB isolation Star delta/ DOL Starter + Push Button on/off indicating lamp, single phase preventer/Motor Protection Relay as required including all necessary piping, valves and other accessories (clamp supports etc.) complete.	01 Set	Vendor to confirm	
	Type: Centrifugal Self Priming Pump			
	Capacity : Minimum 12-15 Cum/hr			
	Discharge Head: Minimum 20-25 MWC			
	MOC:			
	Body: CI Preferable			
	Internal: SS			
	Make of Pump:- Kirloskar/Crompton/KSB/Flowserve			
	Make of Motor:- KSB/ABB / Siemens / GE / Bharat Bijlee / Marathon / Kirloskar Electric / Crompton Greaves			
	Quantity: 1 Set comprises of 2 Number Pumpset (1 Working + 1 Standby)			
	STILLING TANK with Fine Screen MOC: RCC with Epoxy Paint (Under BHEL's Scope) Tank dimensions to be furnished by vendor after placement of PO. 50% additional holding volume shall be considered while calculating tank capacity based on the treatment time.	1 Number	Vendor to confirm	
	Fine Screen: Opening size to be designed by vendor for safe operation of Sewage Transfer Pumps.			
	ANOXIC TANK SYSTEM MOC: RCC with Epoxy Paint (Under BHEL's Scope)			

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S. No.	Description	Qty/Unit	Vendor to confirm	Remark/ Deviation (if any)
4	Tank dimensions to be furnished by vendor after placement of PO. 50% additional holding volume shall be considered while calculating tank capacity based on the treatment time.	1 Number	Vendor to confirm	
	Pump For Anoxic Tank Re-Circulation	01 Lot	Vendor to confirm	
	Type: Centrifugal Pump			
	Capacity : Minimum 10 Cum/hr			
	Discharge Head: Minimum 10 MWC			
	MOC:			
	Body: CI Preferable			
	Internal: SS			
	Make of Pump:- Kirloskar/Crompton/KSB/Flowserve			
	Make of Motor:- KSB/ABB / Siemens / GE / Bharat Bijlee / Marathon / Kirloskar Electric / Crompton Greaves			
	Quantity: 1 Set comprises of 2 Number Pumpset (1 Working + 1 Standby)	01 Lot	Vendor to confirm	
	AGITATOR FOR ANOXIC TANK			
	Quantity: 1 Number			
	Speed: 0-50 RPM			
	MOC: SS 304			
	Capacity of Motor: 1 HP or above			
	Make of Motor:- KSB/ABB / Siemens / GE / Bharat Bijlee / Marathon / Kirloskar Electric / Crompton Greaves			
5	MOVING BED BIO REACTOR SYSTEM WITH SUITABLE MEDIA	1 Set	Vendor to confirm	
	MOC: RCC with Epoxy Paint (Under BHEL's Scope)			
	Tank dimensions to be furnished by vendor after placement of PO. 50% additional holding volume shall be considered while calculating tank capacity based on the treatment time.			
	Total number of MBBR Tanks: 2			
	Supply Installation, testing & commissioning of PP/PVC MBBR Bio Media			
	Surface area- Minimum 450 m2/m3	02 Lot	Vendor to confirm	
	Make : 3mx/PPAQUA/MM AQUA/SAS/SDM/FWSPL/NETROX			
6	SETTLING TANK	1 Number	Vendor to confirm	
	MOC: RCC with Epoxy Paint (Under BHEL's Scope)			
	Tank dimensions to be furnished by vendor after placement of PO. 50% additional holding volume shall be considered while calculating tank capacity based on the treatment time.			
	Supply Installation, testing & commissioning of PP/PVC MBBR Bio Media			
	Surface area- Minimum 450 m2/m3			
7	Make : 3mx/PPAQUA/MM AQUA/SAS/SDM/FWSPL/NETROX	01 Lot	Vendor to confirm	
	AIR PURGING GRID WITH FINE AND COARSE BUBBLE DIFFUSER			
	Supply, Installation, testing & commissioning of Air diffuser system twin lobe -type air blower pressure of 0.5 kg/Sqcm			
	Flow Capacity: 150 Cum/hr at pressure 0.5 kg/Sqcm			
	Make:-Ingersoll RAND/ACME/EVEREST			
	Make of Motor:- KSB/ABB / Siemens / GE / Bharat Bijlee / Marathon / Kirloskar Electric / Crompton Greaves			
	Quantity: 1 Set comprises of 2 Number Air Blower (2 Working + 1 Standby)			
	The systems should be integrated with valves, NRV , PRV, suction filters, anti-vibration pads and necessary pipings etc complete.			

