

Enquiry Document

for

Containerised Sewage Treatment Plant with Reuse

For

Client: Afcons Infrastructure Limited

Capacity: 150 KLD

ENVESYA

Enquiry for Containerised Sewage Treatment Plant ('STP') for Client: Afcons Infrastructure Limited

Requirement of Containerised STP

The project site has a labour camp (1050 personnel) with portable toilet installations. The client wishes to install an STP for treating the black and grey wastewater for reuse in flushing, to be in alignment with environmental objectives.

The vendor is requested to send the techno commercial offer for sewage treatment as per parameters given below and the details as required in this document within 7 (Seven) days of receipt of this enquiry. Kindly acknowledge receipt of this enquiry to the sender and send queries by email within two days of receipt.

(I) Inlet flows and quality

The inlet to the STP system will be as below.

Flow: 150 m³/day is the inlet to the STP system.

Inlet quality and expected outlet guarantee

S N	Parameter	Unit	Inlet Quality	Outlet quality to be guaranteed by vendor
1	Flow	m ³ /day	150	~150
2	pH		6-8	5.5 – 9.0
3	Oil and Grease*	mg/L	30	< 10
4	BOD	mg/L	250-300	<10
5	COD	mg/L	500-550	<50
6	TSS	mg/L	300	<10
7	N Total	mg/L	40	<10
8	Faecal Coliform	MPN	>2000	<100 MPN per 100mL

*Free oil and grease

(II) Basic process flow and units

The STP (preferably MBR based) which will be a containerised package type will contain the following minimum units (note that this is an indicative list and not exhaustive: vendor to consider all the requirements as per design)

- Collection tank (RCC, will be provided by client), with air grid and blowers for mixing
- Coarse Screens/Fine bar screen (RCC chamber will be provided by client)
- Raw sewage pumping system with all accessories
- Oil and grease trap (RCC chamber will be provided by client)
- Mixing grid in GI for collection tank with air blowers, piping and isolation valves.
- Rotating drum fine screens (<2mm).
- Anoxic tank with suitable mixing for DO<0.5 mg/L

ENVESYA

- h) Suitable aerobic biological treatment like membrane bioreactor tank with membrane diffusers, drop pipes in SS 304 and blowers (with standby)
- i) Membrane tank with all accessories.
- j) Blowers (collection and aeration separate), raw sewage feed pumps, sludge recycle pumps, MBR pumps if required and any other pumps, (all pumps and blowers with one working and one installed standby)
- k) Disinfection with sodium hypochlorite dosing system (tank and dosing pumps) and disinfection tank.
- l) UV system if required.
- m) Final treated water holding tank (RCC tank will be provided by client)
- n) Basket type centrifuge / other suitable sludge dewatering system with all accessories like pumps and poly dosing.
- o) All sewage interconnecting piping in PVC/UPVC of good grade, piping standard / other suitable for outdoor installation.
- p) All air piping in GI/SS 304
- q) Electrical Panel, cables and any instrumentation required.
- r) Instruments like electromagnetic flow meter and totaliser (1 nos) pressure gauges for blowers and pumps discharge, level switches for pump operation as per requirements etc.
- s) Air compressor to supply the instrument air.
- t) PLC panel for the overall operation of all equipment.

(III) General Scope of Work, exclusions and supply schedule

Note the broad scope of work is as follows:

Supply of the containerised STP with all tanks, equipment and accessories for 150 m³/day. All pumps, dosing pumps and blowers to be one working and one installed standby. Civil works are excluded but all civil works sizes and general arrangement drawings with all details like coating/inserts/finishing details to be provided.

- All MSEP/other suitable MOC tanks for process units, mechanical and electrical equipment with all accessories.
- All the piping valves, connectors, nuts, bolts etc complete for the STP.
- First fill of all consumables like gear oil/ lubricants etc.
- Complete erection, assembly and testing of the system with proper manpower, tools, tackles etc. M/s Afcons will provide only unskilled labour if required.
- Pre commissioning checks and trial runs of the system.
- Complete commissioning including seeding with microbial culture/enzyme if required.
- Commissioning and performance run as per protocol approved by Afcons of complete STP system simultaneously to be witnessed by client representatives. Analysis of all samples during commissioning.
- Supply of all original equipment catalogues and warranties.
- Operation and maintenance manual with all relevant details.
- One month's operation supervision

ENVESYA

Exclusions:

The scope of the work excludes the supply of the following:

- Civil works and foundations (Data and general arrangement drawings with hydraulic levels and any inserts etc for design to be given by the vendor)
- RCC Tanks or buildings (sizes, layout and GA with any details to be given by the vendor)
- Power Supplies upto MCC. Further cabling in vendor scope
- Sewage conveyance upto underground RCC sewage collection tank. Raw sewage pumping in vendor's scope.

Supply Schedule:

Total 8 weeks from PO as follows:

Submission of all drawings and specs	1 week from date of PO
Supply and erection of overall STP	5 weeks from date of PO
Trial runs and commissioning	2 weeks after erection

Costs for lab analysis during commissioning for all the parameters will be in vendor scope.

The plant shall be supplied as a single delivery and multiple deliveries will not be billed/ payable.

V) Inspection and Testing.

- All components shall be manufactured in accordance with Indian / International standards and regulations.
- All items shall be carefully inspected and tested before despatch in accordance with the standard practice of the manufacturer and the standards of the country of origin.
- All test certificates in triplicate shall be supplied to Afcons, whether or not witnessed by Afcons and/or its representative.

VI) Please submit the offer with following minimum details

- a) Design basis and criteria for equipment design.
- b) List of all tanks with sizes and volumes and MOC.
- c) Membrane module make, specs and numbers.
- d) Membrane diffuser nos and specs (dia/size, airflow per diffuser and MOC of membrane, make of membrane).
- e) Output of usable volume from the STP, excess, sludge produced and chemical consumption.
- f) All pumps, dosing pumps and blower capacities (flow and head/pressure) and MOC.
- g) All instrumentation provided like flow meters, pressure gauges, level switches etc.
- h) Area required for STP and basic layout.
- i) Power required and any other utility required.
- j) Tentative operating cost with power, chemicals and any other component.

VII) Place of supply: Mumbai City, Katai Naka area

ENVESYA

VIII) Approved makes for major components will be as follows.

- MBR membranes – Dupont/ Hydranautics/GE/Veolia
- Membrane air diffusers – OTT (Titan)/ Rehau (SBS Enviro)/Scogen
- Fine screens: To be specified by vendor, subject to client's approval. Local fabrication is not acceptable.
- Valves – KSB/Crane/Audco
- Centrifugal pumps –Kirloskar/ Johnson/KSB /Sulzer/ Grundfos/ Flowserve
- Dosing Pumps- ASIA LMI/ Prominent (all motorised, no solenoid type)
- Air blower (Twin/Tri lobe): TMVT/ Usha/Everest/Akash
- All process instruments such as, flow, pH will be of either Forbes Marshall/ABB

The other Terms & Conditions will be shared after receiving the techno-commercial proposal.

Site image for reference (toilet and septic tank area)



Layout

