



# SEWTREAT

we treat nature with nature

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with nature



# Introducing SewTreat

SewTreat (Pty) Ltd is a South African company with international expertise in providing quality wastewater management products and services to clients across all sectors. SewTreat is well established in the wastewater sector throughout Sub-Saharan Africa and especially in the SADC region.

SewTreat designs, manufactures and installs innovative and eco-friendly onsite wastewater treatment systems throughout Africa. SewTreat's dependable residential and commercial modular plant design has made us a leader in innovative design, value, and service. We have been field proven to provide wastewater solutions that are able to meet the challenges of the African market. Thanks to our proprietary bacterial strain developed for use in easy-to-install modular units, our plants successfully transform wastewater into clean, clear, odourless treated water.

We specialise in biological wastewater treatment plants through our superior biological technology developed in-house by our team of experts. Our treatment process is based on return activated sludge technology incorporating submersed aeration media. The enhanced bacterial action ensures a highly effective treatment process with a very small footprint, low capital requirement and minimal maintenance.

All plants are constructed at our 5000m<sup>2</sup> manufacturing facility and are cold commissioned and fully tested to ensure quality and efficiency before delivery to site for installation.

SewTreat consists of a core team of process engineers, civil engineers and microbiologists supported by a team of project planners and distributors. These personnel have more than 35 years of experience in the field of wastewater treatment technology and have successfully designed, constructed and installed various treatment systems in over 15 African countries.



## ► Mission & Vision

**Mission:** To treat nature with nature, through sustainable engineering solutions.

**Vision:** As a service provider, to draw expertise from various fields including mechanical, process, chemical and civil engineers, microbiologists and consultants to ensure we offer the most innovative, cost effective, reliable and sustainable environmental solutions possible.

## ► Health, Safety, Environment & Quality

SewTreat has established an integrated quality management system that complies with international standards. At SewTreat we recognise that we are responsible for the overall health and safety of our employees and the local community and for the sustainability and preservation of the environment. We undertake, as far as reasonably practical to prevent negative impacts on the environment and to ensure that we meet the highest levels of quality in our services and production

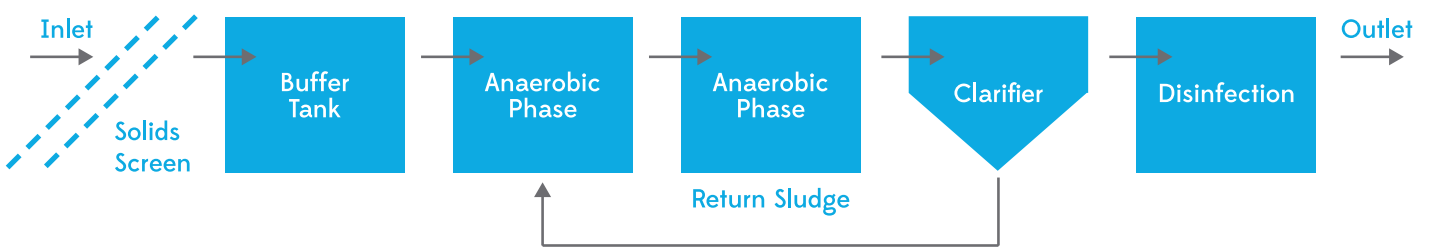
### **We are committed to:**

- Compliance with all relevant legislation at local, regional and national levels.
- Continual improvement of our integrated management system performance through appropriate initiatives, controls, provision of resources and training of employees.
- Minimising risk of injury and ill health to our employees.
- Minimising negative impacts on the environment.
- Achieving customer satisfaction in all our activities.





# How SewTreat's Plants Work



## Phase 1: Screening

Screening is done at the point of entrance in the BWWT. This can be done with either a manual or automated screen.

## Phase 2: Anaerobic

There are two anaerobic phases. The first phase allows for digestion of sewage and the separation of solids by means of specific gravity as some solids will settle at the bottom whilst others will settle at the top. The middle of the two sludge blankets has relatively low solids and flow through to the next phase is done by means of a middle cut. The second phase breaks down the fine sewage particles and alters the carbon dioxide and water. This ideal effluent passes to the aerobic phase. The de-nitrification cycle takes place in this phase. This function is responsible for breaking down of nitrates to nitrogen gas.

## Phase 3: Aerobic

This phase is called aerobic digestion or in simpler terms, bioreactor. In this phase the digestion takes place in an aerated environment. This phase can be divided into two or three bioreactors following on each other, depending on the type of installation and the daily flow rate. The type of bacteria used in this environment is called aerobic bacteria and it is essential that dissolved oxygen transfer is optimal in this phase to ensure sufficient bacterial growth and efficiency. In this phase nitrification also takes place. Ammonia is broken down to nitrites and in turn the nitrites to nitrates. Fixed bed bio media (cross flow media) is used to enhance bacterial colonization. The bio media assists in oxygen transfer and hydraulic retention time which is effective in reducing BOD and nitrification.

