



# Policies and Practices of the eThekweni Municipality Water and Sanitation Unit

Revision 1 – 26 April 2012

## **Summary of revisions**

1. The document was approved at the Council meeting on 2012-03-23 – Report WS2012/005 (iManage 265058).
  
2. Revision 1 dated 2012-04-26
  - Chapter 2 Provision of water services
  - Clause 2.5.4 Wording amended to provide better clarity of policy requirements.
  
  - Chapter 4 Payment for services
  - Introduction amended to add reference to Council’s Credit Control and Collection Policy.
  - Clause 4.4.7 Sub clause c) added to bring item in line with Council’s Credit Control Debt Collection Policy.
  - Clause 4.4.8 Policy amended by Council resolution dated 2012-03-23.
  - Clause 4.6.1 Free Basic Water – the words “domestic residential” added for clarity.

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## TABLE OF CONTENT

### **Definitions**

### **Purpose**

### **Problem Statement**

#### **Chapter 1 - Level of Supply of Services**

- 1.1 Levels of Supply of Potable Water to Households
- 1.2 Levels of Supply of Sanitation to Households
- 1.3 Matching Service levels for Water and Sanitation
- 1.4 Temporary Supply of Water and Sanitation to Informal Settlements

#### **Chapter 2 - Provision of Water Services**

- 2.1 Provision of Sanitation to Informal Settlements
- 2.2 Provision of Water Services to Metro Housing projects inside the Urban Edge
- 2.3 Provision of Water Services to Metro Housing projects outside the Urban Edge
- 2.4 Provision of Water Services and Metering of Sectional Title and Mini-Sub Residential Developments
- 2.5 Provision of Water Services to Sub Divisions

#### **Chapter 3 - Development Approvals for the Establishment of a Private Township**

- 3.1 KwaZulu Natal Planning and Development Act - Act No 06 of 2008
- 3.2 Guarantee in respect of Clause B2 of the Conditions of Establishment

#### **Chapter 4 - Payment for Services**

- 4.1 Supply of Potable Water
- 4.2 Disposal of Sewage
- 4.3 Domestic Water Insurance
- 4.4 Credit Control and Debt Collection Policy for Domestic Customers
- 4.5 Debt Relief Programme
- 4.6 Free Basic Services - Indigent Policy

#### **Chapter 5 - Sewage Disposal by means of On-Site Privately Owned Sewage Disposal Systems**

- 5.1 Sewage Disposal by means of a Septic Tank
- 5.2 Sewage Disposal by means of a Conservancy Tank
- 5.3 Sewage Disposal by means of a Privately Owned Sewage Treatment Plant

#### **Chapter 6 - Use of Specialist Products**

- 6.1 Food waste Disposal Units
- 6.2 Pit Toilet Additives

#### **Chapter 7 - Services provided by the Council**

- 7.1 Emptying of VIPs
- 7.2 Emptying of Septic Tanks
- 7.3 Emptying of Conservancy Tanks
- 7.4 Private Blockage Service
- 7.5 Waterborne Sanitation Network

### **Policy Review**

## DEFINITIONS

Customer	any person receiving the provision of water services
Dwelling Unit	accommodation which has its own exclusive entrance, is supplied by its own metered electricity supply and the accommodation includes a kitchen for the sole use of the residents
"Flow Restrictor"	a washer which is installed in the water connection which allows a daily consumption of approximately 360 litres in a six hour period but at an extremely low flow rate
"Flow Limiter"	an electronic device which allows for a normal flow rate but restricts the daily volume to a preset amount of 300 litres per day.
"Illegal Connection"	Any connection to any system through which the municipal services are provided, which is not authorised or approved by the Municipality or its authorised agent.
"Leak Period"	the metering period immediately prior to the date of repair of the leak and the metering period during which the leak is repaired. Each of these two periods will not exceed 65 days.
"Metering Period"	the time interval between two successive billed meter readings but shall exclude previous leak periods.
Urine Diversion Toilet (U D )	a toilet which separates urine and faecal matter, which consists of two pits, cover slab, superstructure and vent pipe to each pit, has a special pedestal (and separate urinal) to divert urine to soakaway such that only faecal matter collects in the pit. The pits are used alternatively and provision is made for the manual emptying of each pit by the householder once the material has dried and is safe to remove.
"Water Services"	supply of potable water and, where a Municipal sewerage reticulation system exists, the disposal of sewage, and sundry services

## **PURPOSE**

The Constitution of South Africa assigns the responsibility for the provision of water services, and the setting of tariffs, to local government.

The Water Services Act sets out the regulatory framework for institutions tasked with the supply of water services and provides for different water services institutions to be established

- the water services authority - ie the responsible municipality
- the water services provider - whose role is to physically provide the water supply and sanitation services to consumers.

Thus the eThekweni Municipality is the Water Services Authority (WSA) and the Water and Sanitation Unit is the Water Services Provider (WSP) for the Municipal area.

A Water Services Authority has the duty to all customers or potential customers in its area of jurisdiction to progressively ensure efficient, affordable, economical and sustainable access to water services.

The purpose of this document is to record policies and practices which provide for the

- the need to regulate access to water services in an equitable way taking into account financial, technological, socio-economic and conservation factors
- the duty of customers to pay reasonable charges
- the right of the water services authority to limit or discontinue the provision of water services if there is a failure to comply with reasonable conditions set for the provision of such services.

## **PROBLEM STATEMENT**

Water is needed by people, plants and animals to survive. It is necessary for social and economic development, to create jobs, for recreation and for health, religious and spiritual purposes.

The safe collection and disposal of the resulting "wastewater" is necessary not only for general health reasons but also to ensure that the environment is protected for the benefit of present and future generations.

The challenge in the provision of water services is

- to manage the conflict between different uses and users in different catchments,
- to provide a means of providing access to services to those who are still without
- to maintain and improve services already supplied in a sustainable manner
- to provide various measures to assist those who are economically unable to meet normal service charges
- to provide water services in support of all forms of economic development.

and to carry out the above in a manner which supports the preservation of impacted ecosystems.

It is also essential that water services are provided in a consistent and equitable manner within a set of principles and rules which are applied uniformly across all communities and to all developers.

This document sets out the various policies and practices which have been adopted in support of the above.

## **Chapter 1 - Level of Supply of Water Services**

The purpose of the policy is to establish a number of service levels, which both meet the requirements for basic water and sanitation and which provide for an improving level of service to match a consumer's affordability criteria.

### **1.1 Levels of supply of Potable Water to Households**

**1.1.1** Five water supply systems are approved for the provision of access to potable water for domestic households (see item 1.4.2 for temporary supply of water to informal settlements).

- a) A manually operated water dispenser/standpipe.
- b) An individual household yard supply which supplies 300 litres per day (a ground tank, where the flow is regulated through an electronic bailiff unit or metered flow limiter device, or a yard tap where the flow is regulated via a metered flow limiter device).
- c) A semi-pressure supply in which the household service is provided via a roof tank.
- d) A full pressure supply.
- e) A full pressure supply with a restrictor eg. flow limiter.

### **1.2 Levels of Supply of Sanitation to Households**

**1.2.1** Three sanitation systems are approved for the provision of access to sanitation for domestic households. (see item 1.4.3 for temporary supply of sanitation to informal communities)

- a) A privately owned Urine Diversion (UD) toilet.
- b) A connection to the Municipal waterborne sewerage reticulation system.
- c) Where a Municipal waterborne sewerage reticulation system is not available, an on-site privately owned sewage disposal system is permitted. Waterborne sewage disposal may be provided by means of privately owned septic tank and conservancy tank systems and privately owned low volume sewage treatment plants. (refer to Chapter 5)

**1.2.2** Sanitation options not permitted

- a) Night soil pail
- b) Simple, unimproved pit latrine
- c) Conventional VIP and Chemical toilet (unless motivated and approved by the Head : Water and Sanitation under exceptional circumstances)

**1.2.3** The level of supply of potable water and the provision of sanitation must provide a joint solution for the "domestic water cycle".

### **1.3 Matching service levels for Water and Sanitation**

#### **1.3.1 Introduction**

- a) The purpose of the policy is to ensure that the level of supply of potable water and the provision of sanitation provides a joint solution for the "domestic water cycle".
- b) The policy makes provision for –
  - i) A solution which is affordable to the consumer and service provider

- ii) A solution which is sustainable i.e.
  - has a limited cross subsidy
  - is capable of being maintained
  - is acceptable to the community
  - provides parity with other customers
- iii) A solution which is environmentally satisfactory
  - prevents pollution
  - results in a healthy residential area
  - is compliant with National and Provincial legislation
- iv) A solution which can be undertaken within the capacity of the Municipality

### **1.3.2 Approved Sanitation Option for Level of Water Supply**

- a) Where the water supply to a household is limited to 300 litres per day via a ground tank or yard tap, the only acceptable sanitation option is a U D toilet (or an approved alternative)
- b) Where either a semi-pressure supply or a full pressure water supply is provided the only acceptable sanitation option is a waterborne system - either private or municipal
- c) Although a single level of potable water supply is generally made available for a specific area, mixed service levels will be permitted subject to ;
  - i) the sanitation option which matches the level of water supply being available and/or implemented by the householder and
  - ii) the water supply system being able to sustain the level of water demand.
- d) For example
  - i) a full pressure water connection will be approved in a rural area which is generally served by a ground tank water supply, if a properly designed and constructed septic tank and associated evapo-transpiration area has been provided by the householder and if the water supply system is capable of sustaining the resulting level of water demand.
  - ii) a semi-pressure water supply via a roof tank will be approved in an area generally served by a full pressure supply
  - iii) a ground tank or yard tap supply will be approved in an area generally served by a full pressure or semi- pressure supply provided that the means of sanitation is restricted to a U D toilet or an approved alternative.

## **1.4 Temporary Supply of Water and Sanitation to Informal Settlements**

### **1.4.1 Introduction**

The purpose of the policy is to provide each household in an informal settlement with access to water and sanitation pending the formal Housing intervention.

#### **1.4.2 Water**

- a) The minimum level of supply of potable water to an informal community shall be at the basic level prescribed by the Department of Water Affairs (DWA) - a water dispenser or standpipe within 200 metres of every household. For operational reasons the water dispenser or standpipe will either be located on the boundary of the settlement or, where it exists, along an established road.
- b) A higher level of service via a ground tank supply is available to households, on application and subject to provision being made for the safe disposal of the resulting effluent. A household land area of 350 sq. m is required as the minimum requirement if sewage disposal is to be via evapotranspiration.

#### **1.4.3 Sanitation**

Sanitation is provided by means of either

- i) An ablution block connected to Municipal waterborne reticulation (an ablution block consists of toilets, showers, and clothes washing facilities)

Or

- ii) a toilet block where no connection to waterborne reticulation is available (a toilet block consists of toilets and urinals only with no water supply provided to the toilet block). Each toilet is provided with its own VIP pit which will be emptied as and when required.



## **Chapter 2 - Provision Of Water Services**

### **2.1 Provision of Sanitation to Informal settlements**

- 2.1.1** The purpose of the policy is to ensure the equitable provision of the basic level of sanitation prescribed by DWA - viz - a facility which is "easily accessible".
- 2.1.2** In the absence of a minimum level of 'accessibility' being prescribed by DWA "access to sanitation" is to be achieved by the provision of an ablution / toilet block within 200 meters of every household.
- 2.1.3** Priority in delivery is given to the provision of ablution blocks to informal settlements where an "insitu upgrade" of the settlement is planned but where the planned upgrade is excluded from the Municipality's 5 year Housing programme.
- 2.1.4** Once this programme is completed additional ablution/toilet blocks will be provided based on the particular needs of individual settlements.

### **2.2 Provision of Water Services to Metro Housing projects inside the Urban Edge**

- 2.2.1** The purpose of the policy is to ensure a uniform and equitable approach to the provision of water and sanitation to Metro Housing projects which are situated in areas where there is Municipal water borne sewerage.
- 2.2.2 Insitu Upgrade projects and Green field projects**  
As access to Municipal water borne sewerage is available all houses will be provided with flush toilets with either a semi-pressure roof tank water supply or, where specifically motivated, a full pressure supply.

### **2.3 Provision of Water Services to Metro Housing projects outside the Urban Edge**

- 2.3.1** The purpose of the policy is to ensure a uniform and equitable approach to the provision of water and sanitation to Metro Housing projects which are situated in areas where there is no Municipal water borne sewerage.

#### **2.3.2 Insitu upgrade Housing Projects**

- a) These projects generally take place after the rural water and sanitation project for the area has been completed and after the existing households have been provided with ground tanks / yard taps in conjunction with U D toilets.  
Hence all new houses by Metro Housing in an Insitu upgrade Housing project will be provided with ground tanks / yard taps and UD toilets.
- b) It is noted that densification resulting from an Insitu Upgrade project may result in problems in areas where the original decision to provide UD toilets was marginal. In such instances either the level of densification is to be kept at a level which is compatible with the provision of UD toilets or water and sanitation is to be provided as item 2.3.3 below.

#### **2.3.3 Rural Green Field Housing Projects**

- a) The preferred Sanitation option is ideally a low technology/low maintenance treatment plant with effluent used on community gardens. Local trials on such a plant are in progress over the period 2010 to 2012 using technology advocated by the German based NGO, BORDA.
- b) As an interim measure Water supply will be the semi-pressure (roof tank) system and Sanitation by means of privately owned septic tanks.
- c) This policy is supported by the following considerations:

- i) it provides consistency in the level of water supply across all Housing schemes as a semi-pressure (roof tank) water supply is the default level of supply to Housing projects when waterborne sanitation is available.
  - ii) there is no significant increase in business risk of non-payment over a ground tank supply
  - iii) it facilitates eventual upgrading to waterborne sanitation
  - iv) it avoids the difficulty in providing education around UD toilets as and when the gradual take-up of the Housing Units takes place
  - v) the land requirements per household is not significantly greater than that required for achieving privacy/dignity when using U D toilets
- d) The design considerations are :
- i) the roof tank to be fitted into the roof space inside the house
  - ii) the septic tank evapotranspiration area to be determined using 500 litres of water/sewage per day using the design guidelines (refer to item 5.1) but then increased by min. 50% to compensate for uncontrolled use of resulting evapotranspiration area.

## **2.4 Provision of Water Services and metering of Sectional Title and Mini-Sub Residential Developments.**

**2.4.1** The purpose of the policy is to ensure a uniform, equitable and consistent approach when dealing with sectional title and mini-sub development applications.

### **2.4.2 Sectional Title Developments.**

Sectional Title developments comprise a number of units which are built within a single subdivision. The development may be divided into separate exclusive use areas for each unit with the remainder as common property. The development is administered by a Body Corporate in terms of the Sectional Titles Act.

### **2.4.3 Mini-Sub Developments**

Mini-sub developments comprise a number of freehold properties which share certain facilities which are generally sited on the remainder of the parent subdivision. The common facilities are administered by a Home Owners Association.

Both types of development have similarities in that they are usually walled, gated communities with restricted access and the roads within the developments are private access roads.

### **2.4.4 Water to New Sectional Title Developments**

- a) Developers of new sectional title developments are required to:
- i) pay for the installation of individual water connections, metered at the road boundary
  - or
  - ii) pay for the installation of a bulk water connection, metered at the road boundary, and also pay for the installation of individual water meters located on the water pipe feeding each separate unit.
  - iii) the individual meters will be installed by the Council on private property.
  - iv) the water pipes feeding each separate unit will be laid by the developer and will remain the property of the Body Corporate

- b) Where option a(ii) is chosen by a developer, the Council will read the individual meters and the bulk meter. The Body Corporate will be charged monthly for both the Council to undertake the reading of the individual meters and for the water consumption recorded at the bulk meter less the sum of the water consumption recorded at the individual meters. No fixed charge will be paid for the bulk meter but the Body Corporate will be billed at the tariff rate for non-domestic customers.
- c) Each unit will be charged for water by the Council according to the level of service chosen, based on the metered consumption for each unit.
- d) In the event of non-payment of the monthly distribution charge by the Body Corporate, any water connection in the name of the Body Corporate will be disconnected and the debt will be handed over for collection. The supply to the whole complex will be disconnected after each individual customer supplied through the bulk meter has been given 14 days notice of the intention to disconnect the water supply and the outstanding debt has not been paid
- e) In the case of existing developments, supplied through a bulk meter, the Body Corporate may apply for the installation of separate meters to each dwelling unit, subject to payment of the prescribed charges (see also item 2.4.9).
- f) In the case of existing developments supplied through bulk meters, where the account is in arrears and subject to disconnection for non-payment of the account, the Head: Water and Sanitation or authorised delegate may elect to require the installation of separate meters to each unit and the payment of the prescribed charges.

