

# Sewage Treatment Plant (MBBR)

## Trehan Developers, Bhiwadi

### Challenge

In their society "Hill View Garden" at Bhiwadi, Trehan Developers decided to install Sewage treatment Plant to provide recycled water for their green parks. Since land is a premium in real estate development, the obvious concern of the developer was that the STP Plant had to consume lesser space and an automated technology that would be lesser operator dependent. Another concern expressed was that the plant would be consistent in its outlet parameters without the need for continuous monitoring.

### Solution

Being the latest technology available at that time, Sewage Treatment, Moving Bed Bio reactor (MBBR) was chosen due to its high quality output water and its small footprint. Fontus Water offered to treat their sewage and reuse the treated water for horticulture for environmental concerns. The basic premise for using this technology was that the Moving Bed Bio reactor (MBBR) has lesser retention time in the process reactor.



### Project Snapshots

Location	Bhiwadi
Source	Housing Society
Application	Sewage Treatment
Technology	Moving Bed Bio reactor (MBBR)
Capacity	500 m <sup>3</sup> /day
Commissioned	January 2008

### Plant Highlights

To remove any floating solids, a bar screen was provided. Being a housing society, it was expected that there would a lot of domestic grease; hence an Oil & Grease Trap Chamber in free floating condition was provided to trap oil & grease. As the sewage generation pattern was not regular, to equalize the variation of flow an equalization tank was designed for 3 hours of peak water flow. Two MBBR Reactors were installed in series for better efficiency and special floating media provided for attached bacteria growth that would eliminate any chances of choking of media. As more area was provided for bacteria growth, the retention time would be reduced to 3 hours. A State-of-the-art Tube Settler was provided for settling of sludge generated in the process. The visible advantages of the Tube Settler were manifold. It reduced requirement of space as the tubes provided larger surface area for faster settling of sludge and eliminated the need for moving parts like in conventional clarifiers.



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The treated sewage is then disinfected through chlorination (hypo solution). For the tertiary treatment, a Dual Media Filter was provided to reduce the suspended solids with an activated carbon filter for removal of odour and colour. The Sludge Handling process was managed by separating the sludge in the thickener tank of the tube settler which ultimately reduced the quantity of sludge and the filter press then provided for dewatering. The Filter press reduced the space requirement by 1/5 in comparison to Sludge drying beds.

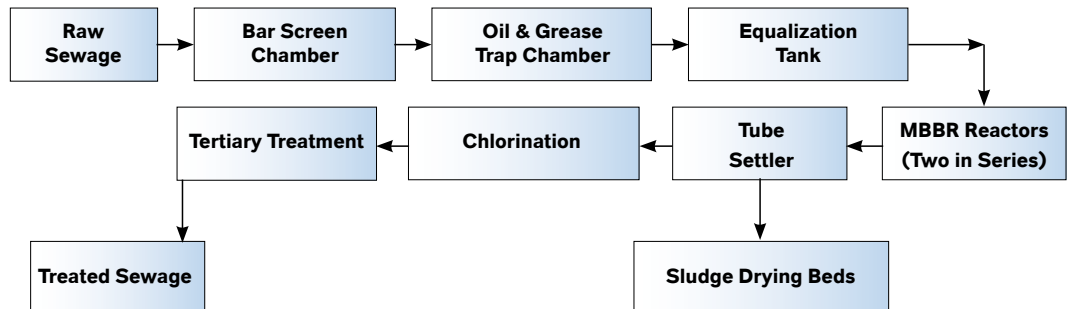
## Operating Parameters

Parameter	Inlet	Outlet
pH	7.2-8.0	6.5 – 7.5
COD (mg/l)	600	< 100
BOD (mg/l)	350	< 20
TSS (mg/l)	175	< 30
Oil & Grease (mg/l)	100	< 5

## Features of the Plant

<b>Electrical Load</b>	23.0 kW
<b>Hypo Solution Consumption</b>	4 ppm
<b>Land Area Used</b>	130 Sq.m
<b>Sewage Treatment</b>	500 m <sup>3</sup> per day
<b>Treated Sewage</b>	470 m <sup>3</sup> per day

## Process Flow



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