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S. No.	Description	Qty/Unit	Vendor to confirm	Remark/ Deviation (if any)
	Providing and fixing all piping (as described below) and isolation control valves for making the system complete.			
	cPVC : Submerged air piping			
	MS Epoxy : Air piping			
	Air Purging Grid			
	Air dispersion system shall be provided for Equalization Tank, Sludge holding Tank and MBBR Tank. MOC: UPVC completed with piping, valves, air bubbling nozzles and other accessories.			
8	SLUDGE HOLDING SYSTEM	01 Set	Vendor to confirm	
	Sludge Holding Tank MOC : RCC with Epoxy Paint (Under BHEL's Scope) Tank dimensions to be furnished by vendor after placement of PO.			
	Sludge Recirculation / Transfer Pumps	01 Lot	Vendor to confirm	
	Type: Centrifugal/Diaphragm Pump (as per Manufacturer's Design)			
	Solid handling Capacity: 8-15 mm			
	Flow rate : Minimum 6 Cum/Hr			
	Head = Minimum 12 MWC			
	MOC:			
	Body: CI Preferable			
	Internal: SS			
	Make of Pump:- Kirloskar/Crompton/KSB/Flowserve			
	Make of Motor:- KSB/ABB / Siemens / GE / Bharat Bijlee / Marathon / Kirloskar Electric / Crompton Greaves			
	Quantity: 1 Set comprises of 2 Number Pumpset (1 Working + 1 Standby)			
	FILTER FEED SYSTEM	01 Set	Vendor to confirm	
	Filter Feed Tank MOC : RCC with Epoxy Paint (Under BHEL's Scope) Tank dimensions to be furnished by vendor after placement of PO.			
	Filter Feed Pump			
	Type: Centrifugal Pump			
	Capacity : Minimum 12-15 Cum/hr			

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S. No.	Description	Qty/Unit	Vendor to confirm	Remark/ Deviation (if any)
9	Discharge Head: Minimum 15-20 MWC	01 Lot	Vendor to confirm	
	MOC:			
	Body: CI Preferable			
	Internal: SS			
	Make of Pump:- Kirloskar/Crompton/KSR/Flowserve			
	Make of Motor:- KSB/ABB / Siemens / GE / Bharat Bijlee / Marathon / Kirloskar Electric / Crompton Greaves			
	Quantity: 1 Set comprises of 2 Number Pumpset (1 Working + 1 Standby)			
10	MULTIGRADE SAND FILTER	01 Lot	Vendor to confirm	
	Supply, installation, testing & commissioning of vertical self supporting Dual Media Filter (DMF) fabricated from MSEF (6-8 mm thick), complete with pressure gauges at inlet & outlet, sample cock, Valves, G.I face piping with Valves & all accessories, with initial charge of filter media for Dual media filter with multi grade quartz sand & anthracite, lining inside with Epoxy, testing & commissioning complete as required. (1 working)			
	Capacity: 15 Cum/Hr			
	Loading rate of filter: 16 Cum/Sqm/Hr			
	Max. operating pressure: 5 kg/Sqcm			
	Test pressure: 10 kg/Sqcm			
	Media: Sand, Quartz & Gravel			
11	ACTIVATED CARBON FILTER	01 Lot	Vendor to confirm	
	Supply, installation, testing & commissioning of vertical self supporting Activated Carbon Filter (ACF) fabricated from MSEF (6-8 mm thick), complete with pressure gauges at inlet & outlet, sample cock, GI face piping with Valves & all accessories, with initial charge of filter media for activated carbon filter, lining inside with epoxy and EP outside complete as required. (1 working)			
	Capacity: 15 Cum/Hr			
	Loading rate of filter: 16 Cum/Sqm/Hr			
	Max. operating pressure: 5 kg/Sqcm			
	Test pressure: 10 kg/Sqcm			
	Media: Activated Carbon and Supporting Sand			
12	HYPO DOSING SYSTEM	01 Lot	Vendor to confirm	
	MOC: FRP			
	Capacity: 500 Litre			
	Dosing Pump Flow Rate: 0-20 Lph @ 4 kg/cm2			
	MOC of Pump: PP			
	1 Set Contains 2 Pumps (1 Working + 1 Standby)			
	Make : Minidose/Aquaflow/Edose			
	DECANTER CENTRIFUGE SYSTEM	01 Lot	Vendor to confirm	
	CENTRIFUGE FEED PUMP			
	Type: Screw Type			
	Capacity: 2 Cum/Hr			
	Head = Minimum 40 MWC			
	MOC:			