#### **2.4.5 Water to New Mini Sub Developments**

- a) Developers of new mini sub developments are required to:
  - i) lay, to the Council's specifications, the water reticulation system (including any pump stations and rising mains) within the development to enable the provision of water connections to each freehold site and common areas as required
  - ii) pay for the installation of a bulk water connection, and also make application to the Council and pay for the installation of individual water meters located on the water pipes feeding each freehold site and common area
- b) On completion of the water reticulation to a mini sub development to the Council's satisfaction, the reticulation up to and including the meter will be taken over by the Council at no cost to the Council and once a complete set of as-built drawings have been received.
- c) The Council will read the individual meters and each customer will be charged for water by the Council according to the level of service chosen. The Home Owners Association will be charged according to the readings of any meters serving any common areas.
- d) In the event of non-payment of an account, each customer will be subjected to normal debt collection policies including the installation of flow restrictors and flow limiters.
- e) The Council will provide a valve on the main serving the development - situated outside the gate - which will allow the water supply to be cut off in the event of a leak on any part of the reticulation system for which the Council is responsible.

#### **2.4.6 Sewage Disposal to Sectional Title Developments**

- a) Developers of new sectional title developments are required to lay the sewage reticulation system - to include any pump-stations and rising mains - to serve each unit and any common areas as required.
- b) Where the Council's waterborne sewage reticulation is available to serve the development the developer is to connect the internal sewage reticulation system to the Council's reticulation system.
- c) Each unit will be charged for the sewerage service by the Council by means of a 'volume based charge system'.
- d) Where the Council's waterborne sewage reticulation is NOT available to serve the development the developer may investigate the provision of a suitable on-site privately owned sewage disposal system (refer to chapter 5).

#### **2.4.7 Sewage Disposal to Mini-Sub Developments**

- a) Developers of new mini-sub developments are required to lay, to the Council's specifications, the sewage reticulation system - to include any pump-stations and rising mains - to serve each freehold site and any common areas as required.
- b) Where the Council's waterborne sewage reticulation is available to serve the development the developer is to connect the internal sewage reticulation system to the Council's reticulation system.
- c) On completion of the sewage reticulation system to the Council's satisfaction the reticulation, up to the connection point for each freehold site, will be taken over by the Council at no cost to the Council and once a complete set of as-built drawings have been received.
- d) Each of the freehold sites will be charged for the sewerage service by the Council by means of a 'volume based charge system'.
- e) Where the Council's waterborne sewage reticulation is NOT available to serve the development the developer may investigate the provision a suitable on-site privately owned sewage disposal system. However, any such arrangement will place the Home Owners Association in the position of being a "Water Services Provider - WSP - or Water Services Intermediary - WSI" (refer to item 2.4.10).

#### **2.4.8 General Items regarding Water and Sanitation to Mini-Sub developments**

- a) Water and sewerage services are to be laid within servitudes registered in favour of the Council
- b) Where the services are laid in a private road, a servitude is to be registered over the full width of the road to cover both water and sewerage reticulation networks and individual freehold site connections
- c) The servitude agreement(s) are to state that the Council will not accept responsibility for any surface reinstatement of private property, including private roads
- d) The title deeds of each property is to contain
  - i) a clause indemnifying the Council against all claims arising from any failure of either the water mains or sewerage reticulation owned by the Council but situated on private property.
  - ii) a clause permitting Council staff and / or designated contractors free and unimpeded access to attend to any matters or work at any time on the property.

#### **2.4.9 Provision of Water Services and Metering of Existing Sectional Title Mixed Use**

## **Developments**

- a) In the case of existing developments supplied through a bulk meter where the development is not solely residential, the Body Corporate may either
- i) apply for the installation of both a separate metered water connection to serve the business/commercial part of the development and separate meters to each residential dwelling unit, subject to payment of the prescribed charges. Each dwelling unit would be billed separately for water and (where applicable) for sewage disposal and would take advantage, on an individual basis, of the domestic water and sewage disposal stepped tariffs (and hence the provision of limited free services). The business/commercial component would be billed at the applicable non-domestic tariff rates for water and sewage disposal.
- or
- ii) apply for the installation of a separate metered bulk water connection, subject to payment of the prescribed charges, such that the residential and business/commercial parts of the development are served by separate metered bulk water connections. The business/commercial part of the development would be billed at the applicable non-domestic tariff rates for water and sewage disposal. The Body Corporate would receive a separate billed item for water and sewage disposal services (where applicable) to the residential part of the development based on the domestic water and sewage disposal stepped tariffs (and hence the provision of limited free services). It would then be a decision by the Body Corporate as to the manner in which this billed amount would be distributed between the various dwelling units.
- or
- iii) retain the existing single bulk meter connection to serve both the residential and non residential components of the development. The resulting bill would be based on the applicable non-domestic tariff rate.
- b) For the purposes of the above a "dwelling unit" is defined as accommodation which has its own exclusive entrance, is supplied by its own metered electricity supply and the accommodation includes a kitchen, toilet and bathroom for the sole use of the residents.

### **2.4.10 Water Services Provider (WSP) / Intermediary (WSI)**

The Council will only permit the establishment of a WSP or WSI if it can be demonstrated to the satisfaction of the Head: Water and Sanitation that a set of unusual and special circumstances exist which cannot be resolved in a more beneficial manner and that the Council will benefit from the establishment of a private body to provide water services. (report to Council dated 2006-05-30)

Although the details of each WSP Agreement will be different certain 'principles' which should be incorporated into any such Agreement are set out in annexure 1.

## **2.5 Provision of Water Services to Sub-divisions.**

**2.5.1** The purpose of the policy is to ensure a uniform, equitable and consistent approach when dealing with the provision of water services to sub divisions.

**2.5.2** **Connections to subdivisions** (Council Resolutions dated 7 October 1996, 22 May 2001 and Exco resolution dated 19 October 2010)

In terms of the above Council resolutions the eThekweni Council has accepted the general responsibility of providing

- a) a sewer connection to the boundary of every sub-division which

- i) existed in the area of the former Durban Metropolitan Council as at 26 June 1996 (the date on which the Metropolitan Council, by proclamation 80 of 1996 formally became responsible for the sewerage function)
  - ii) existed within the area bounded by the former Durban Metropolitan Council boundary and the eThekweni Municipal boundary as at 6 December 2000 (the date on which the Durban Metropolitan Unicity Municipality - subsequently renamed eThekweni Municipality - came into existence).
- b) a bulk water connection to the boundary of every sub-division which existed as at 1 October 2010.

### **2.5.3 Proof of a Subdivision**

The proof of a subdivision is that it was formally registered at the Deeds Office as at 26 June 1996, 6 December 2000 or 1 October 2010 as applicable.

### **2.5.4 Provision of Water and Sewer Connections**

- a) Water and sewer connections are provided, where it is practical and cost effective to do so, to the boundary of the subdivision in accordance with a programme for the extension of the water and sewerage infrastructure as established from time to time by the Head: Water and Sanitation.
- b) Should a developer require a water or sewer connection in advance of this programme then, if the development is otherwise approved by the Municipality, water services are to be provided to the development as follows:
  - i) the developer will construct the infrastructure to Council specifications.
  - ii) after the infrastructure starts being used by the developer, the Council will refund the developer's costs in proportion to the take-up by the development and, once paid in full, will take over the infrastructure. The extent of the take-up by the development, and the payment of the refund, will be determined once per year.
- c) If the infrastructure is also to serve other development envisaged within the catchment, and the capacity of the infrastructure is required to be provided to accommodate future developments then:
  - i) The developer is to provide two priced schedules of quantities – the first for the required future capacity as determined by the Council, and the second for the capacity that would be required for the development alone. These schedules are to be checked and verified by the Council.
  - ii) The developer will construct the infrastructure to Council specifications but for the future capacity as determined by the Council.
  - iii) The Council will contribute the difference between the two amounts on completion, or in agreed phases, when funds are available.
  - iv) After the infrastructure starts being used by the developer, the Council will refund the developer's portion of the costs in proportion to the take-up by the development of its total required capacity. Once paid in full, or the infrastructure is used to service other developments, the infrastructure will be taken over by the Council. The extent of the take-up by the development, and the payment of the refund, will be determined once per year.
- d) Irrespective of the above, developments of this nature cannot be approved unless there is existing surplus capacity in both the bulk water and downstream sewage disposal infrastructure which would be used to supply services to the development.

- e) Should it not be possible for the water or sewer extension to be provided by the developer that complies fully with the water or sewer extension programme then the developer may, at its own cost, provide an alternative approved system subject to the requirement that, if the operating costs are greater than 200% of the average Council overall operating costs, the extra operating costs shall be financed by an additional grant from the developer.

#### **2.5.5 Provision of Water and Sewerage Reticulation within the subdivision**

- a) The provision of water and sewerage reticulation within the subdivision as registered at the dates given above will be the responsibility of the property owner and/or developer.
- b) In those instances where the Council, through the Metro Housing Department, acts as the developer, the water and sewerage reticulation will be funded by a combination of that part of the Provincial Housing subsidy provided for basic water and sanitation and a proportion of the "top up" subsidy available through the Council's Housing Unit.
- c) Developers are required to lay, to the Council's specifications, the water and sewerage reticulation system - to include any pump-stations and rising mains - to serve each freehold site and any common areas as required.
- d) Where the Council's waterborne sewerage reticulation is available to serve the development the developer is to connect the internal sewage reticulation system to the Council's reticulation system.
- e) On completion of the water and sewerage reticulation system to the Council's satisfaction the reticulation, up to the connection point for each freehold site, will be taken over by the Council at no cost to the Council and once a complete set of as-built drawings have been received.

## **Chapter 3 - Development Approvals for the Establishment of a Private Township**

### **3.1 The KwaZulu Natal Planning and Development Act - Act No 06 of 2008**

**3.1.1** The Act provides for a uniform planning and development system and allows for all planning and development decisions to be taken by local government. As such it replaces the requirements for reporting to the KZN Town Planning Board

**3.1.2** In order to comply with the very stringent response times dictated by the Act, a 2 step process is adopted wherein a developer is required to approach this Unit with the proposed change with the intention of obtaining prior approval before making the formal submission in terms of the Act (and hence triggering the clock for the Council's formal response).

**3.1.3** As such,

- a) this Unit will only receive applications which have been formally submitted to and accepted by the Development Planning and Management Unit.
- b) no submissions will be accepted by the Development Planning and Management Unit unless there is some form of confirmation attached to the submission that discussions have been held with this Unit regarding provision of water and sewage disposal and that there are no outstanding issues.
- c) the formal response from this Unit to applications received as per item (i) above will be along the lines of one or the other of the following letters (see Annexure 2) which are addressed to the Development Planning and Management Unit.
  - i) The first letter complies with clause A 6 of the Conditions of Establishment (and will allow the sale and/or subdivision of the property to proceed) and the second letter complies with clause B 2. (and allows the transfer of the particular subdivision to proceed)
- d) applications received by Water and Sanitation Unit which have not had prior approval from this Unit will be returned to the Development Planning and Management Unit for that Unit to resolve with the developer.

### **3.2 Guarantee in respect of clause B2 of the Conditions of Establishment**

**3.2.1** In order to facilitate development, and in particular the process of transfer of the subdivision, the Water and Sanitation Unit will accept an Undertaking from the developer and a Financial guarantee issued by a Bank on behalf of the developer that the infrastructure necessary for compliance with clause B of the Conditions of Establishment will be installed by the developer by a certain date.

**3.2.2** However, in view of growing concerns that the system of accepting guarantees for the issue of such clause B approvals is in danger of becoming unmanageable, in that

- a) all developers big and small are now wanting to issue guarantees and
- b) the sums are becoming quite large and
- c) the release of the guarantee sum has never been tested with the Banks or in court



and, in order to protect the Council against unnecessary risk, the following policy is applicable

- a) that clause B approvals will be issued on receipt of a suitable Undertaking and Financial Guarantee but
- b) that building plans will not be approved until the infrastructure is in place and the Council is in receipt of the as built drawings, and
- c) that a maximum financial limit is placed on any Guarantee, this sum to be determined from time to time by the Head (currently set at R 1 million in 2011).

## **Chapter 4 - Payment for Services**

The purpose of the policy is to

- i) provide for a set of reasonable charges
- ii) provide a set of procedures for the Council to limit or discontinue the provision of water services if there is a failure by the customer to comply with reasonable conditions set for the provision of such services.

The policy is to be read in conjunction with the Council's approved Credit Control and Debt Collection Policy.

### **4.1 Supply of Potable water**

#### **4.1.1 Residential Customers**

- a) The supply of potable water to all customers is metered. Different tariffs are charged for domestic customers based on the level of water supply (refer to item 1.1) - ie the type of water connection - and the amount of water used in a 30 day period.
- b) Two tariff schedules are published each financial year, the one dealing with the cost of the supply of water, the other report covering the costs of water related services such as new connections, moving and testing of water meters etc.
- c) The current set of tariffs is available on the web site or may be requested from any of the Council offices.

#### **d) Estimated accounts**

- i) Where it is not possible to read a meter in a month, an estimated account is raised.
- ii) An estimated account is determined by calculating a weighted average of the past six months consumption, giving most weight to the more recent consumption.
- iii) The amount appearing on the bill is shown as an estimate without any meter readings. This estimated charge is then reversed once an actual reading is taken the following month and the actual charge is then raised for the period between meter readings.

#### **e) High accounts**

High accounts result from four main causes:

- i) The meter is read incorrectly. In this case the account is adjusted immediately the error is detected.
- ii) The water meter is faulty. This can be proved by testing the meter in a calibrated test facility. A fixed amount of water is passed through the water meter and measured accurately into a tank. The readings on the meter are then compared against the volume measured in the tank to determine the accuracy of the meter. If the meter is found to be inaccurate by more than 5% then the account is adjusted. Meters are almost always found to be accurate.
- iii) There is a leak on the property. Here it is the customer's responsibility to repair the leak and pay the account for water. It is possible for domestic water customers to insure themselves against undetected underground water leaks. A private insurance company offers this policy with the premiums being collected through the water accounts on behalf of the private company (see item 4.3). If a high water consumption is detected through meter readings then a standard letter is sent to the customer immediately informing the customer that a high account is about to be posted and giving guidance as to how to deal with the problem.

iv) The water has been used. In this case the customer is liable for the charges.

Where water consumption for a customer who resides in a property with a rateable value which allows them to participate in the debt relief programme (item 4.5 refers) is greater than 1.5kl per day and the consumption at that level is not normal for the property, then a member of staff will be sent to the property to determine why the consumption is high. If it is found that there is a leak on the property a letter will be left indicating to the customer what action should be taken to restore the account to a normal level. A record of the visit will be maintained on the system notes.

In all areas of the Municipality where a domestic consumption is found to be greater than 1.5kl in a day, the account will not be sent out until the site has been visited in order to find any reason for such a high account. Again if a leak is found a letter will be left with the customer explaining what action should be taken. A record of the visit will be maintained on the system notes.

#### **f. Leak Repair Policy**

- i) When a customer who resides in a property with a rateable value which allows them to participate in the debt relief programme (item 4.5 refers) detects that there is a leak on a property, it can be repaired by the Council on payment of the tariff rate. This charge is fixed regardless of the cost to the Council of the repair work.
- ii) Where any domestic customer's water account is more than 60 days in arrears and where the average daily water consumption exceeds 1.5kl per day as a result of a water leak, repairs will be effected to the water installations on the property of the domestic customer and a charge at the tariff rate will be added to the customer's account.

#### **4.1.2 Industrial, commercial and institutional customers**

Industrial, commercial and institutional customers are also charged based on a metered supply but based on a single R/kl tariff plus a monthly fixed charge based on the size of the water meter serving the premises. The charges are published in the tariff schedule.

### **4.2 Disposal of Sewage**

#### **4.2.1 General**

Prior to 1 July 2010 charges were raised generally by means of sewerage rates ie. a rate randage applied to the property land and building values.

From 1 July 2010 payment for the disposal of sewage by all customers with access to the Council waterborne sewerage infrastructure is by means of a volume based sewage disposal charge.

#### **4.2.2 Residential Customers**

- a) Different tariffs are charged for domestic customers based on the level of water supply (refer to item 1.1) - ie the type of water connection - and the amount of water used in a 30 day period.
- b) Two tariff schedules are published each financial year, the one dealing with the cost of the sewage disposal service, the other report covering the costs of sewage disposal related services such as new connections, monitoring of trade effluent etc
- c) The current set of tariffs is available on the web site or may be requested from any of the Council offices.
- d) The volume based sewage disposal charge is payable when a premises is reasonably capable of being connected to the sewerage system, and when that premises receives a supply of water from the Council.
- e) A premises is generally considered as being "reasonably capable of being connected" when any part of the premises is within 40 meters of a municipal sewer provided that
  - i) there are no material hindrances to the municipal sewer being extended, on request, to the boundary of the premises.
  - ii) the sewer extension can be laid without going across adjoining premises and the need for obtaining "permission to occupy " approvals from such premises
  - iii) that the sewer extension can be carried out at a cost which is reasonable in relation to the tariff amount.
- f) Where a municipal sewer is, or becomes, available for the drainage of a premises it is the owner's responsibility to lay, alter or extend any drain serving the premises to the connection point to the Municipal sewer. This would include providing a small pumping station if it was necessary to lift the sewage to the connecting point, provided that the additional cost of providing a small pumping station , over and above the cost of providing the drainage works necessary to effect the connection , does not exceed 2.5 % of the property valuation.
- g) Properties which rely on privately owned septic tanks or conservancy tanks, or are connected to a privately owned "package treatment plant", and do not have access to a municipal sewer, will not to be charged a volume based sewage disposal charge but will continue to be responsible for the operation and maintenance of their septic tank, conservancy tank or privately owned treatment plant.
- h) Where any customer considers the percentage in respect of a particular premises to be excessive, having due regard to the purposes for which water is consumed on those premises, the percentage may be reduced to a figure which more realistically reflects the proportion between the likely volume of sewage discharged from the premises and the quantity of water supplied.
- i) In line with the above an adjustment will be made for the sewage disposal charges raised as a result of the water consumption used for the initial filling of a new swimming pool or where a pool has been fully emptied to effect repairs. No additional adjustment will be made for backwash water or for topping up of existing pools generally used for domestic purposes.

