

DEWAT FOR VBHC Vaibhava, Anekal

PROJECT BRIEF

Value and Budget Housing Corporation (VBHC) is a privately managed real estate developer. VBHC's flagship project – Vaibhava, near Anekal, Bangalore, is developed on about 22 acres of land. The company realized that a robust STP was necessary to avoid pollution due to improperly treated sewage and the potential for ground water contamination. A 'raj kaluve' or natural storm water drain passing through the property was rightly identified as a sensitive water body. The STP needed to serve both as a treatment unit and a landscape feature which was possible with DEWATS.

PROJECT OUTCOMES

1. Reuse of treated water for flushing of toilets and landscaping
2. Meet or exceed all the KSPCB regulatory requirements

SYSTEM IN BRIEF

Six parallel channels were designed to make the system highly modular, with each channel contributing a capacity of 120 m³/day. Each channel consisted of a Settler, a Balancing Tank (BT), an Anaerobic Baffle Reactor - Anaerobic Filter (ABR-AF).

The Planted Gravel Filter is replaced by a Vortex system, which performs the same function as the PGF in a smaller area, considering space was a constraint. A Pressure Sand Filter (PSF) and Activated Carbon Filter (ACF) system were introduced as a step for precautionary treatment to assure the client of 'fail safe' tertiary treatment.

SALIENT FEATURES

Source: Domestic wastewater from households

Design Capacity: 730 m³/day

No of users: 5000

Operational hours: 10 Hrs

Influent quality: BOD: 300 mg/l

COD: 600 mg/l

Effluent Quality: BOD: < 20 mg/l

COD: < 100 mg/l

Efficiency: > 95%

PROJECT SPECIFICATIONS:

Funding Agency: VBHC Anekal

Implementing Agency: CSR, Pondicherry and CDD Society

Operation cost: Rs. 15000/ Month

Start of operation: 2011

MODULES ADOPTED

Settler

Volume: 110 m³

Anaerobic Baffle Reactor

Volume: 389 m³

No. of chambers: 6 chamber in 6 streets

Anaerobic Filter

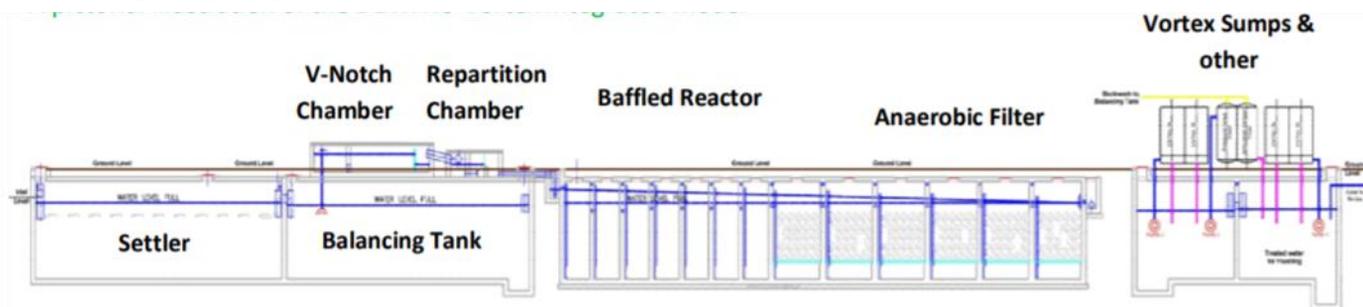
Volume: 810m³

No. of chambers: 6 chamber in 6 streets

Vortex- 2 Nos

Pressure sand and Carbon filter- 1

PROCESS FLOW DIAGRAM



OPERATION AND MAINTENANCE

- Regular cleaning of screens and repartition chambers V notches
- The wastewater is pumped from the Settler to the Anaerobic Baffle Reactor for 10 hours per day.
- The tertiary treatment modules (Vortexes and Sand/Activated Carbon Filters) operate for 6-10 hours on weekdays.
- Backwashing of the filters are done regularly
- Desludging of settler, ABR+AF modules once in 3-4 years
- The changing of filter media at sand carbon filters
- Cleaning of filter media once in 5-6 years
- The electricity required to operate the whole treatment system is 25 kWh per day.

REUSE OPTIONS

The treated water is used for

- landscaping and gardening in the residential campus
- Flushing of toilets

PERFORMANCE OF DEWATS

Sample points	COD mg/l	pH	TS mg/l	NO ₃ - [mg/l]
Date of sampling: 17/12/2014				
Distribution chamber	672	7.8	1,002	<1
ABR 5th chamber	282	7.4	989	1.1
Vortex inlet	183	7.5	1,044	2.5
Vortex Outlet	207	7.9	1,049	2.6