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S. No.	Description	Qty/Unit	Vendor to confirm	Remark/ Deviation (if any)			
13	Body: CI Preferable	01 Lot	Vendor to confirm				
	Internal: SS						
	Make of Pump:- Kirloskar/Crompton/KSB/Flowserve/ROTO /ROTOMAC						
	Make of Motor:- KSB/ABB / Siemens / GE / Bharat Bijlee / Marathon / Kirloskar Electric / Crompton Greaves						
	Quantity: 1 Set comprises of 2 Number Pumps (1 Working + 1 Standby)						
	Compatible Air blower system as per operational requirement of the Decanter Centrifuge system						
	DECANTER CENTRIFUGE						
	Capacity : 8 Cum/hr	01 Lot	Vendor to confirm				
	Type: Bowl Type						
	Feed solid (%): 0.8-1						
	Temperature: Ambient						
	Cake solid (%): 15-20						
	Filtrate solid recovery (%): >90						
	Expected polyelectrolyte doze (Kg/ton of dry solid): 1.5-2						
	Main Motor for Decanter						
	Rating of motor (HP): 20						
	Motor type 3 Phase, 2 Pole, 1500RPM						
	Degree of protection IP 55						
	Insulation class Class F						
	Mounting: Flange Mounted						
	Design ambient temperature: 40 Degree Celcius						
	Motor protection: Thermistor						
	Decanter protection: Provided						
	Intermediate Kit (consist seal rings & gaskets) (Commissioning Spares)						
	Material of Construction						
	Conveyor: SS 316						
	Impeller: SS 316						
	Feed Tube: SS 316						
	Casing/Vessel: SS 304						
	ELECTROMAGNETIC FLOW METER						
	Supply, Installation, Testing & Commissioning of on line full bore type Electromagnetic flow meter mounted in plumbing plant room with electrical control panel with the following features: Monitoring the total flow, Flow rate, etc. It shall include all type of Plumbing & Electrical connections, accessories, wiring, conduits & supports complete with all respect.						
	Location of 1st EMF: Between Equilization tank and MBBR Tank						

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S. No.	Description	Qty/Unit	Vendor to confirm	Remark/ Deviation (if any)
14	Location of 2nd EMF: Between Treated Water Tank and Storage Area	01 Set	Vendor to confirm	
	Flow element Liner: PTFE			
	Display: Digital			
	Power Supply: 230 V AC			
	Electrode Material: SS 316			
	Connection Type: Flange End			
	Output: 4-20 mA, RS 485			
	Accuracy: + 0.5%			
	Enclosure: Weather proof IP 67			
	Mounting Location: Open to Sky			
	Mounting Orientation: Horizontal pipe			
	Working Temperature: 0 - 80 Degree Celsius			
	Flow Range: 5 Cum/Hr to 50 Cum/Hr.			
	Maximum Line Pressure: 5 Kg/Sqm			
	Pipe Flow: Capable of measuring in partially filled pipe.			
	Display Flow Unit: Cum/Hr, LPH			
	Totalizer function: Forward Totalizer			
	Calibration Certificate Required: Yes			
	Application: Industrial Effluent			
	Line Diameter: 100 mm			
	Quantity: 2 Number			
15	TREATED WATER STORAGE TANK	01 Set	Vendor to confirm	
	MOC: RCC with Epoxy Coating (Under BHEL's Scope)			
	Tank dimensions to be furnished by vendor after placement of PO. 50% additional holding volume shall be considered while calculating tank capacity based on the treatment time.	01 Set	Vendor to confirm	
	Treated Water Transfer Pump			
	Type: Centrifugal Pump			
	Capacity : Minimum 12-15 Cum/hr			
	Discharge Head: Minimum 100 MWC			
	MOC:			
	Body: CI Preferable			
	Internal: SS			
	Make of Pump:- Kirloskar/Crompton/KSB/Flowserve			
	Make of Motor:- KSB/ABB / Siemens / GE / Bharat Bijlee / Marathon / Kirloskar Electric / Crompton Greaves			
	Quantity: 1 Set comprises of 2 Number Pumpset (1 Working + 1 Standby)			
16	Providing and fixing all interconnecting piping with all required isolation, control valves for making the system complete functional as per site.	01 Lot	Vendor to confirm	
	Other than the specifically mentioned systems, all effluent piping shall be of Schedule 40 UPVC.			
	Dosing piping shall be CPVP/UPVC			
16	Usage of rubber hoses, pipes, flexible hoses for handling of effluents is strictly prohibited.			
	The systems should be integrated with valves, foot-valve, NRV , PRV, suction filters, anti-vibration pads and necessary pipings etc complete.as per requirement.			

