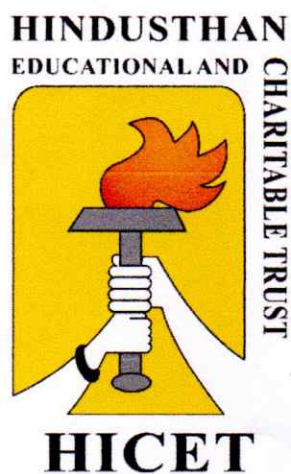


SEWAGE TREATMENT PLANT



HINDUSTHAN
COLLEGE OF ENGINEERING AND TECHNOLOGY

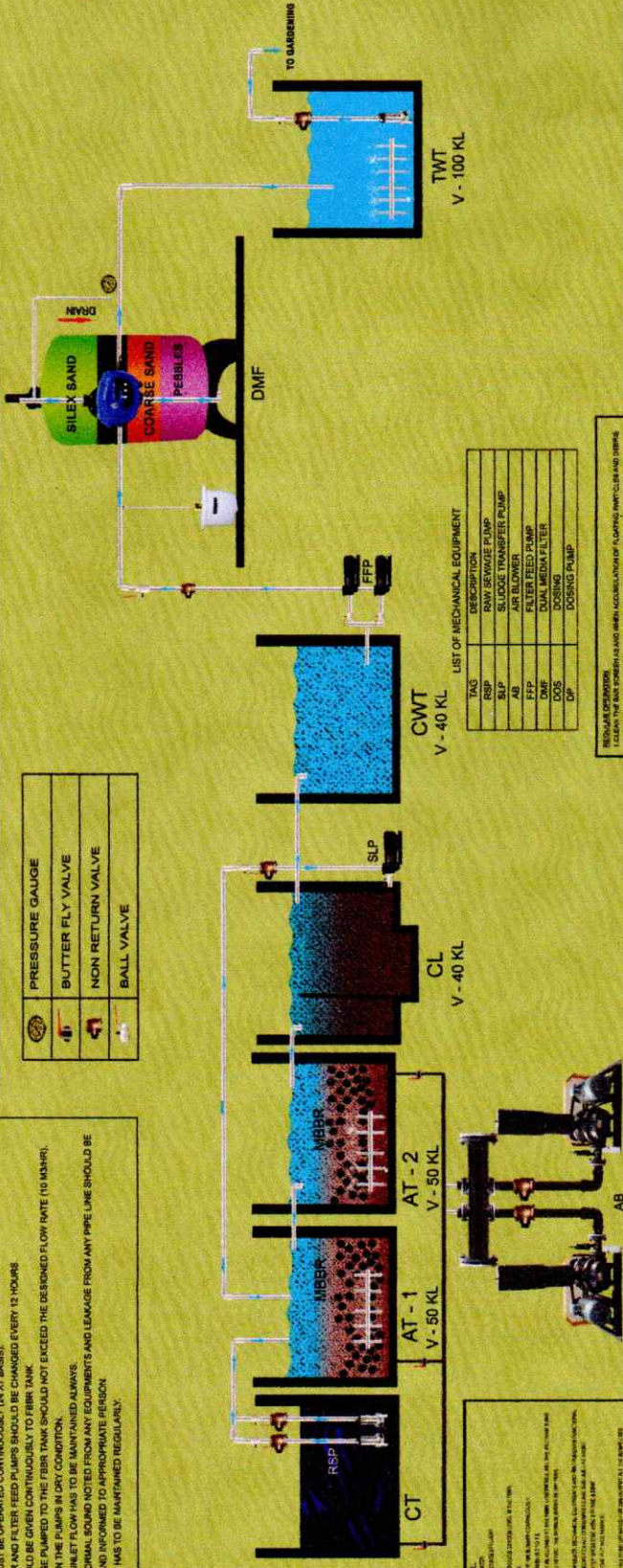
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Coimbatore - 641 032

SEWAGE TREATMENT PLANT MBBR TECHNOLOGY

- DOS AND DON'TS:**
1. IN COLLECTION TANK THE WATER LEVEL MUST BE MAINTAIN MINIMUM 50% CAPACITY.
 2. BLOWER MUST BE OPERATED CONTINUOUSLY (24 X7 BASIS).
 3. RAW WATER AND FILTER FEED PUMPS SHOULD BE CHANGED EVERY 12 HOURS.
 4. FEED SHOULD BE GIVEN CONTINUOUSLY TO FBR TANK.
 5. THE SEWAGE PUMPED TO THE FBR TANK SHOULD NOT EXCEED THE DESIGNED FLOW RATE (10 M3HR).
 6. DO NOT RUN THE PUMPS IN DRY CONDITION.
 7. CONSTANT INLET FLOW HAS TO BE MAINTAINED ALWAYS.
 8. IF ANY ABNORMAL SOUND NOTED FROM ANY EQUIPMENTS AND LEAKAGE FROM ANY PIPE LINE SHOULD BE CHECKED AND INFORMED TO APPROPRIATE PERSON.
 9. LOSS SHEET HAS TO BE MAINTAINED REGULARLY.