#### **4.2.3 Industrial, commercial and institutional customers**

- 4.2.3.1** Industrial, commercial and institutional customers are also charged for the acceptance of sewage into the Municipal sewerage system by means of a volume based sewage disposal charge which replaced sewerage rates from 1 July 2010.

- 4.2.3.2** Industries that are permitted to discharge a trade effluent are charged an additional rate for the volume of trade effluent based on a volumetric and strength based charge determined as follows:

$$V \times (\text{COD}/360 - 1) + Z \times (\text{SS}/9 - 1)$$

COD = Chemical Oxygen Demand  
SS = Settleable Solids

A detailed explanation of the trade effluent charge is given in the Sewage Disposal By-Laws. The rates for V and Z are provided in the Tariff Schedule

### **4.3 Domestic Water Insurance**

- 4.3.1** Domestic customers may insure themselves against undetected underground leaks by payment of a monthly premium, which is raised on the consolidated bill, and forwarded to a private insurance company. If the insurance company is satisfied that the leak was underground and was repaired correctly then it will process the customer's claim and pay directly to the Council to credit the customer's account. Customers are given 60 days after the leak has been repaired to submit a claim. Customers are referred to the actual Insurance Policy Document for a detailed explanation on the conditions of Indemnity/Basis for Cover.
- 4.3.2** The customer's account may be suspended for disconnections to water for a period of 60 days to facilitate the insurance process.
- 4.3.3** Accounts shall not be suspended where there are disputes with respect to the amount paid by the insurance company.
- 4.3.4** Disputes must be lodged, in writing, within 30 days of the claim being paid.
- 4.3.5** An adjustment, determined in accordance with the terms and conditions of the water loss insurance policy for individually metered dwelling units, will be made in respect of sewage disposal charges raised against any domestic or non-domestic customer where the sewage disposal charges arise from any underground water leaks which were repaired correctly and timeously.

### **4.4 Credit Control and Debt Collection Policy for Domestic Customers**

- 4.4.1** Flow restrictors will be installed in the water connections of customers who have not paid the total charges for water services (ie. supply of potable water, and, where applicable, the disposal of sewage) for 60 days or more, and who owe the Municipality more than an amount determined by the Chief Financial Officer from time to time, for water used and sewage discharged and who have not responded to written notification from the Council to either pay the outstanding amount or meet with officials of the Council or make arrangements to settle the debt.
- 4.4.2** Flow limiters are installed on application and compliance with the conditions of 4.4.7 below.
- 4.4.3** On restriction of the water supply via a flow restrictor washer, customers have the following payment options:
- a) Pay the outstanding arrear amount in respect of water services charges plus all relevant charges in full;
  - b) Apply for a flow limiter and sign an Acknowledgement Of Debt, subject to 4.4.6 below.
  - c) Sign a Credit Authority for the arrears.
- 4.4.4** Confirmation of tampering of a restricted supply on two occasions may result in the entire water connection being removed. Customers have two options to facilitate the re-instatement of the water supply:

- a) Pay the outstanding debt in respect of water services charges in full (including all charges) plus the prevailing costs of a new water connection and penalty charges;
  - b) Apply for a flow limiter and sign an Acknowledgement Of Debt. The connection costs and penalty charges must be paid immediately.
- 4.4.5** If a customer has received a new connection and then tampers with it again then the connection will be removed and will not be replaced until all outstanding water debts have been paid.
- 4.4.6** All illegal connections that are found will be removed and owners and occupiers may be prosecuted by a court of law.
- 4.4.7** Customers whose water supply has been limited using a flow limiter device:
- a) are obliged to attend a 15 minute training session;
  - b) must sign an Acknowledgement Of Debt. The debt may not attract further interest for the duration of the Acknowledgement Of Debt.
  - c) must pay a minimum amount, as determined from time to time by the Chief Financial Officer, towards the Credit Authority.
  - d) The flow limiting device will be removed once the outstanding amount is paid in full and the charge to remove the device is paid.
  - e) The training programme is vital as it makes customers aware of how to manage within the free basic water quantity per day. The customer is also made aware that if the flow limiting device is tampered with in any way and the supply of water to the property increases above the free basic water per day and the tampering is detected by the Council before it has been reported to eThekweni Water and Sanitation Unit by the customer, then the supply of water to the property will be permanently disconnected until the amounts owing have been paid in full (including the cost of a new water connection). In this regard interest will again be due on the “frozen” amount from the date that the tampering is detected by the Council.
  - f) The Acknowledgement Of Debt shall be cancelled on application for a Revenue Clearance Certificate and all debts on the property shall become due, owing and payable.
- 4.4.8** In the event of a funeral or other function associated with the death of a family member, or a family wedding, an application may be made for temporary relief whereby the flow limiter may be removed for a specific period of up to seven days only. The application is to be supported by a letter from the Ward/PR Councillor and the payment of a prescribed fee as per the approved schedule of tariffs, to be reviewed annually. The flow limiter will be reinstated after seven days.

#### **4.5 Debt Relief Programme**

**4.5.1** Debt Relief Programme is aimed at assisting poor families who are in arrears for water services charges, for ninety days (90 days) or more. Customers eligible for the debt relief programme are those families:

- a) who reside on a property with a ratable value as determined by Council from time to time (currently R190 000).
- b) or who, irrespective of the property value, are confirmed as being too poor to be able to afford their current water services debt in terms of the following criteria:-
  - i) a report by the Ward/PR Councillor.
  - ii) an assessment and report by the Municipal Social Worker who would formulate an opinion as to whether or not the family qualified for debt relief based on a site visit.
  - iii) a verification Report by the Water and Sanitation official.
  - iv) approval by the Deputy Head: Customer Services for municipal property values allowed for Property Rates Relief (currently R400 000,00).
  - v) approval by the Head: Water and Sanitation for Municipal Property values in excess of the values allowed for Property Rates Relief (currently R400 000,00).

**4.5.2** The customer is obliged to sign a contract and have the conditions of the contract explained, whereafter the debt is written-off over a period of twenty months.

**4.5.3** The outstanding arrears are “parked” in a suspended account that does not attract any interest or other penalties if the customer pays the current water services account in full by the due date for payment.

**4.5.4** If the customer fails to pay the current monthly water account in full and by the due date, the customer is subject to having time added to his/her write-off period on a month for month basis e.g. twenty months could reach twenty four months, if the account is not paid for a period of four months. If the period over which the current account is not paid by the due date exceeds four consecutive months, then the contract will terminate on the first day of the fifth month.

**4.5.5** The customer has a choice when s/he signs the debt relief contract to either stay on a full or semi pressure water supply or s/he can choose to have a flow limiter installed thus limiting his/her consumption to an amount per day equal to the free basic water allowance as determined in the schedule of tariffs.

a) The effect of a flow limiter is that a customer will receive a nil account at the end of the month for water services i.e. for both water usage and sewage disposal, and still benefit from the monthly write-off of one twentieth of the outstanding water services debt, versus the customer who chooses to remain on full supply who will receive a bill for water services consumed which will have to be paid for as per item 4.5.3 above.

b) If the customer chooses to remain on a full or semi pressure normal supply and defaults on the current payments in respect of water services charges, then a flow limiter will be installed immediately. The customer may then pay the current arrears or make arrangements to pay same over a maximum period of three months, via a Credit Authority. Once the current debt is paid, the customer may elect to return to a normal full pressure supply.

**4.5.6** Should a customer be caught tampering or be found to have tampered with the water connection to a property, while a debt relief contract is active and in effect, the contract will terminate immediately and the debt outstanding at the time the contract terminates will become payable in full, with the

interest charges accruing as well as the cost of a new connection. If the customer reports any tampering before the Council detects it, then the contract will remain in effect.

**4.5.7** On application for a Revenue Clearance Certificate:

- i) The full debt will become due, owing and payable; or
- ii) The new owner may elect to take over the debt, sign a new agreement with the Council, and all rights and obligations will pass to the new owner on transfer of the property.

**4.5.8** Municipal debts, that have been “parked off” on former Municipal owned property, will be reinstated on application for a Revenue Clearance Certificate.

**4.6 Free Basic Services - Indigent Policy**

**4.6.1 Free Basic Water**

All domestic residential customers are provided with 9kl free basic water per month.

**4.6.2 Service Subsidy - Water**

- a) Customers with full pressure connections whose consumption is greater than 9 kl per month, are charged a fixed charge in addition to the applicable tariff rate. This fixed charge is not levied on properties below a certain property value. (refer to tariff schedule for current property value)
- b) An alternative level of water supply is also provided via a low pressure roof tank which has no fixed charge and a reduction on the standard tariff rate per kl of consumption.
- c)
  - i) The Head: Water and Sanitation is authorised to make water available to informal communities through the use of the standpipes that are approximately 200 meters away from any informal dwelling with the cost of these installations being met by the Water undertaking. Water supplied through these standpipes is free of charge. As and when such standpipes are installed to supply water to an informal community, all the illegal connections to such communities will be removed immediately after the standpipes have been installed.
  - ii) If it is found that illegal connections are made to these standpipes and not reported to the Council, the standpipe connection will be disconnected and removed.
  - iii) If any member of the informal community, served by standpipes, wishes to receive a higher level of service, the higher level of service may be provided on payment of the prescribed tariff charge.
  - iv) The provision of a free standpipe and water will be strictly limited to supplying people who are living in informal communities. Where an informal community is located on privately owned land, the consent of the private land owner may be sought before such a service can be provided. Such consent may not be unduly with-held.

**4.6.3 Free Basic Sanitation**

- a) No volume based sewage disposal charge is raised for customers with access to the municipal waterborne sewage disposal reticulation system for the first 9 kl of water per month.
- b) For customers living beyond the urban or waterborne edge, where a Municipal waterborne sewerage system is not available, the minimum level of basic sanitation service is a urine diversion toilet which is provided at no cost to the householder but is required to be maintained by the householder.
- c) In certain areas, households were provided with a VIP toilet by the previous local authority responsible for service provision in that area. These toilets are acceptable as a basic level of



sanitation but, over time, will be replaced by a urine diversion type toilet. In the meantime VIP type toilets will be emptied once in a 5 year period at no cost to the householder (refer to item 7.1 for details of this service).

#### **4.6.4 Service Subsidy - Sanitation**

- a) Customers with a water supply via a semi-pressure (roof tank) service whose consumption is greater than 9kl per month will have a reduction in sewage disposal charges where the water supply does not exceed 25 kl per month
- b) Informal communities are served by communal toilet blocks which are both provided and serviced at no cost to the community.

Where an informal community is located on privately owned land, the consent of the private land owner may be sought before such a service can be provided. Such consent may not be unduly with-held.

#### **4.6.5 Scale of Charges**

The scale of charges for both water and sewage disposal are provided in the applicable Tariff Schedules and both the eThekweni Rates Policy and the Credit Control and Debt Collection Policy are provided in separate documents which are available on request.

## Chapter 5

### **Sewage Disposal by means of On-site privately owned sewage disposal systems**

The purpose of the policy is to provide a uniformly applied procedure for the approval of the means of disposal of sewage where there is no access to the Municipal waterborne sewerage reticulation system.

#### **5.1 Sewage disposal by means of a septic tank**

**5.1.1** A septic tank consists of a tank in which breakdown of the sewage occurs and from where effluent is dispersed into the ground through a soak away or French drain.

**5.1.2** This is the preferred method of disposal of domestic sewage in areas where there is no Municipal waterborne sewerage reticulation.

**5.1.3** SABS 0400-1900, PP10.5 et al, however, limits the permissible flow to a septic tank to ' liquid containing excreta (soil water) and stormwater'.

The disposal of sewage by means of a septic tank will, therefore, only be permitted where the effluent to be treated is solely domestic sewage.

**5.1.4** Developments where the possible future use of the premises may produce an effluent which is other than solely domestic (e g office blocks) will not be permitted until such time as effective development controls are in place which limit the use of such premises to a domestic type use.

**5.1.5** Directing stormwater to a septic tank is not practical and will not be approved.

**5.1.6** Although any such on-site disposal system needs to be designed by an appropriate professional a guideline document is available from the Unit and is included in annexure 3 (Imanage 170661) - Guideline for the Design and Approval of On-Site (Sub surface) Disposal of Domestic Sewage.

This guideline sets out recommendations for the determination of the effluent loading, the sizing of the septic tank, the soakaway requirements, and the sizing of the evapo-transpiration area for a single residential unit not exceeding 5 bedrooms under ordinary geological conditions.

#### **5.2 Sewage disposal by means of conservancy tank**

**5.2.1** A conservancy tank is a sealed tank that contains and stores sewage from premises and is required to be emptied on a regular basis.

**5.2.2** Following the Council's decision to phase out the heavily subsidised conservancy tank emptying service which existed in the erstwhile Outer West entities new conservancy tanks are not encouraged.

**5.2.3** The emptying service is now largely carried out by private contractors who are required to discharge at a designated Wastewater Treatment Works. From the owners point of view the emptying costs are prohibitive and can quickly become unsustainable. From the Council's point of view it is becoming impossible to police the emptying service and more and more unauthorised disposal/dumping of tanker contents is occurring.

**5.2.4** A conservancy tank will generally be approved only

- a) in circumstances where the Unit is specifically advised by the Development Planning and Management Unit that the proposed development is in the best interests of eThekweni, notwithstanding that it is outside the "urban edge" (refer to the IDP for explanation of "urban edge")
- b) Where approved by the Head: Water and Sanitation under exceptional circumstances.
- c) On condition that it complies with the requirements set out in SABS 0400, and is designed by a professional engineer proficient in planning or designing of on-site wastewater disposal.

- d) Provided that the scale of the proposed development is limited and the required emptying service can be assured.
- e) for a domestic application the tank must have a minimum capacity of 7000l and have a seven day retention capacity.
- f) For a non residential development the tank shall have a minimum capacity sufficient to hold four days retention of the potential flow generated.

### **5.3 Sewage disposal by means of a Privately Owned Sewage Treatment Plant**

**5.3.1** There are some 40 plus so-called package sewage treatment plants in the Outer West area, the majority authorised by Department of Water Affairs (DWA) in conjunction with the previous local authorities. Few of these operate to the required standard although, with the intervention of this Unit in recent years, there is some ongoing improvement.

The use of such private plants, however, remains a controversial issue with some Municipalities not permitting their use at all.

The Department of Water Affairs, in 2010, endorsed a guideline document "Package Plants for the Treatment of Domestic Wastewater " prepared under the direction of the Water Research Commission (WRC)

**5.3.2** In terms of eThekweni policy a "privately owned low volume domestic sewage treatment system" will be approved subject to compliance with the DWA guideline document and the following detailed requirements viz:

- a) that the developer appoint a professional engineer at the commencement of the project and that professional shall be responsible for the design, selection and will supervise the construction, installation and commissioning of the plant
- b) that the same professional shall be responsible for the operational control, monitoring and maintenance of the plant for a period of 5 years
- c) that the developer lodge a financial guarantee with the Unit in the sum equivalent to 1,5 times the total cost of the plant for a period of 5 years
- d) that the 'owner' of the plant maintain a service contract with a professional engineer at all times.

**5.3.3** The full requirements for the approval of a "privately owned low volume domestic sewage treatment system" are set out in the policy document dated September 2005 included in annexure 4 (iManage 168708).

**5.3.4** The policy limits the effluent to mainly a domestic effluent. This was done as it was clear from the experiences of those older (pre September 2005) plants which were producing an unacceptable effluent, that the - often unplanned - inclusion of non-domestic effluent (of variable flow and quality) was one of the main contributory causes of their poor operation.

Thus a risk averse approach is adopted and developments (which would include office blocks) where the possible future use of the premises may change - and an effluent which is other than the mainly domestic flow assumed at the time that the plant was designed - will not be permitted.