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S. No.	Description	Qty/Unit	Vendor to confirm	Remark/ Deviation (if any)
17	Supplying, installation, testing and commissioning of Y-strainer of CI body fabricated out of 1.6 mm thick stainless steel sheet with 3 mm dia holes with stainless steel flanged (if required). Y Strainer to be strategically placed for safe guarding of pumps and other critical equipment without hampering normal operation of plant.	01 Lot	Vendor to confirm	
18	Supply Installation, testing & commissioning of Electrical Control panel			
	Electrical Panel			
	Supply, installation, testing & commissioning of Floor mounted electrical Panel , cubicle type, made out of 2 mm thick CRCA sheet, totally enclosed, IP-55, free standing, dust and vermin proof, indoor, compartmentalised, suitable for operation on 3 phase and neutral, 415 V, 50Hz AC system with busbars, including internal wiring with suitable size wires / cable, interconnection, duly powder coated painting etc. including supply & installation of following switchgears, metering instruments and accessories as per specifications with interlocking arrangement with supply pumps, suction pumps, modulating or shut-off valves including necessary wiring, magnetic switches & sensors complete to make the system functional with following interlocking. Potential free contacts have to be provided for BMS compatibility.	01 Lot	Vendor to confirm	
	STP PANEL (Location: STP Plant Room)			
	INCOMING			
	One (1) No. MCCB on 1.5 times actual full load power consumption of STP plant with adjustable thermal magnetic release having overcurrent and short circuit protection & Earth Fault Protection.			
	0-500 Volts Digital Volt Meter			
	Digital Ammeter Range: 1.5 times of actual full load power consumption of STP plant			
	Phase indicating light shall be protected by 2 Amps SP MCB's.			
	KWH meter with suitable CTs.			
	Supply, Installation, testing & commissioning of Cable Tray as per requirement.	01 Set	Vendor to confirm	
	Supply, Installation, testing & commissioning of Electric Wire as per requirement.			
	MPCB for all motors etc.: Schneider/ABB/L&T/Siemens			
	Contact for drives.: Schneider/ABB/L&T/Siemens			
	Main switch on/off: Schneider/ABB/L&T/Siemens only			
	Single Phase Preventer: Schneider/ABB/L&T/Siemens only			
	All wires & cables shall be of Make- KEI / Havells / Polycab / Finolex / Gemscab / Cords only			
	Electric supply 3 PH, 415 V, 50Hz, AC will be provided by BHEL at one place only. Interconnecting power cabling from nearby power source (identified by BHEL) to drives and panels to be done by vendor. Earthing will be done by BHEL. All electrical/control cables shall be properly tagged in cable trays with STP plant (vendor scope) secured with cable ties.	01 Lot	Vendor to confirm	
	All drives to be protected with overload trip. OLR to be provided with Make- Schneider/ABB/L&T/Siemens			
18	Under voltage/Over Voltage/Single Phase/MPR- Schneider/ABB/L&T/Siemens			
	All required instruments should be calibrated through OEM or NABL certified agencies.			
	All electronic switches (pressure and level) make must be- Danfoss/E&H/Baumer/Honeywell/Wika/Yokogawa/ Switzer.	01 Lot	Vendor to confirm	
	Pressure/temperature gauges make must be- E&H/Baumer/Honeywell/Wika/Yokogawa/ GIC.			
	If the party is offering any item of equivalent make other than mentioned above the same should be clearly indicated in the offer and will be accepted only in case specifically approved by BHEL.			
	Supply, Installation, testing & commissioning of Online BOD, COD, TSS, TOC Meter and pH meter as per requirement- One set			
	Usage/Application: FTP / STP			