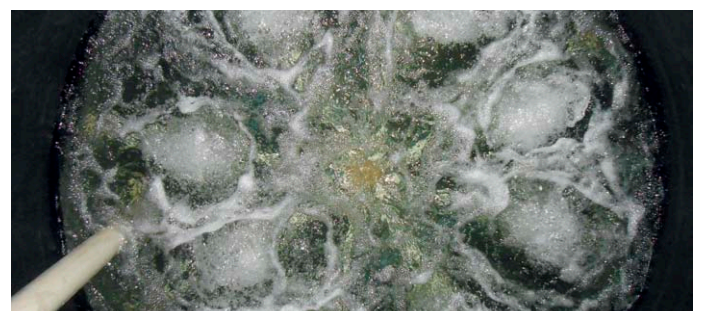
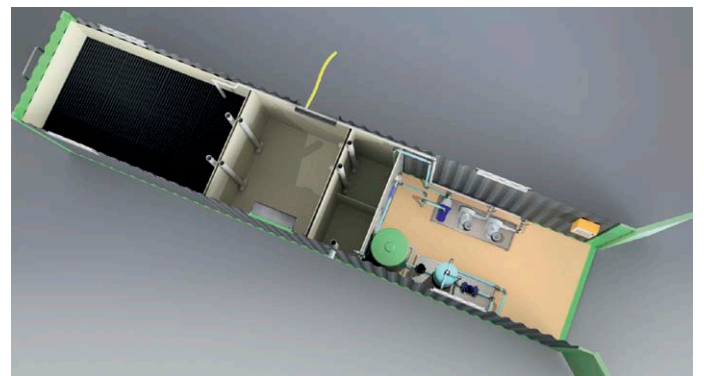
## Phase 4: Clarification

The phase is also called the re-activated sludge cycle or clarifier phase. The cell material and settle able solids settle in this phase and form the so-called 'sludge blanket'. The sludge blanket is critical to the process. When the blanket matures it is re-circulated to the anaerobic phase one to 'seed' or inoculate

the raw sewage entering the plant and to alter the nitrates to nitrogen gas. This phase ensures that no sludge extraction is required as the bacterium continually break down the sludge, in essence creating a zero waste plant. The return of activated sludge eliminates the need for drying beds.

## Phase 5: Disinfection

In the fifth and final phase, effluent is prepared for discharge. The effluent is disinfected or sterilized to prevent and harmful bacteria from entering the environment. The primary disinfection method used by SewTreat is ozone sterilization as this has no residual effect in the water. Chlorination or ultra violet systems may also be used, dependent on requirements.

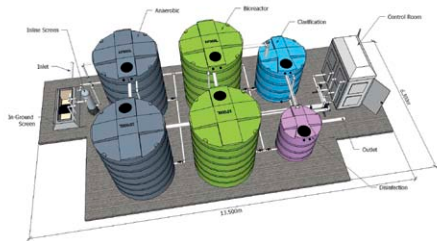






# Plastic Above Ground HDPE Plant

The HDPE tanks systems are the most cost effective BWTP for medium flow applications in the SewTreat offering. The plant is an above ground installation and can therefore be easily expanded and maintained. The plant can also be easily relocated if the need arises.



## Product Overview:

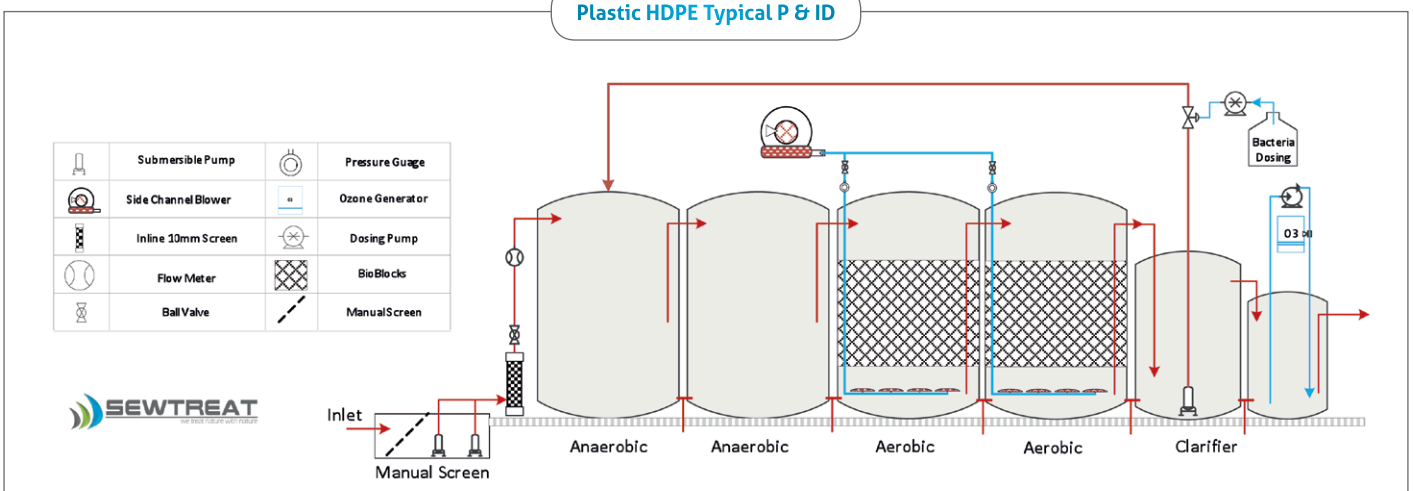
- Standard Flow Range of 10 KI to 400 KI per day (larger plants can be designed on request).
- Complete above ground installation.
- Plants are gravity fed to the screen or pump sump and from there effluent is pumped to the above ground wastewater treatment plant.
- Minimal civil work is required with installation requiring only a concrete slab with the feed sump or screen.
- All mechanical equipment is installed in the control room making it easily accessible.