**5.3.5** Although a place for these plants is recognised there are the following concerns

- a) private plants must not be permitted to escalate in an uncontrolled manner to become the ready solution for every developer whose plans are frustrated by the I D P "urban edge " and associated absence of water borne reticulation.
- b) the monitoring and controls necessary are onerous in terms of staff time and the limited staff resources.
- c) in areas where there are several plants, and notwithstanding that each has a limited capacity, several plants may discharge to the same watercourse.

Planning controls will thus be exercised by the Development Planning and Management Unit.

## Chapter 6

The purpose of the policy is to ensure a uniform and consistent response to the consideration of alternative water and sanitation related products and services and applications for the use of particular specialist products.

### 6.1 Alternative Water and Sanitation Related Products and Systems

The procedures to be followed to assess the functioning of alternative water and sanitation related products and systems are provided in the guideline document included as annexure 5.

### 6.2 Food Waste Disposal Units

**6.2.1** It is recognised that there can be advantages in the use of food waste disposal units when considering waste disposal holistically. However, the uncontrolled large scale use of these products could result in an unacceptable increase in organic loading on certain small Waste Water Treatment Works but will have insignificant impact on the larger Works.

**6.2.2** The National Building Regulations does provide for regulation of the installation of units above 500 w (0,67 HP) power capacity. This includes most models except the small household unit suitable for 1 to 4 residents.

**6.2.3** Applications for the installation of Food Waste Disposal units are therefore subject to the following:

- a) For those size units below 500 w (0,67 HP) power capacity, where the National Building Regulations does not provide for regulation, their use is accepted without restriction.
- b) For those size units above 500 w (0,67 HP) power capacity, where the National Building Regulations does provide for regulation, their use is accepted without restriction in the catchment areas of those Sewage Treatment Works which are greater than than 2 MI/day capacity.
- c) For those size units above 500 w (0,67 HP) power capacity, where the National Building Regulations does provide for regulation, their use will not be approved in the catchment areas of those Sewage Treatment Works which are LESS THAN 2 MI/day capacity.

### 6.3 Pit Toilet Additives

**6.3.1** There are a number of proprietary products available that are marketed on their ability to reduce (or even reverse) the accumulation rate in pit latrines, and reduce potential fly or smell problems. These are generally referred to as pit latrine additives and may be chemical, microbiological or enzymatic in nature, containing large concentrations of active micro-organisms.

**6.3.2** As independent scientific evidence of their efficacy is scarce, a study was conducted by the Water Research Commission and is reported on in their report *"SCIENTIFIC SUPPORT FOR THE DESIGN AND OPERATION OF VENTILATED IMPROVED PIT LATRINES (VIPS) AND THE EFFICACY OF PIT LATRINE ADDITIVES."*

- 6.3.3** The conclusion of the report with respect to pit additives was " ..... it was concluded that this study has shown no benefit in the use of pit latrine additives to accelerate the rate of degradation of pit latrine contents under either aerobic or anaerobic conditions. Furthermore, it was concluded that the financial cost of use of these additives was likely to be more than the cost of manually emptying the latrine every 5 years provided an appropriate pit emptying programme was in place."
- 6.3.4** Based on the above the use of pit latrine additives is not supported and will not be used by the Council in any of its maintenance programmes.

## **Chapter 7 - Services provided by the Unit**

The purpose of the policy is to ensure a uniform, equitable and consistent approach to the provision of support services to customers of the Water and Sanitation Unit.

### **7.1 Emptying Of VIP toilets**

**7.1.1** VIP type toilets will be emptied once in a 5 year period at no cost to the householder.

**7.1.2** The following sanitation systems are excluded from this emptying programme:

- a) Proprietary Digestive Systems
- b) Double Pit VIP's
- c) Urine Diversion VIP's
- d) Chemical Toilets
- e) Pit Latrines that are in danger of collapsing in the course of emptying.
- f) Septic and Conservancy Tank Systems.

**7.1.3** The Council will not be responsible for the maintenance of the structure in any way and the free emptying service is limited to the removal of solids and liquids from the pit.

**7.1.4** Should a pit be required to be emptied before the initial emptying programme for a given area, or required to be emptied at any time within the 5 year cycle, one single emptying may be provided subject to the following conditions.

- a) The applicable tariff rate must be paid beforehand at a municipal office.
- b) The pit must be accessible and able to be emptied using a conventional vacuum tanker.
- c) The pit must be stable and not in danger of collapsing in the course of emptying.
- d) The service subject to the availability of tankers and staff.
- e) Pits that are emptied as a result of such requests will still be emptied at no cost to the householder in terms of the 5 year pit emptying cycle.

### **7.2 Emptying of Septic Tanks**

**7.2.1** The Council offers the service of emptying septic tanks on request.

**7.2.2** Access must be provided by the owner or resident. The tank that is to be emptied must not be more than 30m away from the vacuum tanker and the invert of the septic tank must not be more than 6m below the inlet pipe of the tanker.

**7.2.3** The service is only available during normal working hours.

**7.2.4** The service is conditional on the availability of vacuum tankers.

**7.2.5** Whenever possible the service will be provided within 2 working days of application.

**7.2.6** The tariff applicable for this service is provided in the tariff schedule.

- 7.2.7** The charge is refunded if the tank cannot be accessed. When there are no tankers available to provide the service within 2 working days and the service cannot be provided within a reasonable time period, a refund will be given. When applying for a refund, the applicant must provide an ID Number. A refund takes approximately 3 (three) weeks to process.
- 7.2.8** The owner must expose the lids of the septic tanks. Municipal staff will not dig on private property to expose the lids of the septic tank. Municipal staff will only open the lids to gain access to the chambers. The homeowner is responsible for the maintenance of the septic tanks and associated system.
- 7.2.9** The Council will not undertake any other functions whilst on the private property. The property owner must also sign, when application for the service is made, an indemnity where the Council accepts no responsibility for, or liability arising from, accidental injury to any person, or loss or damage to property, arising from de-sludging, or attempted de-sludging, of any septic tank.
- 7.2.10** Ordinarily payment up-front may be made at any of the Sizakala Centres, or at the main Water and Sanitation offices at 3 Prior Road, Durban.

### **7.3 Conservancy tanks**

- 7.3.1** Due to a shortage of suitable tankers the Unit will ordinarily not empty newly installed conservancy tanks and will only service existing conservancy tank customers.
- 7.3.2** In those circumstances where the conservancy tank is to be emptied by the Unit, the property owner must sign an indemnity where the Council accepts no responsibility for, or liability arising from, accidental injury to any person, or loss or damage to property, arising from de-sludging, or attempted de-sludging, of any conservancy tank.
- 7.3.3** The service is provided at a pre-determined frequency agreed to by both parties or by telephonic request to the Water and Sanitation Unit giving a day's notice to empty. The service is only available during normal working hours.
- 7.3.4** The tariff applicable to this service is per one tanker load or part thereof.
- 7.3.5** The homeowner must ensure access to the tank by maintaining, in good working order, the fitting to which the hose of the tanker connects. This connection is generally located on the boundary of the property.
- 7.3.6** The homeowner is responsible for the maintenance of the conservancy tank and associated system.

### **7.4 Private Blockage Service**

- 7.4.1** The Council offers a service which is limited to the rodding of internal or private sewer drains on private property where there is a blockage in the system. The clearing of the obstruction is not guaranteed and if repairs to the sewer drain are required, this will not be undertaken by Municipal staff.
- 7.4.2** This service is subject to the availability of Municipal staff and only operates during normal working hours (ie. Monday – Friday T08:00 to T16:00).
- 7.4.3** Residents are not obliged to use the Council's service and may engage a private plumber to undertake the work as these sewer drains are their responsibility.
- 7.4.4** Should a resident be unsure whether a fault on a sewer drain is their responsibility or that of the Council, they may request a field team to check and advise them. There is no charge for this inspection service. If the blockage is in the private sewer drain, then a charge will be levied to clear the sewer drain.



- 7.4.5** The current tariff is provided in the tariff schedule. This is payable on receipt of a municipal account and not in cash to the driver. A valid municipal Revenue account number will have to be provided when requesting the service and an acknowledgement of debt will have to be signed by an authorised person, prior to the work commencing on site. The driver will supply the form to be completed and signed. The owner is required to expose the rodding eye and boundary manhole before the service can be undertaken. Municipal staff will not dig on a property to locate or expose these services.
- 7.4.6** Should the blockage in the system re-occur within 7 calendar days of the original clearance, a team will be dispatched to clear it again at no additional charge. Should subsequent clearances be required these will be undertaken at the applicable tariff.
- 7.5 Waterborne Sanitation network**
- 7.5.1** Any wastewater service damaged by a third party will be repaired by the Council, but the full cost of this repair will be raised against the responsible party. This will also include where illegal excavations near the service have endangered it.
- 7.5.2** Should a sewer service eg. man-hole or sewer, be required by a property owner to be relocated, raised or lowered, this will be at the sole discretion of the Council and in each case the full cost applicable to such work will be charged to the property owner.
- 7.5.3** Should a sewer overflow as a result of a blockage or for any other reason and cause damage to any property, the Council will not be liable for the cost of the damage or for undertaking such remediation as required. The resident/property owner will be required to claim for such damage from his own insurance. The Council will, however, undertake to remove any solid foreign objects from the site.

## **POLICY EVALUATION AND REVIEW**

The policies and practices set out in this document support the various activities of the Unit in the provision of water services. In particular they are implemented in support of plan 3 of the IDP eight point plan viz "quality living environments ". The achievement of Plan 3 is measured in accordance with a full schedule of K P I's which include the following water services items:

- the backlog of the number of consumer units with access to a free basic level of potable water either by means of an individual h/h yard supply (ground tank or metered flow limiter connected to a yard tap) or, for informal settlements, by means of a standpipe or toilet/ablution block within 200 meters.
- the number of consumer units provided with access to a free basic level of potable water either by means of an individual h/h yard supply (ground tank or metered flow limiter connected to a yard tap) or, for informal settlements, by means of a standpipe or toilet/ablution block within 200 meters.
- the number of consumer units receiving free potable water (ie. a consumer unit with a metered full or semi-pressure water supply) utilising 9kl or less per month.
- the backlog of the number of consumer units with access to a free basic level of sanitation by means of a UD toilet, an existing VIP, or, for informal settlements, by means of a toilet/ablution block within 200 meters.
- the number of consumer units provided with access to a free basic level of sanitation by means of a UD toilet, an existing VIP, or, for informal settlements, by means of a toilet/ablution block within 200 meters.
- the number of consumer units with access to sewer reticulation which receive free sanitation (ie. properties utilising 9kl or less potable water per month).
- **the improvement of overall river water quality** resulting predominantly from a reduction in pollution by sewage and measured as a percentage of all the river sampling points where the river water is of such poor quality that intervention is required.
- **the percentage of non-revenue water**
- **the actual expenditure of capital budget as a percentage of planned expenditure** for both water and sanitation
- **the percentage of eThekweni residents satisfaction with water, sanitation, electricity and refuse removal**

### Establishment of a Water Services Provider

1. The Water Services Act sets out the regulatory framework for institutions tasked with the supply of water services and provides for different water services institutions to be established
  - \* the water services authority - ie the responsible municipality
  - \* the water services provider - whose role is to physically provide the water supply and sanitation services to consumers
  - \* the water services intermediary - whose role is also to provide water services but applies when this is a minor part of some other contract.
2. Thus the eThekweni Municipality is the Water Services Authority (WSA) and the Water and Sanitation Unit is the Water Services Provider (WSP) for the Municipal area.
3. However the Act also provides for the function of the WSP to be provided by any other public or private body in terms of a contract between it and the WSA.
4. WSPs/WSIs will only be permitted in circumstances where a set of unusual circumstances exist which cannot be resolved in a more beneficial manner and where the establishment of the WSP or WSI results in a significant benefit to the Council. The report to Council - dated 30-05-2006 - was approved in full at Exco meeting 23-06-2006.
5. The following document sets out some of the initial thinking around certain "principles" which should be incorporated into an Agreement (the WSP Agreement) between the eThekweni Municipality and a Water Services Provider for the provision of sanitation services not exceeding 2Ml/day total capacity.

The document can be used as the basis for the initial development of a WSP Agreement but is likely to evolve over time as the various parties gain experience in considering the various institutional and legal issues around the establishment of a provider of sanitation services.

Although the "principles" will remain it is also likely that any particular Agreement will need to take into account the individual circumstances of a particular development(s).

The final authority for entering into a WSP Agreement rests with the eThekweni Council as the designated Water Services Authority. The WSP Agreement is only one of a number of Agreements which will be necessary.

Among other Agreements which will be required are;

- i) a sanitation services agreement between the WSP and the contributing developments
- ii) a professional services agreement between the WSP and the operator of the treatment plant and the external sewerage services

in addition to the contractual arrangements listed in item 6 below under the heading 'General'.

"Principals" to be incorporated in a WSP Agreement.

### **Purpose**

The document sets out the Principles to be contained in a Water Services Provider Agreement where sewage is accepted from more than one freehold development for treatment at a WWTW situated within one of the development sites and where the treated effluent is discharged to a natural watercourse or stormwater drain.

The situation envisaged is that one of the developments (termed the Principal Development) will be responsible for the collection and treatment of sewage from the other contributing developments and, as such, will be the Water Services Provider.

### **Definitions**

**WWTW** - the treatment works which serves more than one freehold development with a capacity not exceeding 2 Ml/day.

**Link Services** - sewerage infrastructure (to include pump stations) which collects sewage from the boundary of each freehold development and delivers the sewage to the WWTW.

**Water Services Provider** - the owner/owners/shareholders - or successors in title - of the development - referred to as the Principal Development - which is to be responsible for the collection and treatment of sewage from the contributing developments.

**Head** - Head of Water and Sanitation Unit, eThekweni Municipality

**Council** - eThekweni Municipality

### **General**

1. The relationships between all the individual parties which are affected in any way by the WSP Agreement shall be set up in such a manner as to minimise the possibility and risk that the Council will need step in to undertake any or all of the duties of the WSP.
2. The Council must be indemnified from any liability resulting from the actions of the WSP.
3. Nothing in the WSP Agreement shall be interpreted as overruling the conditions of any EIA record of decision, the DWAF licencing/authorization requirements or any other requirement in law.
4. The WSP will carry out all duties in accordance with the requirements of appropriate legislation including all monitoring and reporting as and when required.
5. It is the responsibility of the WSP to obtain all necessary licences and authorisations required.

6. It will be necessary for suitable contractual arrangements to be established between
  - i) the respective developers of the contributing freehold developments - and their successors - and the WSP, and
  - ii) (In the case of mini-sub developments) the individual Home Owners and the respective Home Owners association, and
  - iii) (In the case of sectional title development) the individual members of the Body Corporate and the Body Corporate which include the applicable principles of the WSP Agreement and to bind the various parties accordingly.
7. The maximum duration of the WSP Agreement shall be 30 years with an option to renegotiate or terminate.
8. In addition to the "principles" set out in this document the WSP Agreement shall include the relevant provisions of the model WSP contract issued by DWAF.
9. The WSP shall not cede any of its obligations/appoint an operator to manage and operate the WWTW and/or link services without prior permission of the Head.
10. The contributing developments shall be subject to the individual approval of the Head.
11. No construction of the WWTW or link services is to commence until the WSP Agreement and the associated agreements between the contributing developments and the WSP have been signed by all parties and copies lodged with the Head.
12. As built drawings are to be provided by the WSP for the WWTW and the link services
13. All costs incurred by the Council associated with the preparation and administration of the WSP Agreement shall be the responsibility of the WSP.

### **Design**

1. The WWTW and link services are to be designed by a professional engineer appointed with the agreement of the Head.
2. The design is to be submitted to the Head prior to any construction taking place for his confirmation that the design is in compliance with the WSP Agreement.
3. The plant is to be designed to meet effluent standards laid down in the General Authorisations or other such requirements as set out by the Council or by DWA.
4. Only treatment plants which have been accepted and are designed in accordance with the latest version of the policy document "POLICY IN RESPECT OF PRIVATELY-OWNED "PACKAGE" SEWAGE TREATMENT PLANTS AND OTHER "ON-SITE" SEWAGE TREATMENT SYSTEMS" will be considered for approval.
5. No approval will be given unless the various professional service agreements and guarantees detailed in the above Policy document have been established to the satisfaction of the Head.
6. The plant is to be designed for an operating life span of not less than 50 years.
7. The hydraulic loading on the plant is to be determined using the sewage flows provided in the National Building Regulations.
8. All design and construction is to be to Council standards.

9. The WSP is responsible for all costs associated with the provision (design, construction, approvals etc.) of the WWTW and link services.
10. The capacity and any other design or operational requirements of the WWTW and link services shall be in accordance with the conditions of any EIA Record of Decision.
11. Omnibus servitudes are to be in the joint names of the WSP and the Council.
12. Each contributing development shall install the necessary infrastructure within its respective development to serve the final layout of individual freehold sites to Council standards at its own cost and hand over such infrastructure to the WSP on completion.
13. All sewerage infrastructure within private erven and within sectional title developments shall be installed by the individual owners/Body Corporates and shall be maintained by the same.
14. As the WSP is only financially viable once the flows (and hence income stream) from the contributing developments has reached a certain level, the construction of the contributing developments is to be phased such that, until this point is reached, the alternative of on-site sanitation is a practical and implementable alternative.