	PRESSURE GAUGE
	BUTTER FLY VALVE
	NON RETURN VALVE
	BALL VALVE



LIST OF MECHANICAL EQUIPMENT

TAG	DESCRIPTION
RSP	RAW SEWAGE PUMP
SLP	SLUDGE TRANSFER PUMP
AB	AIR BLOWER
FFP	FILTER FEED PUMP
DMF	DUAL MEDIA FILTER
DOS	DOSING
DP	DOSING PUMP

REGULAR OPERATION

1. RAW WATER PUMP SHOULD BE OPERATED CONTINUOUSLY.
2. RAW WATER PUMP SHOULD BE OPERATED CONTINUOUSLY.
3. RAW WATER PUMP SHOULD BE OPERATED CONTINUOUSLY.
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11. RAW WATER PUMP SHOULD BE OPERATED CONTINUOUSLY.
12. RAW WATER PUMP SHOULD BE OPERATED CONTINUOUSLY.
13. RAW WATER PUMP SHOULD BE OPERATED CONTINUOUSLY.

Client
STP Plant Capacity : 250 KLD

Design - Erection - Commissioned by
GRAM ENVO SOLUTION PVT LTD
SF 513, 1st Street, Koyamangalam, Maruthamalai,
Gangapathy, Coimbatore, Tamil Nadu 641008
Contact Details : 98938 24483 / 84
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GRAM
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Figure 1 Schematic Diagram of Sewage Treatment Plant





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Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai
Accredited with 'A' Grade by NAAC, Accredited by NBA (ECE, MECH, EEE, IT & CSE)
Coimbatore - 641 032



SEWAGE TREATMENT PLANT

COMPONENTS

The sewage treatment plant comprises of the following components:

1. Wastewater collection tank
2. Moving Bed Biofilm Reactor (MBBR)
3. Clarifier
4. Clear Water Tank
5. Filter
6. Treated Water Tank

OPERATING PROCEDURE

1. Fill 75% of the MBBR with raw water
2. Fill 25% of the MBBR with raw sewage effluent
3. Dose Culture / Biomass
4. Start aeration and maintain dissolved oxygen level in the MBBR around 2-3ppm (Minimum 2ppm)
5. Aerate for 2 days by running the air blower continuously
6. Ideal pH value for culture growth is 7-7.5
7. pH value less than 7 should not be allowed to the MBBR. Low pH will kill the bacteria and micro-organisms. It will tend to septic the sewage water in the MBBR

INITIAL START UP FOR PLANT

1. Ensure that all the electrical equipments, mechanical equipments and instruments' functional checks are completed. Also check for all the consumables available at the STP
2. Ensure that the incoming power supply should be 415V, 3 phase and 50Hz
3. PSF and ACF to be backwashed before put into service



NORMAL START UP FOR PLANT

At normal startup, the plant has to be operated for 25% output. All the respective valves have to be opened for 25% of flow. The sequence of operation to be done is as follows:

1. Allow the sewage to the collection tank after passing it through the grit screen chamber
2. Open the discharge valve of the collection tank and pump the sewage to be filled in the MBBR
3. Start hypo system to provide the hypo to the clarified water tank outlet pipe
4. Open the air blower discharge valve to put into operation. Also open the discharge isolation valve at the MBBR to allow the air to blow during the sewage is collected
5. In the MBBR, start the blower. Any one blower should run continuously
6. After the filling, the sludge mixed sewage water will overflow into the clarifier. Sludge will be settled at the sloped bottom of the clarifier
7. Open the sludge outlet valve to allow the sludge to flow to the sludge drying beds
8. Open the suction and discharge valve of the filter feed pump based on the selected pump. Also open the inlet and outlet valve and start the filter feed pump
9. Backwash the PSF and ACF to put into service
10. The treated water can be passed through UV treatment to get disinfected water for reuse

REGULAR OPERATION

1. Clean the bar screen as and when accumulation of floating particles and debris blocks it
2. Pump room area and equipments should be cleaned every day
3. Endure that the incoming power supply is 415V and 3 phase
4. Oil and grease to be applied wherever necessary
5. Blower gear box: 0.5 litres / gear box / 15 days – 320 gear oil
6. Blower suction filter has to be cleaned twice a week
7. Apply grease to the blower bearings once a week
8. Flow to be monitored at regular intervals. It should be filled in the log sheet
9. Backwashing of PSF and ACF filter should be done once in 8 hours
10. Backwash duration: 20-30 minutes, Rinse duration: 15-20 minutes
11. Solid and cloggy materials should not be allowed nearby the pump