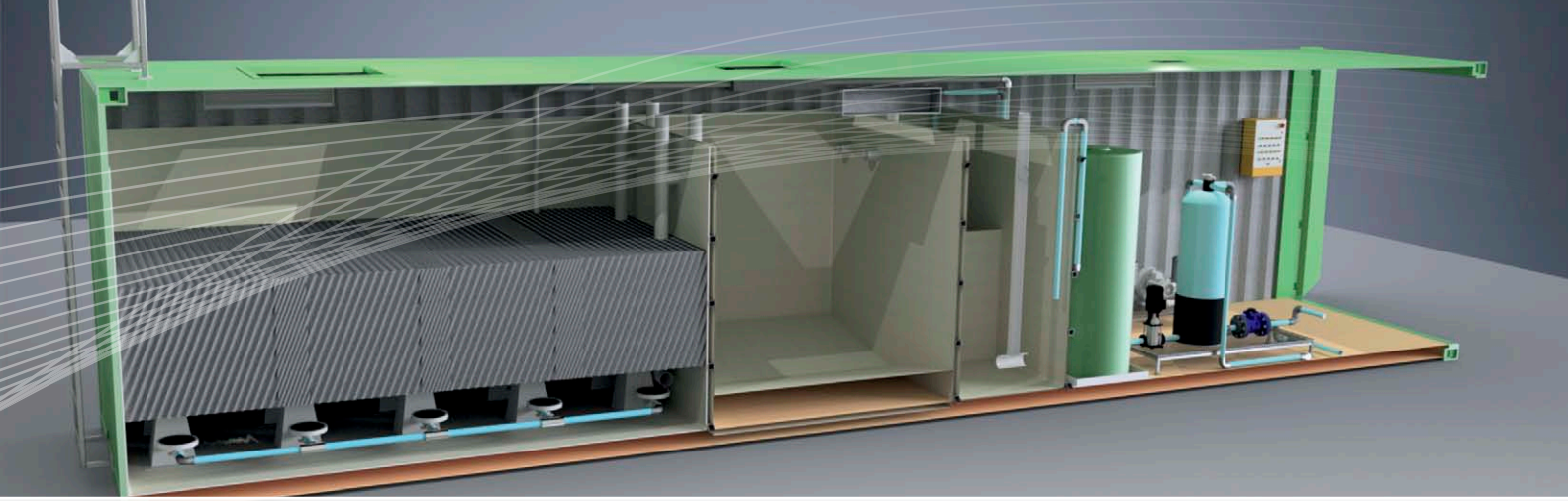


## Advantages of the Plastic HDPE Plant

- Effortless expansion can be done due to the plant being installed above ground.
- This is the most cost effective system in the SewTreat range for medium flow applications.
- Reduced installation cost due to ease of installation.
- Maintenance and system operation is effortless due to it being an above ground system.

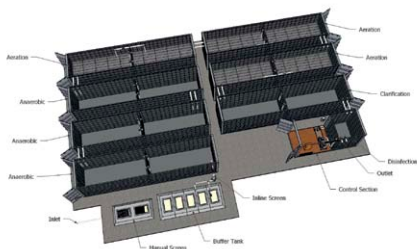
Plastic HDPE Typical P & ID





# Containerized BWTP Plant

The containerized plants are specifically designed for ease of transport, security and modularity, taking into consideration that the plant may be moved to various locations. The complete WWTP is built into ISO High Cube Containers. The plants are complete “plug and play” system and are very cost effective in terms of transportation.