#### **Disposal of effluent**

1. Should the WWTW be constructed in phases the WSP may not have commitments to accept more effluent than it has the built capacity to treat and dispose of.

#### **Operating Responsibilities**

1. The WSP shall be responsible for all management, operation and maintenance of the WWTW and link services to a comparable Council standard at all times for the duration of the WSP agreement.
2. The Council will, however, provide a 24 hour call centre, an emergency response capability, pollution monitoring and control, in addition to a blockage clearance service (all at a cost to the WSP to be determined from tariff rates or at reasonable cost).
3. The WSP staffing levels and management plan shall be submitted to the Head for approval at the commencement of the Agreement and shall be reviewed annually.
4. The operating budget, which shall include a capital fund for replacement maintenance items, is to be agreed with the Head each year.
5. The WSP will be delegated powers vested (in terms of the Sewage Disposal by-laws) in the "Authorised Officer" in order that the WSP will have the ability to apply those by-law items necessary for the performance of the functions of the WSP which shall include, but not be limited to, the control of incoming effluent.
6. The WSP will be responsible for all costs (including, but not limited to, clean-up costs and environmental rehabilitation costs) resulting from any pollution incident from the WWTW or link services.
7. No development may be connected to the WWTW - nor any commitment to accept sewage from any development may be made - without the written agreement of the Head.
8. Any new development wishing to connect where the flow could be anything other than solely normal domestic household waste water must have a separate means for the collection and legal disposal of such non domestic wastewater. Only once it can be demonstrated that the WWTW can treat such non domestic waste water will consideration be given by the Head to the bleeding in of non domestic waste water to the plant influent. In order to allow for this possibility a development shall consider the provision of pre-treatment facilities (which shall be to the approval of the Head) installed during construction of the premises. Any permission for the acceptance of non domestic effluent shall

require the approval of a management plan (reviewed annually) for the operation and maintenance of these pre-treatment facilities.

(Non domestic waste water is effluent from industrial and commercial undertakings and shall include, but is not limited to, waste water from garages, restaurants, shopping centres which might include food outlets of any nature, hairdressers, laundries and frail care/nursing centres).

### **WSP Income and Expenditure**

1. The WSP shall charge the contributing developments the Council's volume based user charge at the Council's tariff rates (or an equivalent thereof) and in accordance with the policy towards such charges as set out in the Sewage Disposal By-laws or otherwise agreed by the Council.
2. In order to facilitate the raising of a volume based charge by the WSP details of monthly water consumption at individual properties within the contributing developments will be supplied by the Council to the WSP. (Cost to the WSP to be determined).
3. The WSP will be responsible for any bad debts arising from non -payment of bills raised by the WSP.

### **Financial Liability for the WSP**

1. Losses incurred by the WSP in the routine operation and maintenance of the WWTW and link services together with any liabilities incurred by the WSP should the contract be canceled due to default of the WSP and any other liabilities of the WSP shall become the individual and collective responsibility of the home owners within the Principal Development. Equally the home owners within the Principle Development shall have the full benefit of profits made by the WSP.

At termination of WSP Agreement (due either to cancellation due to default of the WSP or at end of 30 year period) all permanent structures comprising the WWTW, pumpstations and sewerage infrastructure/link services and the land designated as the sites for the WWTW and pumpstations shall be transferred to the Council at no cost to the Council.

**Default of the WSP**

1. The Agreement with the WSP shall be canceled should be WSP be deemed by the Council as being in default.
2. The WSP shall be considered as being in default if it fails to comply with a written notice served on it in terms of this Agreement, the Sewage Disposal bylaws or any other applicable legislation.
3. In the event that the Agreement is terminated as a result of the default of the WSP the Council may recover from the WSP all outstanding expenses incurred in addition to any losses that it may incur in taking over from the WSP for the balance of the Agreement period.

**Failure of the WSP to comply with a written notice**

1. Should the WSP fail to comply with any written notice served on it in terms of this Agreement, the Sewage Disposal bylaws or any other applicable legislation then the Head shall take such action or do such work as is necessary to remedy the breach and restore the environment and may recover the cost of such action from the WSP.

**eTHEKWINI MUNICIPALITY  
PROCUREMENT AND INFRASTRUCTURE  
Water and Sanitation Unit**

3 Prior Road  
Durban, 4001

PO Box 1038  
Durban 4000

Tel: 031-311 1111  
Fax: 031-311 8699



Your Ref:  
Our Ref:  
Enquiries:  
Telephone:  
Fax:

Development Planning, Environment and Management Unit  
Land Use Management Branch  
Private Bag X4  
UMHLANGA  
4320

Attention :

Dear Sirs

**{INSERT DETAILS OF LAND DESCRIPTION HERE}**

This serves to confirm that eThekweni Water Services is willing to accept sewage and wastewater from the **{INSERT DETAILS OF LAND IN QUESTION HERE}** and is satisfied with the proposals for the disposal thereof for each of the subdivisions to be registered.

I trust that this information is sufficient to satisfy Clause A6 : Sewage Disposal of the Conditions of Establishment applicable to the proposed **{INSERT DETAILS OF LAND IN QUESTION HERE}**

Yours faithfully

**NAME OF SIGNATORY  
DESIGNATION OF SIGNATORY**



**eTHEKWINI MUNICIPALITY  
PROCUREMENT AND INFRASTRUCTURE  
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Development Planning, Environment and Management Unit  
Land Use Management Branch  
Private Bag X4  
UMHLANGA  
4320

Attention :

Dear Sirs

**{INSERT DETAILS OF LAND DESCRIPTION HERE}**

This serves to confirm that eThekweni Water Services is satisfied that the developer has reticulated at their costs **{INSERT DETAILS OF LAND IN QUESTION HERE}** for the disposal of sewage and wastewater for each of the subdivisions.

I trust that this information is sufficient to satisfy Clause B2 : Sewage Disposal of the Conditions of Establishment applicable to the proposed **{INSERT DETAILS OF LAND IN QUESTION HERE}**

Yours faithfully

**NAME OF SIGNATORY  
DESIGNATION OF SIGNATORY**



**WATER AND SANITATION UNIT  
OF THE  
ETHEKWINI MUNICIPALITY**

**GUIDELINE FOR THE DESIGN AND  
APPROVAL OF ON SITE (SUB SURFACE) DISPOSAL OF  
DOMESTIC SEWAGE**

July 2005 : Revision E  
Guideline No. 6

# 1. INTRODUCTION

This Guideline has been prepared by the Water and Sanitation Unit of the eThekweni Municipality (EWS) to assist in the approval process for the on-site disposal of normal household domestic sewage via septic tanks and sub surface soakaways. Permission for this disposal option on privately owned property will only be considered in areas:-

- that are not presently served by municipal waterborne sewerage and where such provision is not anticipated in the short to medium term or at all according to the Metro Unicity Council's programme for the sewerage of the Unicity Area,
- where full or semi pressure water supply already exists and
- where conditions are appropriate for the installation and operation of such disposal systems.
- where the installation of such systems will not adversely impact on the groundwater.

The property owner/developer/professional contemplating a new development or subdivision requiring the provision of on-site disposal of sewage shall make application to the Water and Sanitation Unit of the eThekweni Municipality through the Systems Area Engineer at the Area office of the area concerned (see address and contact details in appendix D).

Permission, if granted, will be in terms of the Unicity Sewage Disposal Bylaws and the development together with all future extensions/alterations/sub-divisions will be subject to the limitations imposed by the approval and the relevant bylaws.

This Guideline has been established to assist in the approval procedure for a single residential unit not exceeding five bedrooms. The guideline shall not be used where the following extraordinary terrain, hydrogeological or geological conditions are prevalent

- slopes steeper than 15 degrees,
- soils that have permeabilities greater than 500mm/hr or less than 50mm/hr
- depth to bedrock is less than 1meter below the natural ground
- boreholes used for the abstraction of water are located within a radius of 100 meters
- a surface water body is located within a radius of 30 meters

Relevant advice from a specialist geo-hydrological professional engineer must be sought if developments are being contemplated where the above conditions apply or if a single septic tank to serve a number of residential units is being considered.

This Guideline shall be read in conjunction with the Code of Practice for the Application of National Building Regulations (NBR), SABS 0400-1990 and Building Standards Act No.103 of 1977 or latest revisions thereof.

A separate Guideline is available, where a privately owned "Package Type" sewage treatment plant or other on-site system for the treatment of domestic sewage, is being considered by the Developer, where the treated effluent is to be discharged directly to a natural watercourse or through surface irrigation,

## 2. TECHNICAL OVERVIEW OF AN ON-SITE (SUB-SURFACE) SEWAGE DISPOSAL SYSTEM

### 2.1 General description of the disposal system

The system shall consist of the necessary pipework from the residence to a septic tank. The septic tank shall be constructed so as to allow the liquid fraction of the sewage to gravitate to a soak away. The soak away will allow the liquid to seep into an area where final dispersion will be by way of evapotranspiration.

### 2.2 Effluent Loading (E)

The effluent loading per residential unit shall be determined in accordance with PP 10.4 Table 1 of SABS 0400 - 1990 as follows:-

Number of bedrooms	Sewage flow in litres per day
2	700
3	900
4	1100
5	1400

### 2.3 Septic tank requirement

The sizing of the septic tank per residential unit shall have a minimum capacity of 1.7m<sup>3</sup> and shall be designed and constructed in accordance with the information contained within SABS 0400-1990, PP10.4.

### 2.4 Soakaway requirements

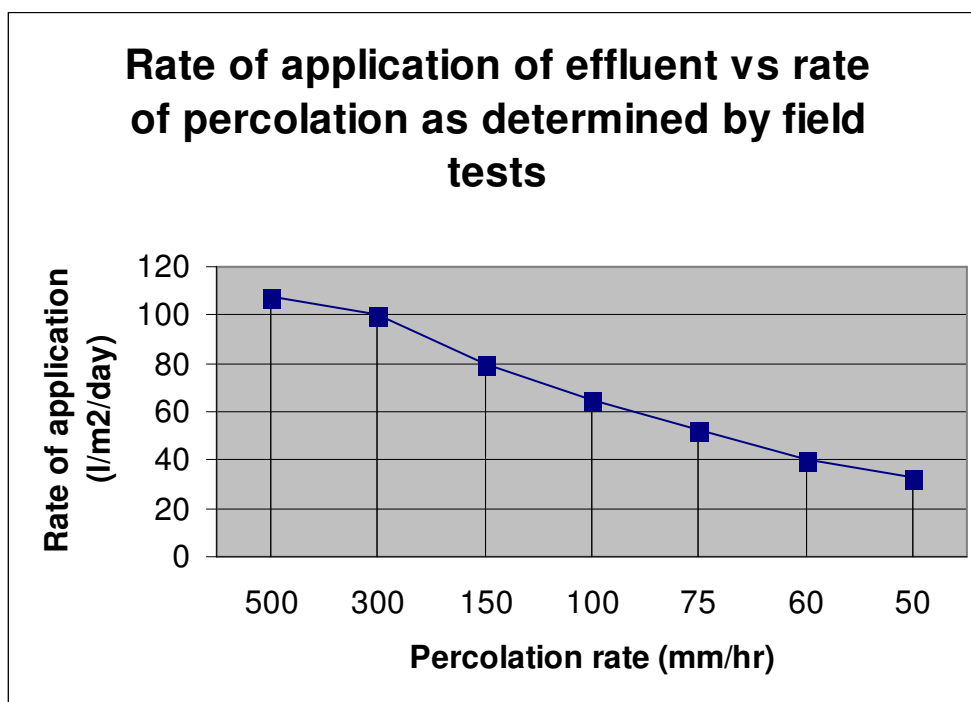
#### 2.4.1 Geotechnical investigations required

*Soil profiles and geological formation* - Sampling holes should be excavated to a depth of at least one metre below the bottom of the proposed soakaway. The soil properties should be assessed and the general geological formations noted. Particular attention should be given as to whether layers of poor permeability e.g clay, or bed rock are present under the site. Indications in the soil profile of fluctuating groundwater tables should be noted.

*Percolation Tests* - On site soil permeability tests shall be carried out in accordance with SABS 0400-1990, Section PP28. The tests shall be carried out at the intended location of the soakaway/s and in natural soil (as opposed to fill embankments).

## 2.4.2 Size of the soakaway

The soakaway shall be sized and so arranged to provide sufficient vertical side infiltration area such that the maximum rate of application of effluent E (as determined per residential unit from Table 1 of SABS 0400) to the soil infiltration areas, shall comply with the rates of percolation and effluent applications as indicated in Table 3, PP10.7, SABS 0400 - 1990 and as shown in the graph below.



Percolation rates greater than 500 mm/hr and less than 50 mm/hour shall be considered as being excessive and beyond the scope of this guideline. Specialist advice must be obtained for the design of such on site disposal systems which will require prior consultation with the EWS as to the investigation requirements and will require a separate submission prior to approval or otherwise.

The size of the soakaway shall be determined such that the following conditions are met:-

- The soakaway shall have a level base throughout its length,
- The area of the base shall not be considered to contribute to the soil infiltration area,
- The area of the wetted sides of the soakaway shall be greater than the effluent loading (E) divided by the maximum rate of application of effluent loading (R) as obtained from the above graph.
- The soakaway shall have a clear voided capacity greater than the effluent loading (E). The clear voided capacity may be assumed to be 30% of the overall volume of the soakaway if rubble or single size aggregate is used as backfill.

The minimum dimensions of a typical soakaway shall be as shown in the table below.

Effluent loading (l/day)	Minimum width W (m)	Minimum depth D below ground level (m)	Minimum length L (m)
700	0.6	0.7	6.5
900	0.6	0.7	8.3
1100	0.6	0.7	10.2
1400	0.6	0.7	13

### 2.4.3 Position of the soakaway

The soakaway shall be positioned such that the effluent is distributed uniformly across the proposed evapotranspiration area. A soakaway shall not be located less than 30 metres away from any stream or surface water body.

## 2.5 Requirements for a designated evapotranspiration area

### 2.5.1 General Specification

Provision shall be made for an area of land around the soakaway to permit evapotranspiration of effluent infiltrated into the soils from the soakaway. The area to be used for evapotranspiration shall conform as a minimum to the following requirements:

- (i) The depth of soil below the soakaway to impermeable horizon e.g bedrock or clay, shall not be less than 300 mm.
- (ii) The area shall be covered by vegetation and shall NOT be covered by paving, structures, impervious surfaces, etc (i.e. hard surfaced area).
- (iii) The area shall be a minimum of three meters from any building or boundary of the site on which it is situated.
- (iv) In exceptional circumstances pumping to the soakaway may be permitted. The arrangement of the pumping system (which may include separate pump sumps and outlet balancing chambers) shall be such as not to detrimentally effect the operation of the septic tank and soakaway system.
- (v) Surface stormwater, subsoil seepage and local groundwater conditions shall be taken into account when positioning, designing and constructing the soakaway and evapotranspiration area.
- (vi) The soakaway must necessarily serve the purpose of distributing the effluent across the evapotranspiration area and should thus be located horizontally across the upper margin of a sloping evapotranspiration area, centrally across a level one. Two separate soakaways should be provided and positioned so as to distribute the effluent over the evapotranspiration area if the required area is greater than 500 square meters.
- (vii) The maximum distance from the centre of a soakaway to the extremity of an evapotranspiration area shall not exceed 30 meters.

- (viii) A soakaway shall not be positioned within three meters of the top of a fill embankment and the stability of the bank shall not be compromised by the presence of the soakaway.
- (ix) Where seasonal or persistent seepages are prevalent e.g. springs, subsoil drainage measures shall be designed and implemented to divert the seepage away from the evapotranspiration area.
- (x) No stormwater from roof down pipes or pool backwash systems may be connected to the septic tank/soakaway. Soakaways specifically for stormwater shall not be located within or up slope of the evapotranspiration area.

### 2.5.2 Topographical features

Features relevant to the functioning of the sanitation and disposal system shall be taken into consideration, noted and marked on the site plans to be submitted as part of the submission documentation.

In general features such as depressions, gullies, rock outcrops and other such features should be noted and an assessment made of how they will affect the functioning of the disposal system.