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S. No.	Description	Qty/Unit	Vendor to confirm	Remark/ Deviation (if any)
19	Voltage: 24 VDC	01 Set	Vendor to confirm	
	Current: 3A			
	Frequency: 50-60 H			
	Digital Input / Output: Through MODBUS TCP/IP and RTU			
	Data Storage: On internal SD Card of minimum 60 days data storage. 4 - 20 mA signal output for integration with Scada.			
	Operating Temperature: 20 Degree C to 70 Degree C			
	Protection: Minimum IP 55			
	Measuring Range: COD : 2 to 8750 mg/L, BOD : 0.5 to 8750 mg/L, TSS : 5 to 2500 mg/L, TOC : 1 to 7500 mg/L, pH 0 -14.			
	Storage Temperature: 0 to +65 Degree C			
	Individual analysers may be supplied as per availability with data integration and monitoring on a single 6 inch LCD HMI.			
ERECTION AND COMMISSIONING				
	All the erection and commissioning will be carried out by vendor with his own labour in BHEL-Ihansi. Laying & termination of all power & control cables shall be in the scope of vendor.		Vendor to confirm	
	Erection & Commissioning shall be done by supplier at BHEL works. Erection and commissioning shall be completed within 02 months from the date of call of commissioning (COC) given by BHEL after completion of all civil works (BHEL scope). Vendor may depute competent person for monitoring and accessing the progress of civil works and completion of civil front for joint declaration of call of commissioning. However, total supply scope must be completed before COC.		Vendor to confirm	
	Supplier to bring all the tools & tackles required for installation & commissioning. Unloading, positioning and installation of all the main and sub-equipment at their proper place, with due care to be arranged by vendor.		Vendor to confirm	
	All standard industrial safety guidelines must be followed by vendor in compliance with BHEL's HSE policy. All height works, hot works, electrical works shall be done by trained operators with proper supervision. Use of personal protective equipments are mandatory during site E&C works inside BHEL factory.		Vendor to confirm	
20	If any special tool required for O&M it should be supplied by supplier along with STP on Free of Cost basis. Testing equipment and services required for startup, commissioning and testing of the system is in vendor's scope. Any specific consumable required for the operation and commissioning of the system to be arranged by vendor.		Vendor to confirm	
	Commissioning of STP plant is in vendor scope. Commissioning shall be declared completed by BHEL Engineer In-Charge after satisfactory performance of all integrated equipment under rated capacity and demonstration of final treated effluent parameters as per latest UPPCB norms. VENDOR shall be fully responsible for proving out of components as per drawing and other requirements specified by BHEL to the full satisfaction of BHEL. Plant continuous trial operation of 24 hours shall be completed before final commissioning. Final commissioning of the plant shall be declared only after proving of all UPPCB parameters and receipt of CTO of this plant from UP-PCB.		Vendor to confirm	
	First fill up of oil, grease & gas will be in the scope of supplier till commissioning.		Vendor to confirm	
	Successful proving of all function at site as per this specification by the supplier shall be considered as part of commissioning.		Vendor to confirm	
	Any civil work necessary for allowing movement or placement of equipment will be in BHEL scope.		Vendor to confirm	
	Anything else which might be required by vendor for installation and commissioning shall be arranged by vendor.		Vendor to confirm	
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S. No.	Description	Qty/Unit	Vendor to confirm	Remark/ Deviation (if any)
	Any other pump or any other equipment specifically required to complete the work shall be in the scope of vendor. The makes of any item required in this case shall be in line with various makes mentioned above.		Vendor to confirm	
	Maximum noise level should be with in 80 db at normal load condition, 1 mtr. away from the STP plant with correction factor for back ground noise, if necessary. Supplier to demonstrate compliance to noise level, if so required.		Vendor to confirm	
GUARANTEE				
21	Material (against any manufacturing and design defect) and work carried out & performance shall be guaranteed for the period of 24 months from the date of commissioning.		Vendor to confirm	
	Any defect due to faulty material / bad workmanship shall be rectified free of cost to the entire satisfaction of BHEL.		Vendor to confirm	
SUPPLY AND PACKAGING				
22	Supply should complete within 02 months from the date of drawing approval by BHEL.		Vendor to confirm	
	All components shall be suitably packed so that the material reaches BHEL without any damage/loss in transit. All electrical/electronic components shall be transported in water sealed containers.		Vendor to confirm	
INSPECTION				
23	Pre-dispatch inspection shall be carried out by the representative of BHEL as per specification at supplier's works.		Vendor to confirm	
	Minimum 15 days advance notice to be given by supplier for inspection at supplier's works.		Vendor to confirm	
TRAINING				
24	Training of BHEL operators in operation of complete equipment & accessories, mechanical and electricals systems and O&M etc by the supplier's experts / engineers during execution at BHEL works.		Vendor to confirm	
DOCUMENTATION				
25	Submission of Process and Instrumentation Diagram (P&ID) and Bill of Material (BOM) alongwith the technical offer for evaluation.		Vendor to confirm	
	After placement of order by BHEL ,the vendor to complete detailed designs and submit the drawings/data sheets (Detailed Civil Layout, Civil Foundation Drawing, Civil Structural Drawing and P&ID) with complete Bill of material along with rating, specification of all equipments/ components within 30 days from the date of purchase order.		Vendor to confirm	
	List of mandatory spares with price list shall be submitted along with technical offer. This shall not be included/ considered during price bid evaluation.		Vendor to confirm	
	The operating manuals for STP is required to be submitted, including a full description of the items/equipment used or installed.		Vendor to confirm	
QUALIFYING CONDITION				