## Product Overview:

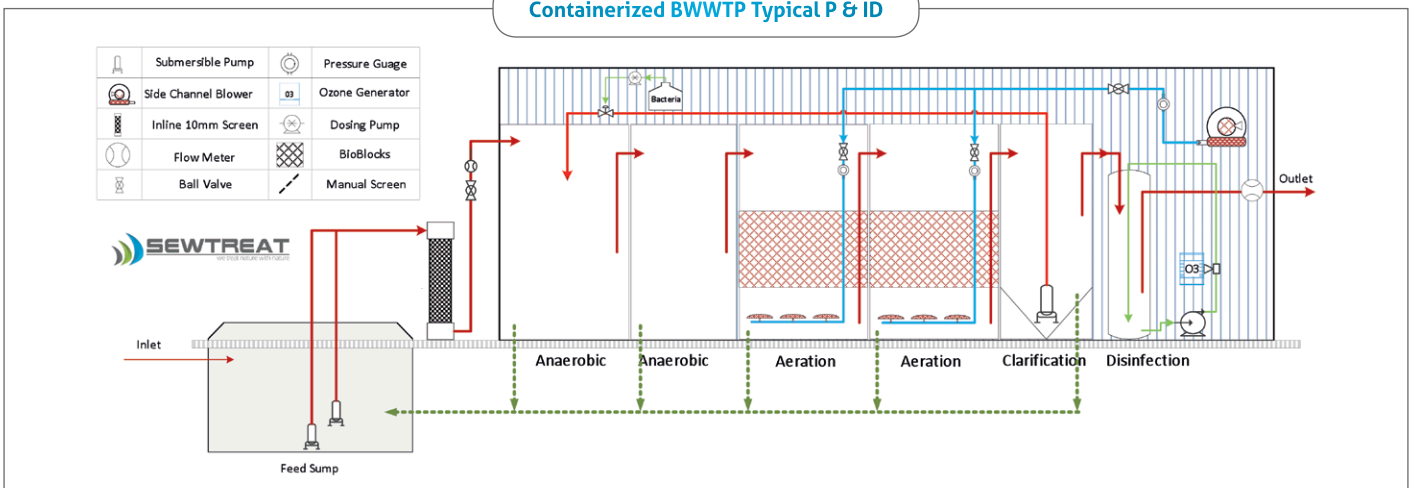
- Standard Flow Range of 5 Kl to 300 Kl per day (larger plants can be designed on request).
- Completely containerized and self-contained.
- Plants are gravity fed to the screen or sump and from there effluent is pumped to the system.
- Minimal civil work is required, only a concrete slab is required for the plant to stand on.
- All mechanical equipment is installed in the container control room compartment.



## Advantages of the Containerized Plant

- Effortless expansion can be done due to the plant being installed above ground.
- Safe and secure.
- Provision for easy plant expansion through simple modular construction.
- Most cost effective system for transportation.
- Once off capital cost to client as it can easily be moved to various sites.
- Reduced installation cost, due to ease of installation.

Containerized BWTP Typical P & ID



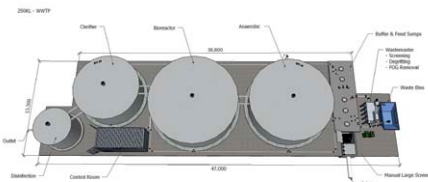




# Steel Mega WWTP Range

The corrugated steel tank system allows for easy installation above ground with minimal requirements for civil works. This system allows for quicker installation than compared to that of a civil constructed system for large volume plants. This is the most cost effective system in the industry for large scale applications.