In particular the gradient of the slopes should be evaluated as well as surface and sub surface drainage patterns. The position of rivers and wetlands relative to the proposed development should be noted

### 2.5.3 Minimum required evapotranspiration area

The minimum required evapotranspiration area shall be calculated as follows:-

$$A_R = [F_C \times F_D \times E_T] / e \quad (m^2) \dots\dots\dots(1)$$

where

$A_R$  = Minimum required evapotranspiration area ( $m^2$ )

$e$  = Evapotranspiration rate (Table A1)

$F_C$  = Terrain concentration factor (Table A2)

$F_D$  = Deep infiltration factor (Table A3)

$E_T$  = Effluent loading in accordance with SABS 0400 PP10.3 Table 1

### 2.5.4 Available area for evapotranspiration

The available area for evapotranspiration,  $A_A$ , shall be measured from the plan of the proposed development and shall only take into account the undeveloped and unpaved area as follows:-

Table 2.5.4

<b>PLAN AREA AVAILABLE FOR EVAPOTRANSPIRATION</b>	
Evapotranspiration area is proposed on a planar slope	The available evapotranspiration area shall be calculated as the net undeveloped and unpaved area from the position of the proposed soakaway to the downslope property boundary (see schematic drawing in appendix C)
Evapotranspiration area is proposed on level land	The available evapotranspiration area shall be calculated as the net undeveloped and unpaved area surrounding the soak pit. (see schematic drawing in appendix C)

### **3. APPROVAL**

#### **3.1 Feasibility of on-site disposal of sewage**

On-site effluent disposal shall be considered feasible where the available area for evapotranspiration  $A_A$  as defined in Table 2.5.4 is equal to or greater than the required area for evapotranspiration  $A_R$  as calculated using formula 1.

The area allocated for evapotranspiration shall be recorded on the submission plans, and no further development or paving shall occur within the demarcated area.

#### **3.2 Applications - general**

An application shall be accompanied by a suitable motivation produced by a registered professional engineer/technologist /geologist with appropriate experience.

In order for approval to be assessed a site plan shall be drawn to scale and submitted indicating the following details of the relevant development under consideration:

1. Boundaries and boundary dimensions.
2. Peripheral outline of existing and proposed structures and impervious surfaces, where applicable.
3. Relevant positions of existing and/or proposed above-ground structure/s, septic tank, soakaway trench, interconnecting pipework and the extent of the evapotranspiration area/s.
4. Topographical features such as streams, etc.
5. Slope direction, angle of the slope of the area and MSL - based contours where available or levels based on an assumed datum indicated at four boundary peg corners.
6. Positions of percolation test holes and their relationship to the final invert of the soakaway
7. North point.
8. All appropriate dimensions, area values and existing and proposed features regarding the proposed on-site effluent disposal system shall be clearly indicated on the drawings submitted for approval.



In addition the information sheet shown in appendix B shall be completed.

### **3.3 Applications – subdivisions**

The following procedure shall be applied in the evaluation of a proposed residential subdivision.

A site plan shall be drawn to scale and submitted indicating the following details of the relevant proposed sub division under consideration:-

1. Boundaries and boundary dimensions of existing and proposed new subdivisional area/s.
2. Peripheral outline of existing, proposed or hypothetical 2 to 4 bed roomed house. The extent of the land required to accommodate the arrangement will depend on several factors including the severity of the terrain, practical vehicular access and the general attitude of the site.
3. Based on the existing proposed and hypothetical structures, positions of existing and/or proposed septic tank/s, soakaway trench/s, interconnecting pipe work and the extent of the evapotranspiration area/s shall be shown and marked.
4. Topographical features such as streams, etc must be shown.
5. Slope direction, angle of the slope of the area and MSL - based contours where available or levels based on an assumed datum indicated at four boundary peg corners.
6. Positions of percolation test holes and their relationship to the final invert of the soakaway
7. North point.
8. All appropriate dimensions, area values and existing and proposed features regarding the proposed on-site effluent disposal system shall be clearly indicated on the drawings submitted for approval.

In addition the information sheet shown in appendix B shall be completed.

The proposed allocation of areas to septic tanks, soakaways and evapotranspiration areas shall be recorded and future development shall be limited so as to accommodate and maintain these areas.

#### Acknowledgment:

*These Guidelines have been based on the Drennan Maude and Partners produced documents "Report to Durban Metro Water and Waste on the Regulations of Wastewater Disposal from Development in unsewered areas of Durban Metro", Volumes 1 and 2, March 1997 and February 1998.*

**APPENDIX A**

**TABLES A1 TO A3**

**TABLE A1 - Potential Effluent Evapotranspiration Rates “e”(l/m<sup>2</sup>/d)**

<b>Systems Area</b>	<b>Geology</b>	<b>Evaptranspiration Rate “E”</b>
Amanzimtoti	Berea	2.33
	Bluff	2.47
Assagay	Granite	2.53
	Sandstone	2.57
Blackburn	Shale	2.56
Bothas Hill	Granite	2.22
	Sandstone	2.27
Buffelsdraai	Sandstone	1.97
	Shale	2.20
Canelands	Alluvium	2.02
	Shale	2.24
Cato Ridge	Tillite	2.92
Clemont	Sandstone	2.08
	Tillite	2.10
Cliffdale	Granite	2.29
	Sandstone	2.35
Craiglea	Granite	2.63
Dassenhoek	Sandstone	2.37
Drummond	Granite	2.53
	Sandstone	2.62
Durban	Alluvium	2.47
	Berea	2.16
	Bluff	2.52
	Sandstone	2.16
Everton	Sandstone	2.15
Fredville	Granite	2.56
Gillitts	Granite	2.19
	Sandstone	2.25
Hambanati	Sandstone;	2.02
	Shale;	2.24
	Tillite	2.05
Hammarsdale	Sandstone	2.65
Harrison	Tillite	2.92
Hazelmere	Sandstone	1.92
	Shale	2.14

Hillcrest	Sandstone	2.12
Illanga	Sandstone	2.71
Illovu	Alluvium	2.21
Inanda	Sandstone	2.21
Inanda Glebe	Sandstone	2.34
Inchanga	Granite	2.58
Isimahla	Granite	2.57
Isipingo	Alluvium	2.50
	Berea	2.05
	Bluff	2.47
Kingsburgh	Berea	2.16
	Shale	2.44
Klaarwater	Sandstone	2.23
Kloof	Sandstone	2.15
kwaDabeka	Sandstone	2.23
kwaKhabazela	Granite	2.27
kwaMakhuta	Berea	2.05
kwaMashu	Shale	2.45
Langa	Sandstone	2.85
Langefontein	Granite	2.22
	Sandstone	2.22
Lovu	Granite	2.14
	Tillite	2.22
Magabheni	Berea	1.86
	Shale	2.25
	Tillite	2.12
Mapumulo	Granite	1.97
	Sandstone	2.03
Mariannahill	Sandstone	2.26
Mpumalanga	Sandstone	2.74
Mt Moreland	Berea	1.89
	Shale	2.30

New Germany	Sandstone	1.96
Ningizimu	Bluff	2.47
	Berea	2.34
	Shale	2.57
	Tillite	2.38
Ntuzuma	Sandstone	2.23
Ottowa	Granite	2.17
Pinetown	Sandstone	2.00
Qadi	Granite	2.62
Qiniselani -	Granite	2.57
Queensburgh	Sandstone	2.23
Redcliffe	Sandstone	1.98
	Shale	2.17
Rietriver	Sandstone	1.97
Sobonakhona - Makhanya	Granite	1.91
	Sandstone	1.98
	Shale	2.17
	Tillite	2.05
Tongaat	Shale	2.28
Toyane	Berea	2.07
Umbogintwini	Berea	2.29
Umhlanga	Berea	2.30
Umlazi	Berea	1.82
	Sandstone	1.98
	Tillite	1.98
Umnini Trust	Berea	1.89
	Shale	2.22
	Tillite	2.03
Verulam	Sandstone	2.04
	Shale	2.25
	Tillite	2.07
Vumagaze		2.28
	Granite	2.27
Vumazonke	Granite	2.47
Waterfall	Sandstone	2.45

Waterloo	Shale	2.50
Welbedacht	Sandstone	2.12
Westville	Sandstone	2.04
Ximba	Granite	2.57
Yellowood Park	Berea	2.03

**TABLE A2**

**TERRAINE CONCENTRATION FACTOR "Fc"**

	<b>Slope Angle &lt; 14 deg.</b>	<b>Slope Angle &gt; 14 deg.</b>
Concave	1.1	1.3
Planar	1.0	1.1
Convex	0.9	1.0

**TABLE A3**

**DEEP INFILTRATION FACTOR "Fd"**

<b>Geological Formation</b>	<b>Soil Depth</b>	<b>Slope Angle (less than 14deg)</b>	<b>Slope Angle &gt;14deg</b>
Berea	>1m	0.74	0.84
	1 m to 0.6m	0.80	0.90
	<0.6m	0.86	0.97
Bluff	> 1m	0.61	0.77
	1 m to 0.6m	0.66	0.83
	< 0.6m	0.74	0.89
Granite	>1m	0.87	0.90
	1m to 0.6m	0.94	0.97
	< 0.6m	1.00	1.00
Sandstone	>1m	0.80	0.86
	1m to 0.6m	0.86	0.93
	<0.6m	0.92	1.00
Shale	>1m	0.85	0.89
	1m to 0.6m	0.91	0.96
	<0.6m	0.98	1.00
Tillite	>1m	0.87	0.90
	1m to 0.6m	0.94	0.97
	<0.6m	1.00	1.0

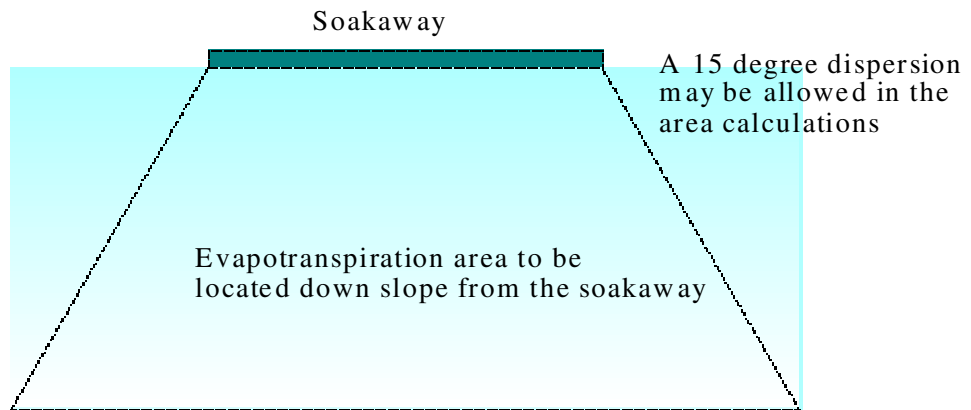
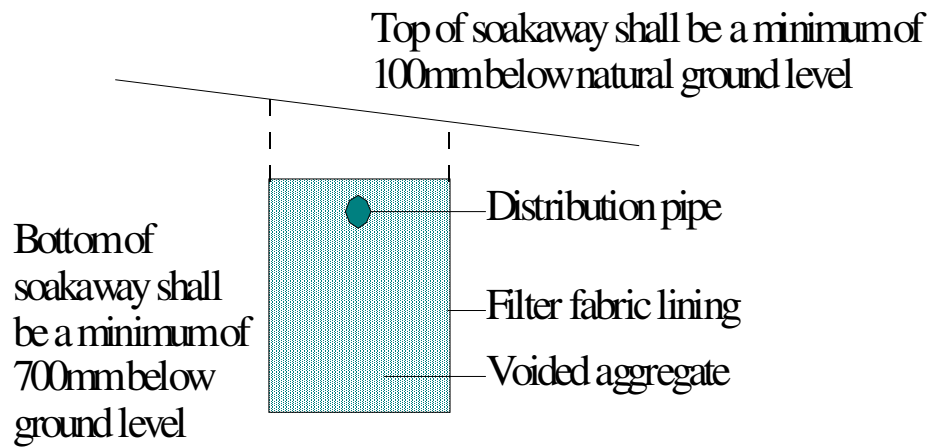
# APPENDIX B

## INFORMATION TO BE SUBMITTED WITH THE APPLICATION

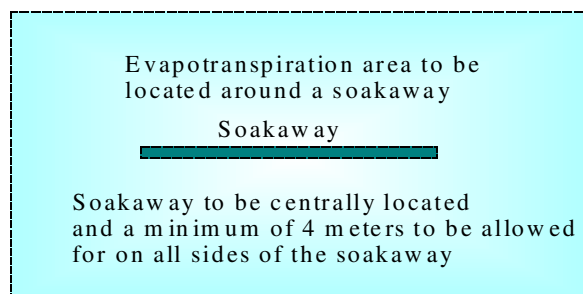
**Submitted by:** \_\_\_\_\_ **Qualifications and registration number:** \_\_\_\_\_

<b>Development Information</b>					
<b>Locality</b>					
<b>Development type</b>					
<b>Area of plot</b>		<b>Area of Residence</b>		<b>Paved areas</b>	
<b>Water supply - cross out the relevant block</b>			<b>Full pressure</b>	<b>Semi pressure</b>	
<b>Effluent loading</b>	<b>Number of bedrooms</b>		<b>Effluent loading as per SABS 0400</b>		
<b>Geotechnical information</b>					
<b>Results of percolation test (mm/hr)</b>			<b>Permissible application rate (ex SABS 0400)</b>		
<b>Geological description of the area</b>					
<b>Rate of evapotranspiration (l/m<sup>2</sup>/day)</b>					
<b>Slope of the ground</b>		<b>Shape of the ground (refer table A2)</b>		<b>Soil depth</b>	
<b>Terrain concentration factor (table A2)</b>			<b>Deep infiltration factor (table A3)</b>		
<b>Calculated area required for evapotranspiration (m<sup>2</sup>)</b>					
<b>Actual available area for evapotranspiration(m<sup>2</sup>)</b>					

**APPENDIX C**  
**SCHEMATIC DRAWINGS**



Location of evapotranspiration area on planar slope



Location of evapotranspiration area on level land





**ETHEKWINI WATER AND SANITATION UNIT POLICY FOR THE  
INSTALLATION OF PRIVATELY OWNED LOW VOLUME DOMESTIC  
SEWAGE TREATMENT SYSTEMS**

**September 2005**

## CONTENTS

1.	Purpose and Scope
2.	Application to eThekweni Water and Sanitation
3.	Minimum Requirements and Conditions for Approval of a Plant Installation
Annexure 1	Information to be submitted with the application
Annexure 2	Wastewater Limit Values
Annexure 3	Factors to be considered in the Planning and Design of On-site Sewage Treatment Plants.
Annexure 4	Details of Performance Guarantee
Annexure 5	Addition to Management Rules of Bodies Corporate regarding O & M Service Contract obligations
Annexure 6	Minimum Monitoring Requirements

## 1. **PURPOSE AND SCOPE**

1.1 This Policy has been prepared for Developers, Professionals, Property Owners and Treatment Plant suppliers seeking approval from the eThekweni Water and Sanitation Unit for the “on-site” treatment of domestic wastewater where:

- a) the application falls within the scope of the Department of Water Affairs and Forestry General Authorisations<sup>1</sup>
- b) the discharge is less than 2MP/day.
- c) the disposal of the treated wastewater is to a natural surface watercourse.
- d) Extraordinary terrain or geological conditions are not prevalent.

1.2 This Policy applies

- a) to the treatment of domestic wastewater<sup>2</sup> only. As such it excludes consideration of wastewater arising from any commercial or industrial activities<sup>3</sup>. However, the case of a predominantly residential estate development incorporating a small component of “non-domestic” activity (e.g. a restaurant or frail care centre) contributing less than 20% of the total wastewater loading, is included.

With the above exception privately owned sewage treatment plants treating wastewater from any commercial or industrial activity will not be permitted.

- b) to all applications for new treatment plant installations and where existing plants are to be replaced or extended.

1.3 This Policy excludes

the disposal of treated wastewater by surface irrigation for any purpose other than crop production and cultivation of pasture. In the absence of a Department of Water Affairs and Forestry General Authorisation covering the case of the use of treated effluent for the irrigation of gardens or other public or private areas where human contact is likely, a licence application must be made to Department of Water Affairs and Forestry for such use.

1.4 Plants currently in operation at the time of commencement of this Policy will continue to be regulated jointly with the Department of Water Affairs and Forestry, in accordance with the principle of “best practicable environmental option”.

1.5 Separate approvals for the installation of an on-site sewage treatment plant are required from

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<sup>1</sup> “General Authorisation 3”, published by DWAF in terms of the National Water Act 1998 (Act No. 36 of 1998), in Government Notice No. 1191 dated 8 October 1999, as amended by Government Notice No. 399 dated 26 March 2004 and as may be further amended from time to time.

<sup>2</sup> Domestic Wastewater for the purpose of the guidelines is defined as normal domestic household wastewater.

<sup>3</sup> Wastewater from industrial and commercial undertakings shall include, but is not limited to, wastewater from garages, restaurants, shopping centres which might include food outlets of any nature, hairdressers, laundries and frail care / nursing centres.

- a) Department of Water Affairs and Forestry in order to comply with the National Water Act 1998<sup>1</sup>.
- b) The KZN Provincial Department of Agriculture and Environmental Affairs in order to comply with the Environment Conservation Act 1989 and / or the National Environmental Management Act, 1998.
- c) eThekweni Health Department in terms of the Scheduled Trades and Occupations Bylaws.