edgupta
01/05/26

Skumar
01/05/26

J. Lal
01/05/26

G. V. R.
01/05/26

V. R. S.
01/05/2026

S. No.	Description	Qty/Unit	Vendor to confirm	Remark/ Deviation (if any)
	To be considered technically qualified for this tender, the bidder must meet the following Pre-Qualification Requirements (PQR) and submit documentary evidence in support thereof: 1. Experience Criteria The bidder should have successfully executed similar works within the last seven (7) years, ending on the last day of the month preceding the month of issue of this tender, meeting any one of the following criteria: •(a) One (1) similar completed work having a value not less than INR 61.20 Lakhs (excluding GST) - OR •(b) Two (2) similar completed works, each having a value not less than INR 38.25 Lakhs (excluding GST) - OR •(c) Three (3) similar completed works, each having a value not less than INR 30.60 Lakhs (excluding GST) 2. Definition of Similar Work "Similar Work" shall mean: Supply, Installation, Testing, and Commissioning (SITC) of Effluent Treatment Plant (ETP) / Sewage Treatment Plant (STP) having a minimum capacity of 300 KLD (Kilo Litres per Day) or higher.		Vendor to confirm and submit	
26	3. Documentary Evidence The bidder shall submit the following documents in support of the above experience criteria: 3.1 Work Order & Execution Proof •Copy of Purchase Order (PO) / Work Order (WO) clearly indicating scope, value, and date •Supporting proof of execution such as: - oTax Invoice(s) or - oCompletion of supply documents or - oGeM CRAC (where applicable) 3.2 Completion / Performance Certification •Commissioning Certificate / Work Completion Certificate / Performance Certificate issued by the client •Certificates must clearly indicate: - oPO/ WO reference no. - oDate of completion/commissioning - oScope of work executed - oCapacity of plant installed - oPO/WO Value and Final Executed Value		Vendor to confirm and submit	

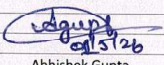
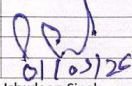
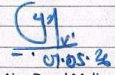
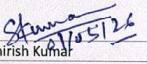
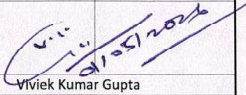
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S. No.	Description	Qty/Unit	Vendor to confirm	Remark/ Deviation (if any)
	4. Client Details for Verification The bidder shall furnish the following details for each submitted reference work: •Name of client organization •Complete address •Contact person name •Contact number •Email ID 5. Verification by Purchaser •The purchaser (BHEL) reserves the right to: - oIndependently verify the submitted credentials directly with the end-user - oSeek additional clarifications/documents, if required - oConduct site visits for physical verification of the installed systems •The bidder shall: - oFacilitate such verification by coordinating with their clients - oEnsure necessary site access permissions, entry formalities, and interaction arrangements at the client's premises •Failure to facilitate verification may lead to rejection of the bid.		Vendor to confirm and submit	
	6. Important Notes •Only completed and successfully commissioned works shall be considered for evaluation •Values mentioned are exclusive of GST •In case of foreign currency contracts, conversion to INR shall be done using the RBI reference rate as on the date of completion of the work •Incomplete, ambiguous, or insufficient documentary evidence may lead to disqualification		Vendor to confirm	
				
	Abhishek Gupta		Ishudeep Singh	Ajay Dayal Mall
	Manager (FCX)		Manager (HSE)	Manager (TCX)
				
	Shirish Kumar		Vivek Kumar Gupta	
	Manager (WEX)		DGM (WEX)	