## Product Overview:



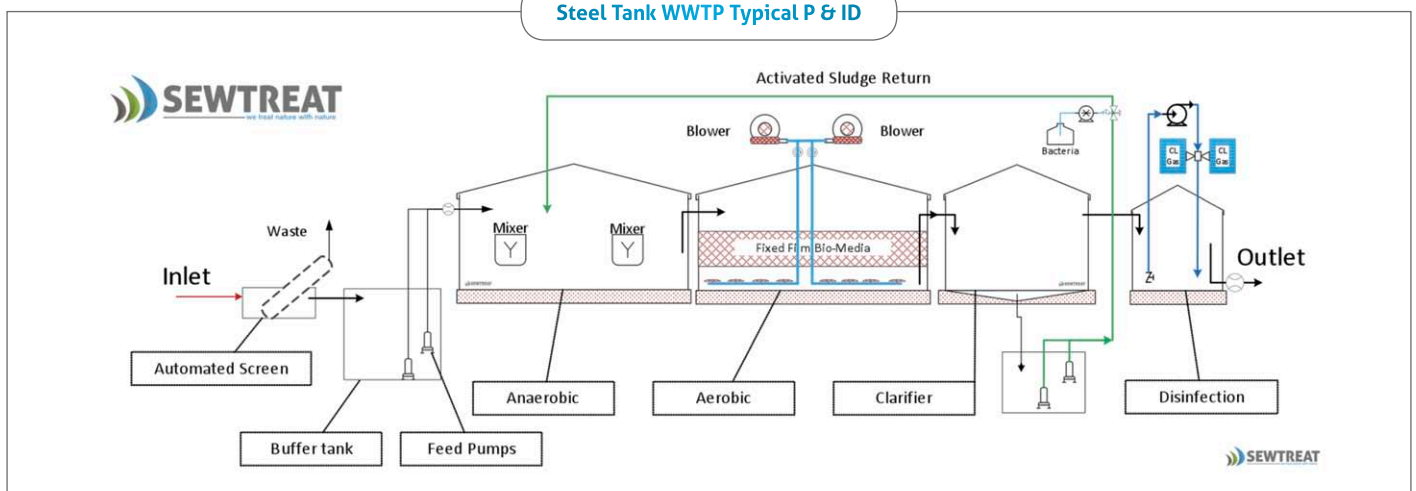
- Standard Flow Range of 25kl to 5 Ml per day (larger plants can be designed on request).
- This is highly engineered system with life expectancy of 20 years.
- The system can be designed to scale up.
- The system incorporates the full treatment spectrum.
- All electrical and mechanical equipment is installed in the control room.
- This is a fully automated system.

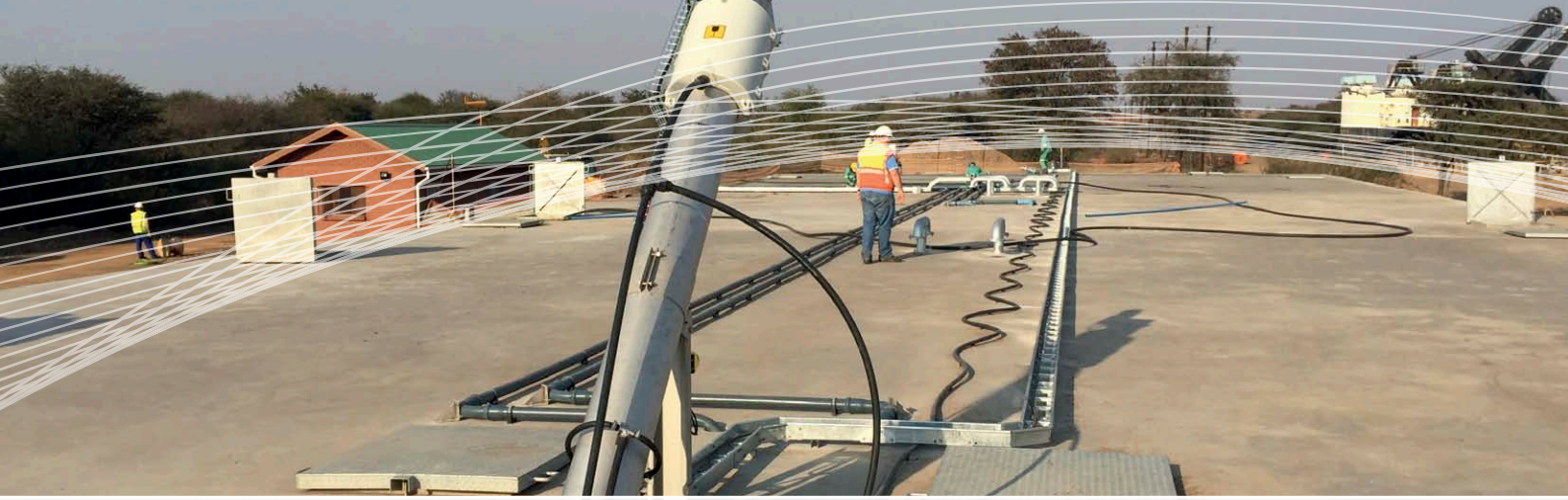


## Advantages of the Steel Tank System

- The most cost effective solution for large flow applications
- Civil construction can be sub-contracted out to local contractors to reduce construction costs.
- Easy to transport to site.
- Up to 50% quicker installation in comparison to competitor products.
- The system life expectancy is 20 to 30 years.

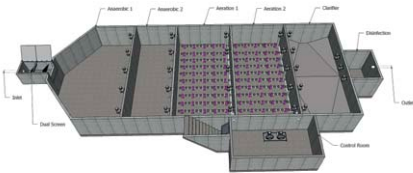
Steel Tank WWTP Typical P & ID





# Civil Constructed BWWT Range

The civil constructed plants are designed and constructed mostly for large flow industrial and housing development applications. The plants are aesthetically pleasing as they are constructed underground and can be covered with vegetation. The plants are entirely civil designed and constructed to meet exact civil engineering requirements.