#### 1.6 Water Services Provider Agreements

Should a developer be contemplating one treatment plant to cater for the wastewater from several adjacent freehold sites early discussion needs to take place with eThekweni Water and Sanitation Unit and Department of Water Affairs and Forestry regarding the feasibility and acceptability of such an arrangement.

- 1.7 A separate Guideline document is available where the on-site disposal of domestic sewage via septic tanks and sub-surface soak-aways is being considered by the Developer.

## 2. **APPLICATION TO ETHEKWINI WATER AND SANITATION UNIT**

- 2.1 In the process of seeking planning permission and / or approval in terms of the National Building Regulations from the Council in the case of a proposed development involving / requiring the provision of an on-site sewage treatment and disposal system, or in the case of the proposed installation of such a system on an existing (developed) property, application must be made to the eThekweni Water and Sanitation Unit (EWS) for approval to install such an on-site sewage treatment plant / system (hereinafter referred to as the "Plant").

- 2.2 The information listed in Annexure 1 must be submitted with the application.

- 2.3 Any approval that may be granted will be in writing and will be deemed to be subject to the conditions and minimum requirements detailed in Section 3 of this document plus any other requirements that may be imposed in instances where special circumstances exist as may be deemed necessary by the Head: Water and Sanitation.

If approved EWS will register the plant and institute periodic inspection and sampling of the installed plant for the purpose of effluent compliance auditing for which a charge will be levied in accordance with the Council's tariff of charges. (Any further cost incurred by the Council, such as additional audits due to non compliance, will be at the rate based on the full cost for the service rendered, as required in the "Polluter Pays" principle of the National Environmental Management Act).

The development, together with all future extensions / alterations / sub-divisions, will be subject to the limitations imposed by the approval issued and the relevant bylaws.

### 3. **MINIMUM REQUIREMENTS AND CONDITIONS FOR APPROVAL OF A PLANT INSTALLATION**

#### Effluent Quality Requirements

When the proposed discharge of treated wastewater is into a watercourse, either directly or via a constructed stormwater drain, the Unit will require quality compliance with the “General Limit Values” (GLVs) (see Annexure 2).

As these are national standards no local relaxation of these values is possible; however, these can be made stricter at local level if a procedurally fair and transparent process is followed.

The only alternatives to full compliance with the GLVs is for the applicant to make a “licence” application to DWAF or to motivate for the introduction of “catchment specific” limits.

#### Discharge via a Council Stormwater Drain

Discharge of treated wastewater from a plant via a Council stormwater drain will only be considered under exceptional circumstances if

- No alternative of direct discharge to a watercourse is reasonably available.
- Irrigation of crops or pasture within the property is not possible.
- Irrigation of crops or pasture within an adjacent property (in terms of an agreement written into the Title Deeds) is not possible.

Treated wastewater discharging into a constructed open channel stormwater drain will be visually unacceptable and unlikely to meet approval.

Application for treated wastewater to discharge into a constructed stormwater channel or drain must be accompanied by a certificate from the Municipality’s Coastal, Stormwater and Catchment Management Department that the constructed channel or drain has sufficient capacity to accept the additional effluent discharge or the accumulation of wastewater discharges at design storm flows.

For discharge to stormwater EWS may require additional sampling/monitoring.

Any privately owned pipe crossing an adjacent property to discharge to a stormwater system (or to a watercourse) shall require an agreement written into the Title Deeds.

#### 3.3 Prior Approval

No application for approval of a plant installation will be considered unless there has been prior approval of the plant by EWS in terms of Policy Guideline for “The submission of alternative Water and Sanitation, Products and Systems Related.”

### 3.4 Application by Professional Engineer / Professional Technologist

Application for approval must be made to eThekweni Water and Sanitation whenever the installation of a small or “package-type” sewage treatment plant on a particular (private) property/development is contemplated. Such application must be made by a professional engineer/technologist (appointed by and acting on behalf of the Developer/Home Owner) who will undertake the design/selection and supervise the installation, construction and commissioning of the plant.

### 3.5 Financial Guarantee

Except in the case of a single house unit<sup>4</sup>, any approval which might be given will be subject to the Developer lodging a bank guarantee in favour of the Council in a sum equivalent to 1,5 times the cost of the design, supervision, installation, construction and commissioning of the plant or such reasonable sum as may be decided by the Head : Water and Sanitation. The above financial guarantee is to be for a duration of 5 years commencing from the date of completion of successful commissioning of the plant and is to be lodged with the Head: Water and Sanitation at 3 Prior Road, Durban at the time of commissioning and when the full cost is known.

The purpose of the bank guarantee is to hold the Developer responsible for the performance of the plant, for the above five year period, for achieving compliance, at all material times - as determined through monitoring and compliance protocols agreed between DWAF and EWS - with the “General Limit Values”.

In the event that there is inadequate compliance with the GLVs the sum held under the bank guarantee may be used by the eThekweni Municipality to alter or replace all or part of the installed plant.

Single household installations will not require such a bank guarantee.

### 3.6 Operation and Maintenance Service Contract

In addition to the design, supervision, installation, construction and commissioning, the application by the professional engineer/technologist must be accompanied by a commitment from the Developer/Home Owner that he/she will enter into a five year contract with the professional engineer/technologist submitting the application (to cover the same period as covered by the financial guarantee) for ensuring adequate operational control, monitoring and maintenance of the plant. This requirement will be for all plants, with the exception of single house units, where the home owner will be required to enter into a three year contract.

### 3.7 Assignment of Rights and Obligations referred to in 3.6 above

The professional engineer/technologist submitting an application will be required to satisfy the Head that:

In those circumstances when the service contract commitment is provided initially by the Developer, the management rules of the Body Corporate, shall

- (a) make provision for the assignment to the Body Corporate of all rights and obligations of the service contract commitment, and

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<sup>4</sup> For the purpose of this Policy Guideline a single house unit is deemed to be one that does not generate more than 1,4kP/day of sewage for treatment and disposal (as given in the National Building Regulations, PP10.4, Table 1, for a 5 bed-roomed dwelling house) and / or does not have more than 5 bedrooms.

- (b) make provision for, once the above contract expires, a similar service contract to be entered into with a professional engineer / technologist in respect of the plant, such that there is at all times a professional engineer/technologist who has responsibility for compliance with the General Authorisations of the Department of Water Affairs and Forestry. This requirement will be for all plants with the exception of single household units.

In the case of a sectional title development, the professional engineer/technologist will be required to confirm that the rule contained in Annexure 6 is added to the statutory management rules referred to in section 35 (2) (a) of the Sectional Titles Act, when application is made for the opening of the sectional title register.

### 3.8 Extension to an Existing/Replacement Plant

Application for approval to install an extension to an existing plant, or a replacement plant, to accommodate increased development, shall be made in accordance with the procedures set out above with the requirement for both a financial guarantee and an ongoing service contract being applicable from the date of commissioning of the extended plant (see Clause 3.10 below).

### 3.9 Replacement of an Existing Plant

Application for approval to install a replacement plant to accommodate an existing development shall be made in accordance with the procedures set out above but there shall be no requirement for a financial guarantee.

### 3.10 Commissioning

For the purpose of clauses 3.5, 3.8 and 3.9 above, commissioning of the plant shall mean that all electrical and mechanical equipment is operating correctly and the plant is producing an effluent which is shown, by means of three representative samples taken over a two-week period, to be fully compliant with the General Authorisations.

### 3.11 Start-up Period

A reasonable start-up period will be permitted and is to be agreed in writing with eThekweni Water Services. The agreed period will take into account the type of plant and the phased occupation of the development. During such period EWS will allow effluent to be discharged from the plant which does not necessarily comply with the GLVs.

Direct discharge to a watercourse during this period will only be permitted under exceptional conditions and with the written permission of EWS who will require that monitoring takes place to ensure no unacceptable risk to human health and the environment. The preferred methods of disposal during the start-up period are:

- a) Tankering;
- b) Soak away if conditions are acceptable; and
- c) Irrigation under very strict conditions.

### 3.12 Arrangements for Non-Domestic Wastewater

All future developments which are to be served by package plants must have a separate means for the collection and legal disposal of non domestic wastewater (refer to foot note 2). Only once it can be demonstrated that the plant can treat such non domestic wastewater, will consideration be given by EWS to the bleeding in of such non domestic wastewater to the package plant influent.

### 3.13 Monitoring and Reporting

The Professional Engineer/Technologist will have overall responsibility for the control and monitoring of the plant for compliance with the General Limit Values.

For the purpose of carrying out the required monitoring and reporting he/she will engage a recognised laboratory which is accredited under the SANAS or approved by DWAF.

The results must be reported in writing by the laboratory directly to EWS (and to DWAF as required) with a copy to the Professional Engineer/Technologist responsible for the O & M service contract for the plant.

The minimum reporting requirements in the General Authorisation in respect of plants in the 0 – 100kP/ day range are considered as insufficient to effect proper monitoring of compliance with the General Limit Values. EWS will thus require certain additional monitoring and reporting over and above such minimum requirements. These are set out in Annexure 7.

In the event of monitoring results reflecting non-compliance with effluent quality requirements, or in the event of specific incidents of plant or process failure or malfunction having occurred, resulting in non-compliance, details of the steps taken to rectify the position shall be reported to EWS.

The monitoring and compliance protocols to be applied to the bank guarantee will be based on a scientific assessment of both the plant design and the performance of the plant together with the risks to the receiving environment associated with any non-performance of the plant. As such the protocol adopted jointly by DWAF and EWS might well vary from one situation to another in order to take into account the individual circumstances of a particular installation.



**INFORMATION TO BE SUBMITTED BY THE PROFESSIONAL ENGINEER / TECHNOLOGIST WITH THE APPLICATION MUST INCLUDE:**

- A. Relating to the Developer and Professional Engineer/Technologist:
1. Name and address of the developer.
  2. Name, Address and professional registration number of professional engineer/technologist
  3. Confirmation that his/her appointment covers the design/selection and supervision of the installation, construction and commissioning of the plant.
  4. Confirmation that the developer agrees to issue the financial guarantee (as required in terms of clause 3.5 of this policy) in the form attached hereto as Annexure 5.
  5. Confirmation that the professional engineer/technologist has been contracted to provide an operation and maintenance service for the first five years of operation of the plant (as required in terms of clause 3.6)
  6. Confirmation that the Management Rules of the Body Corporate will incorporate a clause, as per Annexure 6 attached to this policy, binding the Body Corporate for a service contract commitment not only for the first five years of operation but on an ongoing basis, for the life of the plant.
- B. Relating to the Proposed Development:
7. Physical Address of property/subdivision.
  8. Property description and size (area).
  9. Number of dwelling units proposed on the site.
  10. Description of dwelling unit type (s).
  11. Details of any industrial or commercial undertakings (reference footnote 2 and 3)
  12. Anticipated daily quantity of domestic wastewater that will be generated on the development site.
  13. Anticipated daily quantity of non domestic wastewater that will be generated on the development site.
  14. Estimated maximum instantaneous peak rate of inflow to the treatment plant.
  15. Plans to be submitted showing:
    - Position of all buildings
    - Position of sewage treatment plant and final discharge point/route of the treated wastewater.
- C. Relating to the Proposed Treatment Plant:
16. Brief description of sewage treatment plant/process to be installed including capacity.
  17. Names and addresses of the manufacturers/suppliers of the main components of the treatment plant.
  18. Estimated cost of design, supervision, installation, construction and commissioning of the plant (the actual full cost is to be certified at time of commissioning).
  19. Measures to be taken to provide for mechanical, electrical operational or process failure and malfunction of the plant including details of all back-up systems.
  20. Measures to be taken to avoid or mitigate nuisance or complaint arising from the operation of the sewage treatment plant/system and to ensure protection of public health and safety, including the proposed method of disposal of plant by-products/waste materials (sludge, detrus, screenings).

## ANNEXURE 4.2

**WASTEWATER LIMIT VALUES APPLICABLE TO DISCHARGE OF WASTEWATER INTO A WATER RESOURCE #**

Substance / Parameter	General Limit	Special Limit
Faecal Coliforms (per 100ml)	1 000	0
Chemical Oxygen Demand (mg/l)	75*	30*
pH	5,5 – 9,5	5,5 – 7,5
Ammonia (ionised and unionised) as Nitrogen (mg/l)	6	2
Nitrate / Nitrite as Nitrogen (mg/l)	15	1,5
Chlorine as Free Chlorine (mg/l)	0,25	0
Suspended Solids (mg/l)	25	10
Electrical Conductivity (mS/m)	70mS/m above intake to a maximum of 150 mS/m	50mS/m above background receiving water, to a maximum of 100mS/m
Ortho-Phosphate as phosphorous (mg/l)	10	1 (median) and 2,5 (maximum)
Fluoride (mg/l)	1	1
Soap, oil or grease (mg/l)	2,5	0
Dissolved Arsenic (mg/l)	0,02	0,01
Dissolved Cadmium (mg/l)	0,005	0,001
Dissolved Chromium (VI) (mg/l)	0,05	0,02
Dissolved Copper (mg/l)	0,01	0,002
Dissolved Cyanide (mg/l)	0,02	0,01
Dissolved Iron (mg/l)	0,3	0,3
Dissolved Lead (mg/l)	0,01	0,006
Dissolved Manganese (mg/l)	0,1	0,1
Mercury and its compounds (mg/l)	0,005	0,001
Dissolved Selenium (mg/l)	0,02	0,02
Dissolved Zinc (mg/l)	0,1	0,04
Boron (mg/l)	1	0,5

\*After removal of algae

# From Government Notice No 399 dated 26 March 2004

**FACTORS TO BE CONSIDERED IN THE PLANNING AND**

**DESIGN OF ON-SITE SEWAGE TREATMENT PLANTS**

Whereas the specific design, location and operating parameters for small sewage treatment plants are the responsibility of the professional engineer/technologist engaged by the developer/home owner for that function some of the factors relating to:

- The environmental impact of such plants
- The potential nuisance of such plant to premises in close proximity
- The potential of such plant to cause pollution of local streams
- Public health and safety

are listed below.

All such plant installations must accord with best practice, be designed to generally accepted engineering principles and avoid or mitigate problems of nuisance or malfunction.

1. Load Variation

The design must allow for the large variations in flow and organic loading, both on a diurnal and seasonal (holiday periods etc) basis, that are typically experienced by small treatment plants serving small groups of people such as in the case of cluster housing schemes, schools and institutions.

The source and nature of the wastewater treated and the type of development served must be accurately known and the plant designed and sized appropriately.

If the plant is not adequately designed to cater for the peak hydraulic and organic loads, consequences could be suspended solids carry over, off-spec. effluent, soak-away clogging, stream pollution and inadequate sterilisation of the effluent.

Some form of flow balancing may well be necessary. This is often accomplished by incorporating an enlarged septic tank ahead of the biological treatment stage but care must be taken to avoid increased risk of odour nuisance with such an arrangement or with sewage holding/balancing tanks.

There can be other advantages associated with the inclusion of such an anaerobic stage and the responsible professional will be required to provide motivation if a septic tank is not to be provided.

In the case of Biological Trickling Filter plants the adequate design, operation and maintenance of the flow distribution system is important for adequate treatment of the sewage particularly during periods of low flow.

## 2. Back Up System

Measures must be taken to provide for mechanical, electrical, operational or process failure and malfunction of the plant.

Details in this regard are to be submitted with the application for installation of the plant.

As a minimum there must be

- an alarm system to warn of an electrical failure
- sufficient standby equipment / (eg aerator / blower / pump etc) such that there is a reasonable assurance that the plant can be fully functional within 24 hours.

## 3. Odour

- Package sewage plants, by their very nature, will generate odours at times and under certain conditions but sewage odours are normally confined to the immediate vicinity of the plant and do not usually carry great distances.
- Odour nuisance may arise as a result of mechanical failure, organic overload or under-capacity aeration equipment.
- In valley situations on calm winter nights temperature inversions occur, which condition is conducive to entrapment and build-up of any odour release.
- The plant should be located as far as possible from the closest residential unit on the property but should also not be positioned any closer to the boundary of the neighbouring property than it is to the closest residential unit on its own property.
- Prevention of odour nuisance may be dealt with by enclosure of the plant and extraction of off-gasses for recycling through the aerobic biological treatment unit or through a separate biofilter unit (The latter unit will require media replacement approximately every 3 to 5 years).

## 4. Noise

- High speed blowers, compressors and motors should either be housed in a sound proof room or their use avoided.
- As in the case of odour, to avoid noise nuisance the plant should be located as far from residential units as possible, whilst also taking neighbouring properties into account.

## 5. Psychoda Flies

- These inhabit Biological Trickling Filters as an important component of the biological life on the filter necessary for good performance of the filter. They are normally confined to the immediate vicinity of the filter but may at times and under certain wind conditions be blown to nearby residence where they may constitute a temporary nuisance.