12. Sludge has to be removed from the clarifier by the sludge transfer pumps once in 4 hours to the sludge drying beds
13. Treated water tank should be maintained at a minimum of 50%

DOS AND DON'TS

1. In collection tank, water should be maintained at a minimum of 50% capacity
2. Blower must be operated continuously (24x7 basis)
3. Raw water and filter feed pumps should be changed every 12 hours
4. Feed should be continuously given to the MBBR tank
5. The sewage pumped to the MBBR should not exceed the designed flow rate
6. Do not run the pumps in dry conditions
7. Constant inlet flow has to be maintained always
8. Any abnormal sounds and leakages from any pipe line should be checked and informed to the appropriate persons
9. Log sheet has to be maintained regularly





Figure 2 Treatment Plant

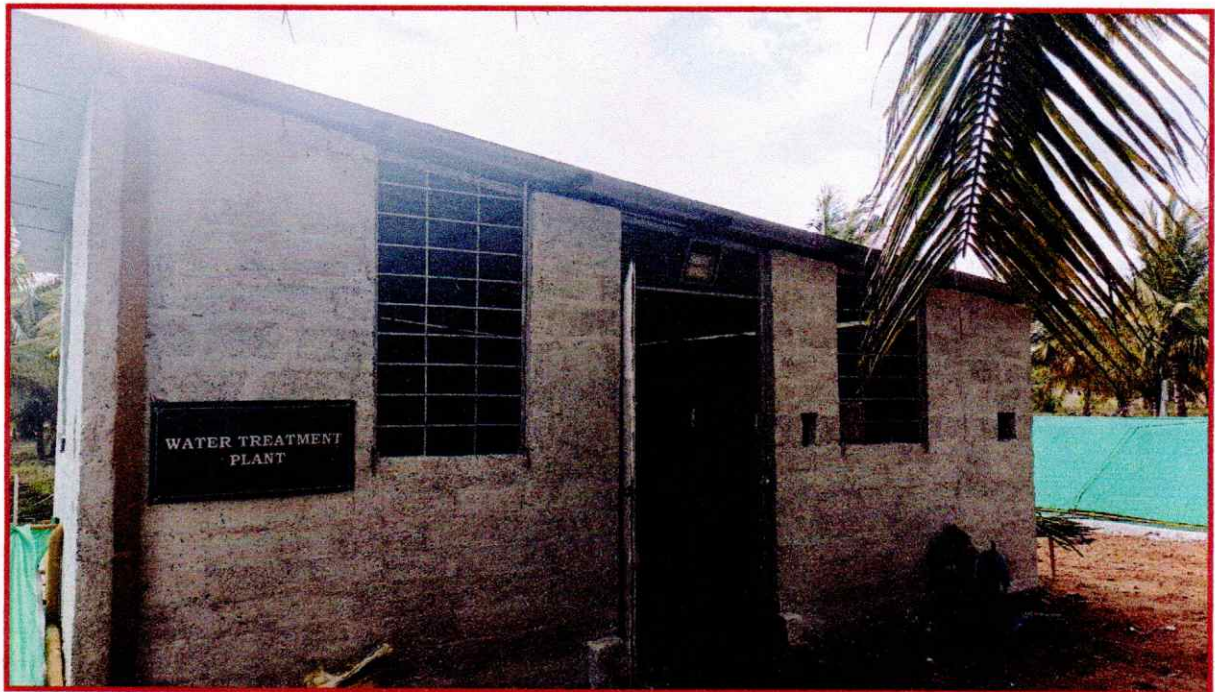


Figure 3 Treatment Plant

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Figure 4 Collection Tank

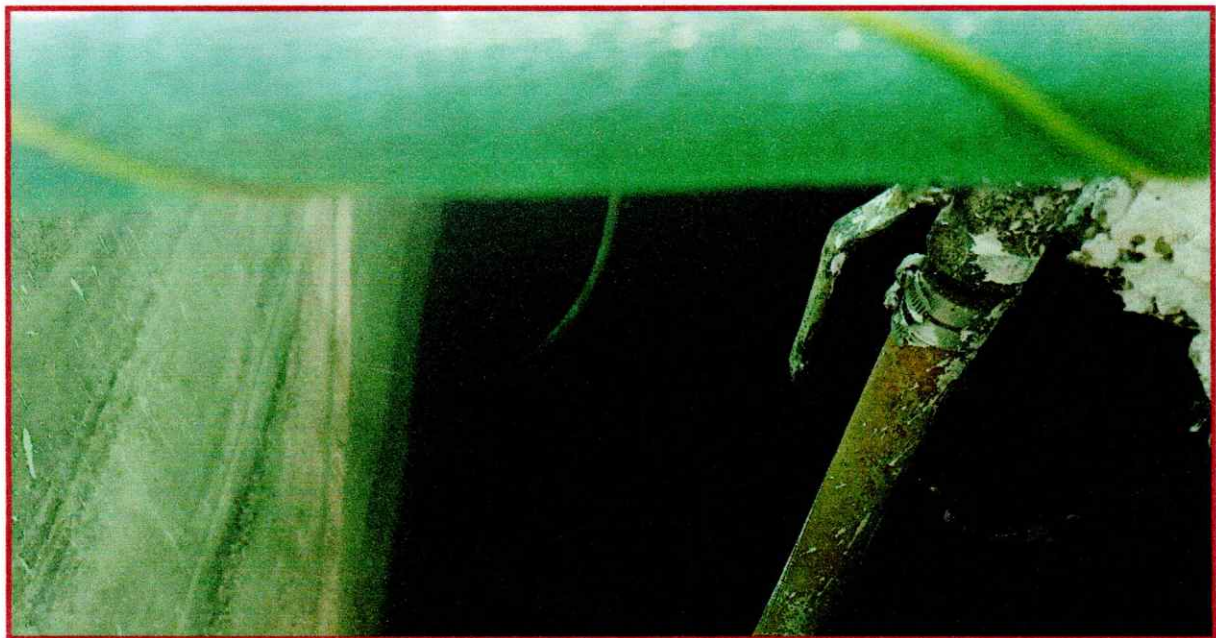


Figure 5 MBBR Tank (Capacity 50KLD)

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Figure 6 Air Blowers

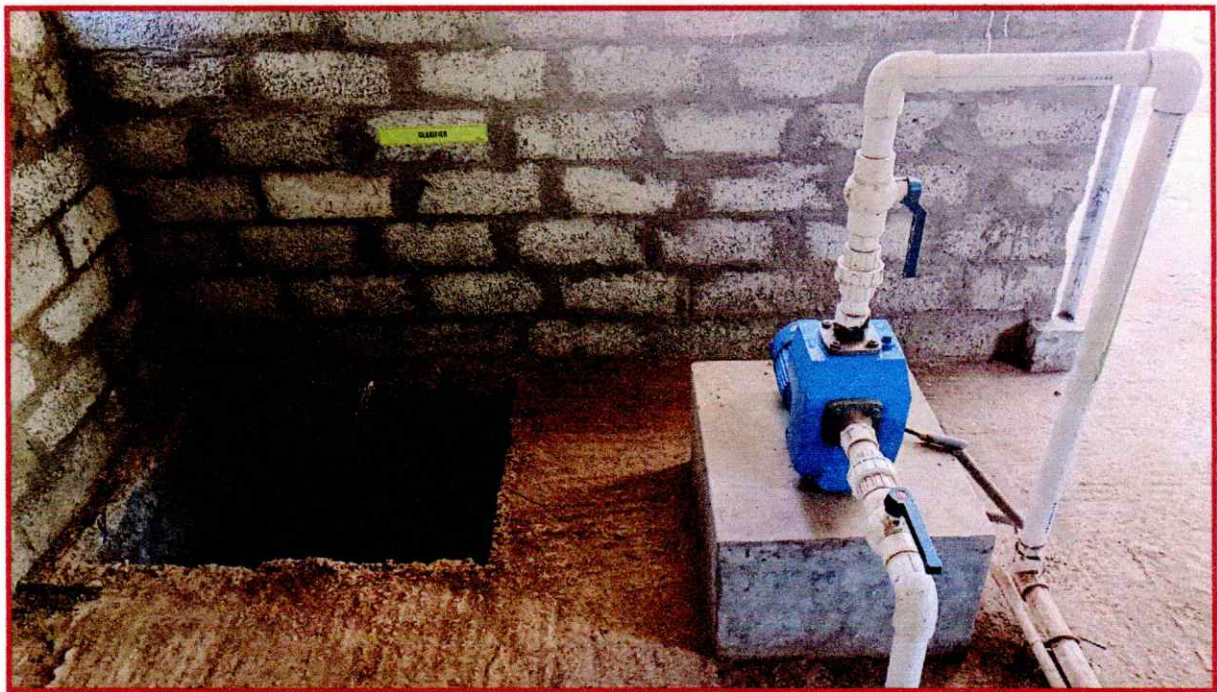


Figure 7 Clarifier (Capacity 40KLD) & Sludge Pump

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Figure 8 Filter Feed Tank (Capacity 40KLD) & Filter Feed Pump



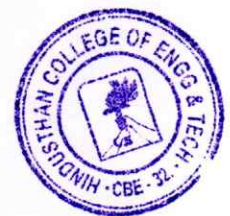
Figure 9 Dual Media Filter

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Figure 10 Treated Water Tank (Capacity 100KLD)



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