## Product Overview:

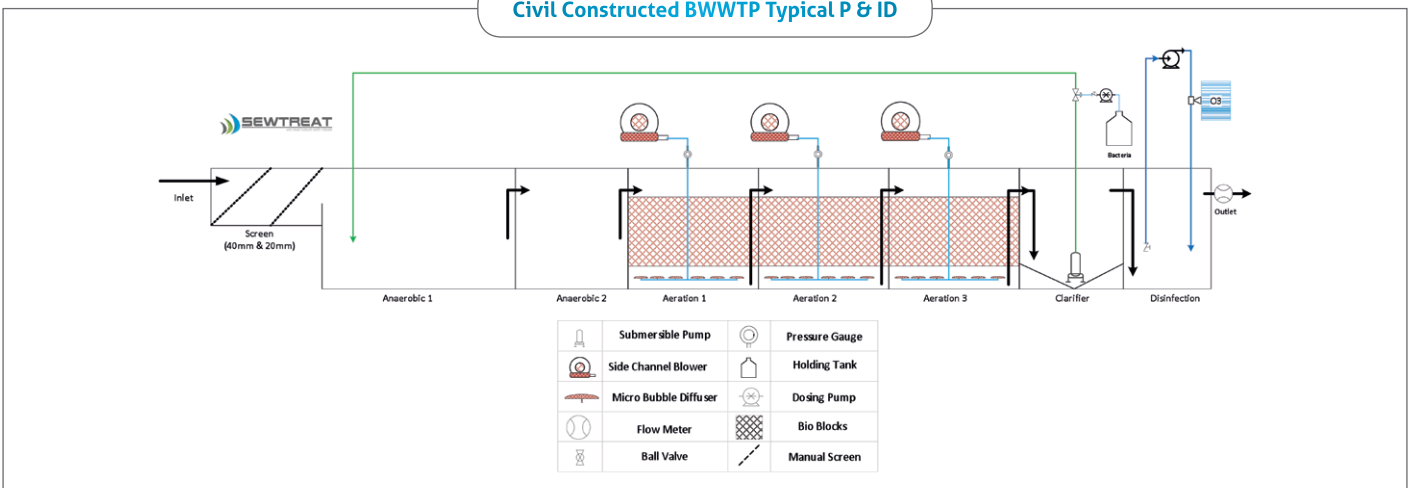
- Standard Flow Range of 10 Kl to 5 Ml per day (larger plants can be designed on request).
- Completely civil constructed system.
- Depending on contours and invert, plant can either be constructed below or above ground.
- Plants are mostly gravity fed, depending on invert levels and contour levels.
- The plant incorporates all phases of the treatment process.
- All mechanical equipment is installed in a brick constructed control room.



## Advantages of the Civil Constructed Plant

- Civil construction can be subcontracted to local contractors to reduce construction cost.
- Provision for easy plant expansion through simple modular and common wall construction.
- System can operate without electricity for 48 hours (dependant on whether plant is gravity fed).
- Effective alternative where no municipal connection is available.

### Civil Constructed BWWT Typical P & ID







# Fiberglass BWWTP Range

The Fiberglass BWWTP tanks are mostly installed where it is required to have the system underground. The system is a cost effective alternative to civil installations and large plants can be installed in a matter of days. The systems are installed below ground and thus gravity feed to the plant is possible. In areas that experience constant power cuts this is the best option as flooding of the system is not possible.