6. Visual Intrusion

- The plant should be screened from residences and neighbours (with trees or shrubs) and/or sunk into the ground. Note however that leaves shed from trees can cause clogging problems in treatment units.
- If the plant is totally enclosed in an aesthetically pleasing building it will be essential to provide adequate ventilation before persons enter (see below).

7. Public Health and Safety

- Access to children must be prevented at all times.
- Adequate ventilation must be provided before any person, including the plant supervisor and maintenance and operating personnel, enters enclosed areas or confined spaces on the plant due to the possible presence of toxic or explosive gases (such as hydrogen sulphide and methane) or to oxygen deficiency.
- For effluent sterilisation, if chlorine is to be used it should preferably be in the form of solid or liquid hypochlorite rather than chlorine gas from cylinders of liquid chlorine which constitute a potential hazard and has implications for public safety if not properly supervised, handled, maintained and secured.

Continuous flow-proportional dosage system and adequate contact time essential.

- The plant must be secured to prevent unauthorised access.

8. Waste Disposal

- The removal of waste sludge from the plant should be arranged through a registered waste disposal contractor and disposed of at an approved Metro disposal point (not into a sewer manhole) or in such a manner as approved by the Department of Water Affairs in consultation with the Metro Health authority.
- Adequate access to allow for the removal of waste sludge must be provided.

**DETAILS OF PERFORMANCE GUARANTEE**

## **PERFORMANCE GUARANTEE**

To:

The City Manager  
eThekweni Municipality  
City Hall  
DURBAN

Sir

### **PERFORMANCE GUARANTEE**

I/We, in my/our capacity/capacities ..... and as the duly authorised representative/s of ..... (hereinafter referred to as “the Bank”) hereby bind the Bank irrevocably unto the eThekweni Municipality (hereinafter referred to as the “Municipality”) for the effective and efficient performance of the sewage treatment plant to be installed at ..... by ..... (hereinafter referred to as “the Developer”) in terms of achieving, at all material times, quality compliance with the General Limit Values (hereinafter referred to as “the prescribed General Limit Values”) applicable to the Discharge of Wastewater into a Water Resource, as published in Government Notice No. 399 dated 26 March 2004.

This Guarantee shall be on the following conditions:-

1. The total liability of the Bank to the Municipality arising from this Guarantee shall not exceed the sum of .....
2. The Municipality shall, without reference and/or notice to the Bank, have complete liberty of action to take whatever steps the Municipality may deem appropriate for the purposes of ensuring that the sewage treatment plant achieves quality compliance, at all material times, with the prescribed General Limit Values. The Head: Water and Sanitation shall have sole discretion as to whether the sewage treatment plant is/is not achieving quality compliance, at all material times, with the prescribed General Limit Values.
3. The Bank undertakes to pay to the Municipality such amounts as may be claimed from time to time, in writing, by the Municipality’s Head: Water and Sanitation. The Bank shall, within fourteen (14) days of receipt of a claim, make payment to the Municipality’s Head: Water and Sanitation at 3 Prior Road, Durban.
4. A payment made by the Bank to the Municipality in terms of this Guarantee shall be subject to adjustment as between the Bank and the Municipality as and when final details of the Municipality’s claim are ascertained.
5. The Bank reserves the right to withdraw from this Guarantee at any time by depositing the guaranteed amount with the Municipality, whereupon the Bank’s liability ceases.
6. This Guarantee is neither negotiable nor transferable, and is limited to the payment of money only and :-

- (a) must be returned to the Bank pursuant to the provisions of clause 5 above, and
- (b) shall lapse pursuant to the provisions of clause 8.

- 7. This Guarantee shall be produced for endorsement if any part payment is made.
- 8. This Guarantee shall remain valid for a period of five years calculated from ..... and shall terminate upon the expiry of such period and be of no further force and effect : provided that if any claim made by the Municipality prior thereto, has not been paid at that date, the Bank's liability to the Municipality under this Guarantee in respect of such claim shall only be extinguished when such claim has been paid.
- 9. The Bank hereby chooses domicilium citandi et executandi for all purposes arising hereon at .....

SIGNED at \_\_\_\_\_ on this \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_

For and on behalf of \_\_\_\_\_

Address \_\_\_\_\_

\_\_\_\_\_



**ADDITION TO MANAGEMENT RULES OF**  
**BODIES CORPORATE REGARDING OPERATIONS AND**  
**MAINTENANCE SERVICE CONTRACT OBLIGATIONS**  
**IN RESPECT OF THE SEWAGE TREATMENT PLANT**

The management rules of the Body Corporate shall contain a rule provision, reading substantially as follows-

1. Operation and Maintenance of Sewage Treatment Plant on Common Property

The sewage treatment plant on the common property shall at all times be operated, monitored and maintained by a professional engineer/technologist for the purposes of ensuring quality compliance with the General Limit Values applicable to the discharge of waste water into a water resource, as prescribed by legislation.

It shall be the duty of the owners/members to ensure that an operation and maintenance contract is at all times in existence with a person contemplated in 1.1 above.

The owners/members shall be bound to accept the assignment (accrued debts and obligations excepted) of an operation and maintenance contract entered into by the Developer during the development period.

This rule may not be amended or repealed without the prior written consent of the Council.

**MINIMUM MONITORING REQUIREMENTS****FOR TREATED EFFLUENT DISCHARGE**

<p><u>For plants handling flows of less than 10m<sup>3</sup> / day:</u></p> <p>Faecal Coliforms (per100mP)  Chemical Oxygen Demand (mg/P)  Amonia as Nitrogen (mg/P)  Suspended Solids(mg/P)</p>	<p>Annually</p>
<p><u>For plants handling flows between 10 and 100 m<sup>3</sup> / day</u></p> <p>Faecal Coliforms (per100mP)  pH  Electrical Conductivity (mS/m)  Chemical Oxygen Demand (mg/P)  Amonia as Nitrogen (mg/P)  Suspended Solids(mg/P)</p>	<p>Monthly  Monthly  Monthly  Quarterly  Quarterly  Quarterly</p>
<p><u>For plants handling flows between 100 and 1000 m<sup>3</sup> / day</u></p> <p>Faecal Coliforms (per100mP)  pH  Electrical Conductivity (mS/m)  Chemical Oxygen Demand (mg/P)  Amonia as Nitrogen (mg/P)  Suspended Solids(mg/P)</p>	<p>Monthly</p>
<p><u>For plants handling flows between 1000 and 2000 m<sup>3</sup> / day</u></p> <p>Faecal Coliforms (per100mP)  pH  Electrical Conductivity (mS/m)  Chemical Oxygen Demand (mg/P)  Amonia as Nitrogen (mg/P)  Nitrate / Nitrite as Nitrogen (mg/P)  Free Chlorine (mg/P)  Suspended Solids(mg/P)  Ortho – Phosphate as Phosphorous (mg/P)</p>	<p>Monthly</p>



**ETHEKWINI WATER AND SANITATION UNIT**

**POLICY GUIDELINES FOR**

**THE SUBMISSION OF ALTERNATIVE**

**WATER AND SANITATION**

**RELATED PRODUCTS AND SYSTEMS**

ETHEKWINI WATER AND SANITATION UNIT  
GUIDELINES FOR THE SUBMISSION OF ALTERNATIVE  
WATER AND SANITATION RELATED PRODUCTS AND SYSTEMS

INTRODUCTION

These guidelines give a broad outline of the procedures followed by eThekweni Water and Sanitation (EWS) in order to assess the functioning of alternative water and sanitation related products and systems. These guidelines cover general policy of the Department regarding testing of products and its approach to acceptance of products as well as details of specific data requirements and criteria for assessment of products for use in the eThekweni Municipal Area (EMA).

These guidelines will generally only apply to those systems which do not comply with the National Building Regulations and S.A.B.S. 0400.

General Policy with Respect to Testing Products and Acceptance

EWS will not undertake product testing on behalf of a private organisation seeking acceptance of his product. All information and proof of performance required by EWS in order to gauge acceptability of the product must be supplied by the applicant at his cost. EWS may however wish to conduct further in-house testing on the product to either clarify or confirm certain data or information supplied by the applicant. Although the applicant may be informed of the broad outcome of such tests the detailed results will not be released.

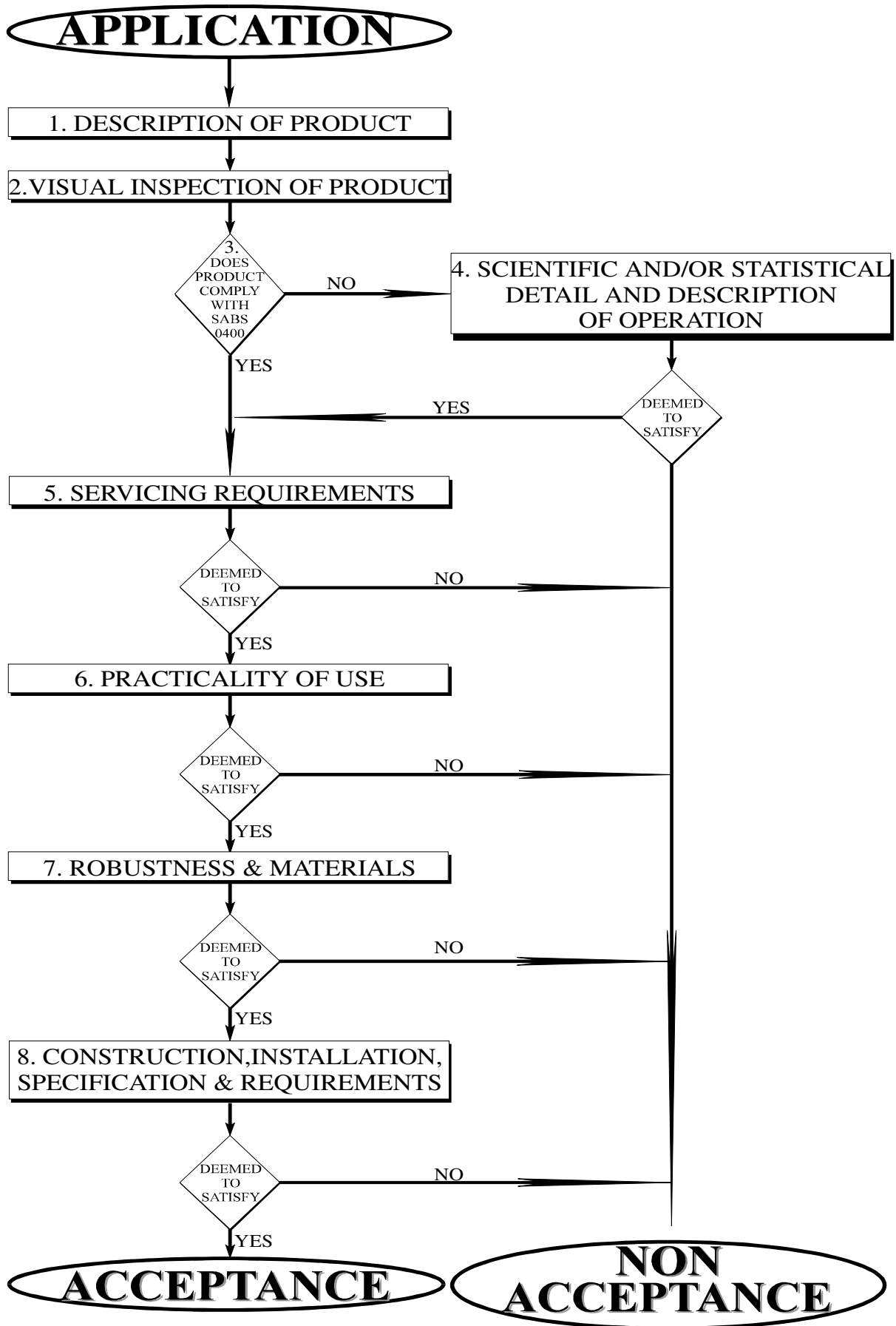
In instances where a product shows wide potential but the applicant is unable at that stage to supply all relevant information or test results for EWS to adequately assess the product then approval for use within the Metropolitan area will not be given. However EWS will endeavour to facilitate such further development testing, or research that it considers necessary, by the applicant.

Once evaluated, should the product satisfy the requirements, EWS will accept the product for use in the eThekweni Municipal Area (EMA) subject to compliance with all applicable policies, bylaws and legislation. This is in no way to be construed as an endorsement of the product for widespread use outside of the EMA.

Procedure and Criteria Applied by EWS

In assessing products EWS will use the National Building Regulations (NBR) and SABS 0400 as a datum. However EWS does not wish to limit efforts to resolve water and sanitation problems to existing technology only and by its very nature, future technology will not necessarily be covered by the NBR.

**THE FOLLOING FLOW CHART INDICATES THE BROAD PROCEDURE AND CRITERIA UNDER WHICH**



**APPLICATIONS WILL BE SCRUTINESED.**

### Information that needs to be supplied to the assessors

As a minimum, the supplier and/or promoter of a product and/or system must supply the following information to EWS. This information requirement is in no way intended to be exhaustive and should further information be required to adequately assess a specific application then EWS will call for it as and when required.

#### 1. Description of Product and System

- i) A clear description and/or illustration of the product/system, as well as descriptions/illustrations of the unit parts.
- ii) A clear and full specification of the product/systems intended use and how it is intended to function from the point of acceptance of waste, through its treatment, to ultimate disposal of all treated waste products.
- iii) The applicant shall state clearly the level of hygiene and public health impact achievable with specific reference to effective barriers against faecal related diseases, fly and vector infestation and odours.
- iv) A clear and detailed specification of the products intended purpose, its range of use, limiting factors, and operational criteria, which should include; geographic or geological conditions under which it may function; full application / design specifications in terms of hydraulic loading, biological loading, sizing of the units for applied loads and installation conditions.
- v) Whether the applicant considers the system to comply with the NBR or not.

#### 2. Visual Inspection

- i) The vendor must make the system/product easily available for visual inspection by the assessor.
- ii) Details of actual installations, period of operation, failures which have occurred, feedback of users, etc.

#### 3. Scientific and/or Statistical Details and Description of Operation

- i) A full scientific explanation of how the product should work and statistical evidence that the system works and under what limiting parameters it works.
- ii) Mass balance and loading diagrams, which indicate the functioning of the unit parts as well as the whole, for the following parameters

- a) Materials entering and leaving
  - b) BOD/COD/OA/PV entering and leaving
  - c) Water entering and leaving
- iii) If the parameters, in the influent to any unit part, exceed the ranges implied by NBR, then a description and scientific proof of how the subsequent units / system copes with the additional loads.
- iv) Scientific/statistical evidence confirming the operation and claims of the special features where appropriate.
- v) Applicants should make comment and indicate whether the system will cater for all waste water generated on the site. Water balance diagram should be provided for total water consumption on site where product/system is being used to dispose of only portions of the water.

*NOTE: Where testing or sampling has been undertaken by reputable, independent 3rd parties on behalf of the applicant this data would obviously carry more weight.*

*Where scientific or statistical evidence is used a detailed description of the intention of the tests, the method, result, interpretation of the results and conclusion are required.*



4. Servicing Requirements and User Operation

- i) Description of intended method of use by user.
- ii) Description of maintenance services required by the user including the frequency of services.
- iii) Description of services to be undertaken by the agent and the frequency of these services and costs where appropriate.
- iv) Description of services to be undertaken by the local authority including frequency and cost.
- v) List and or description of other services or additives (e.g. access, water, etc) required to maintain the product/system.
- vi) Diagram indicating access points and critical dimensions.
- vii) Description, number required, and cost of special tools and/or materials required for servicing.
- viii) For products/systems intended for the low income areas the following are required:
  - a) Description of how and where hard paper is handled (all systems intended for the low income areas must be able to handle newspaper as a minimum)
  - b) Description of how and where grit is handled.
  - c) Description of closures to access points with particular reference to the provision of ingress of extraneous materials.
- ix) Description, cost and availability of all specials.
- x) Ease of repair/replacement of components and costs.

5. Practicality of Use

- i) Description and diagrams with critical dimensions illustrating the minimum space requirements and positions of components.
- ii) Description of light requirements and sources.
- iii) Description of ventilation requirements and sources.

- iv) Description of odour control methods.
- v) Description of user operation
- vi) Cleaning methods
- vii) Description of all prohibitions on the system/product
- viii) Cost of running the system - Operating costs
- ix) Description of suitability of system to do it yourself@ repairs.

6. Robustness and Materials

- i) Copies of all JASWIC, Agrément Board or SABS certificates indicating fitness for use should be supplied where appropriate.
- ii) List and description of all parts and components which do not have JASWIC, Agreement Board or SABS certificates.
- iii) List of components and materials with a description of the appropriateness of the material for the application.

7. Construction/Installation Specification and Requirements

- i) Instructions, description and diagrams for installation/construction
- ii) Specifications and description of special parameters and or requirements for construction/installation
- iii) Description of expertise required by personnel doing installation
- iv) Description of any special techniques required for installation
- v) Description of site conditions which make installation inappropriate.