## Product Overview:

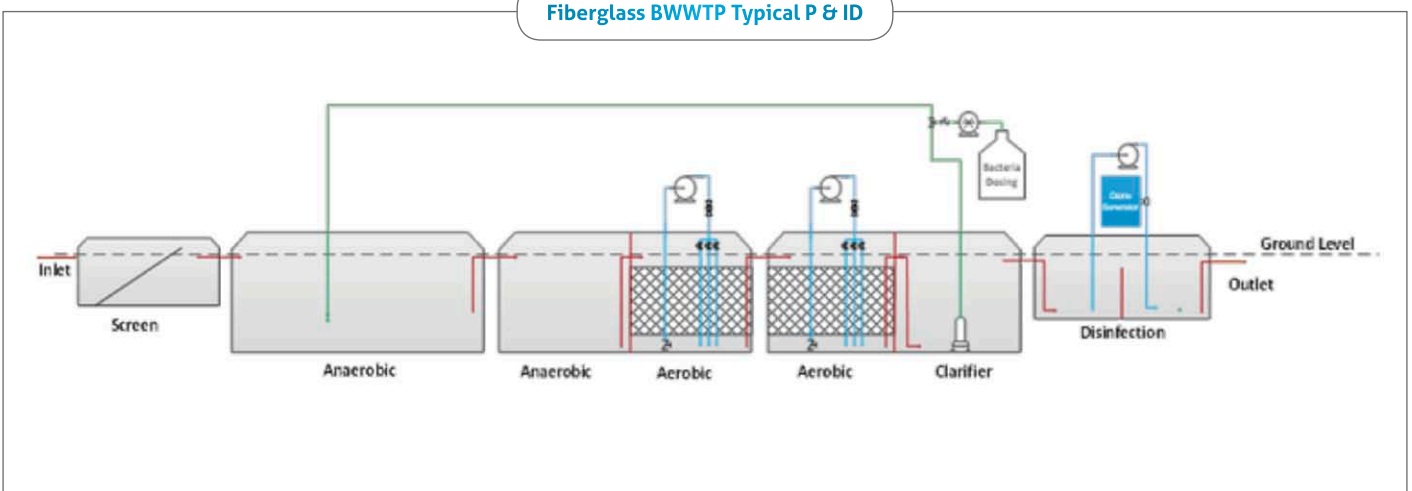
- Standard Flow Range of 2.5Kl to 200 Kl per day (larger plants can be designed on request).
- Complete below ground installation.
- Plants are gravity fed (subject to invert level of incoming pipe).
- Minimal civil work is required, and the plants are easily installed (excavation and compacted level base required for installation).
- All mechanical equipment installed in the control room can be supplied as an optional extra.



## Advantages of the Fiberglass Plant

- Effortless expansion can be done due to the modular construction.
- Most cost effective system alternative to civil installations.
- Reduced installation cost due to ease of installation.
- Plants are aesthetically pleasing due to underground installation.

Fiberglass BWWTP Typical P & ID



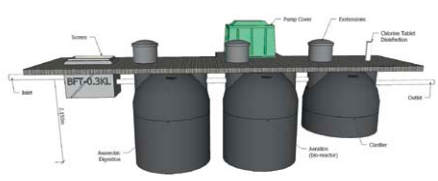




# DIY BWWTP Range

These plants are a very cost effective alternative solution to septic tanks and soakaways allowing the client to re-use the final treated water. These plants are designed for small applications such as households, lodges and small commercial and industrial applications. The DIY Range offers the client the opportunity to install the system themselves which also provides a capital saving. SewTreat offers two types of DIY plants, namely above ground installation or below ground installation. Both plants are constructed off-site at our facility, commissioned and fully tested. The above ground system is our most cost effective offering and can be installed with minimal excavation and construction. The below ground installation is more aesthetically pleasing, but needs excavation and civil works which makes it more expensive.

## Product Overview:

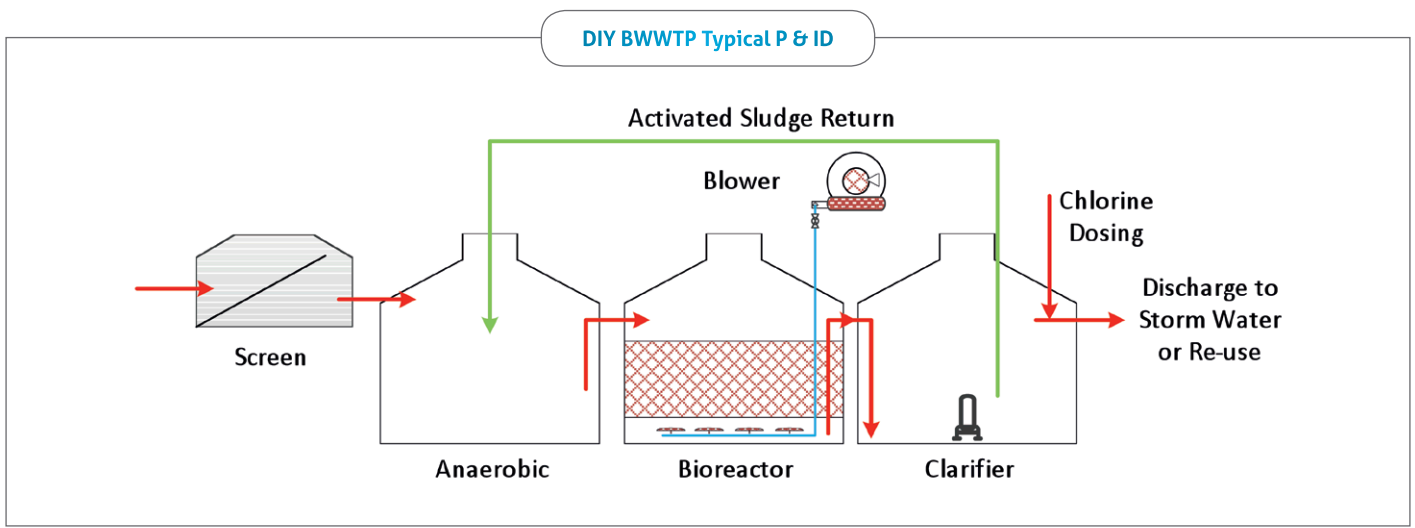


- Standard Flow Range of 600 l to 10 Kl per day (larger plants can be designed on request).
- Plants are installed below ground.
- Plants are gravity fed (subject to invert level of incoming pipe).
- No civil work is required and the plants are easily installed.
- All mechanical equipment is installed within the plant so there is no need for enclosures or equipment control rooms.

## Advantages of the DIY Plant



- Effortless expansion can be done due to the modular construction.
- Most cost effective system for low flow applications.
- Installation can be done by the owner (DIY) or by SewTreat.
- Plants are aesthetically pleasing due to underground installation.





# What You Need to Know About Your SewTreat Product

## Plant Maintenance

The SewTreat range of BWWTP requires minimal maintenance due to the simplistic design. On commissioning, your chosen staff on site will be trained in the daily and weekly maintenance of the plants.

Daily and weekly maintenance tasks will include:

- Checking and cleaning the inlet screens for inorganic build up (where applicable).
- Checking the electrical supply to the plant to ensure that no components have tripped the power supply and resetting the system if required.
- Checking that all mechanical components (pumps, blowers, disinfection systems) are operational.
- Checking of sludge levels and general efficiency of the plant.
- Ensuring that sufficient levels of bacteria liquid are maintained.

Although maintenance can be done by the client it is strongly suggested that the client enters into a maintenance contract with SewTreat to ensure that the plant operates at optimal performance and that final water quality is within design specifications.

SewTreat's maintenance services include:

- Regular water sampling by an accredited independent laboratory.
- Maintenance of all mechanical components.
- Testing that air input performs to design requirements.
- Comprehensive plant inspections.
- Provision of fully documented reports including water analysis results and findings during maintenance.

## Electrical Information

- All electrical control panels are automated and use the highest quality switchgears. As standard the panels are equipped with indicators showing run/trip that makes it easy for the operational personnel to identify failures and problems.
- GSM telemetry can also be installed as an optional extra to client requirements and an interface can also be supplied to monitor plant performance remotely and reset any faults from the remote location.
- SewTreat has designed an online platform to live track the

operation of the plant and so the client has full access to this site if the GSM monitoring option was chosen. This ensures proactive management of the wastewater treatment plant. All lab results, mechanical performance and flow rates are easily accessible by our clients

- Smaller plants normally require 220 Volt and larger plants 380 Volt supply. Solar options are also available in areas where electricity is not available.

## GSM Monitoring

Electrical reliability and control instrumentation are imperative to the efficient operation of WWTPs. SewTreat have implemented the GSM Monitoring Unit which provides real time reporting and alerts on electrical outages, pump failure and on results from other measuring equipment that might have been included such as DO meters.

The GSM Monitoring Unit is built into the control panel and allows the client to have real time information on the status of all mechanical and electrical components of the system. SMSs can be sent to the system enquiring about the status of each pump and the unit will reply via SMS providing the pump status, allowing clients to respond immediately to any issues that may arise.

### Alerts include:

- Mechanical equipment on/off
- Electrical outages

**These features are included in the maintenance package and will be linked with the SewTreat online tracking website which offers the following measurements and updates:**

- Tracking operational run time
- Real time updates on plant status
- Access by the client to status
- Setting of alerts (Priority 1 – 3)
- Portal for analysis input for record purposes

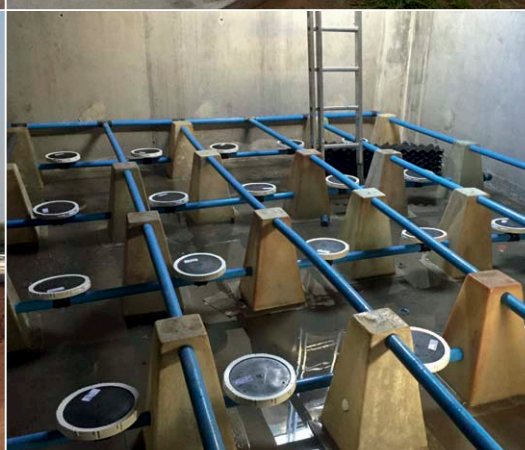
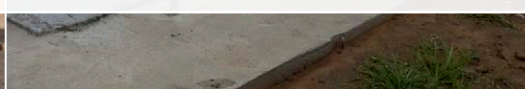
### Added bonuses include:

- Runtime graphs
- Water result graphs
- Real time access to WWTP electronics





## Some of our Finished projects







## CONTACT US

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