

DRAINAGE AND SANITATION SERVICES BY-LAWS

The Mbombela Local Municipality being a Water Services Authority as defined in the Water Services Act 108 of 1997 (“the Service Authority ”) hereby publishes the Drainage and Sanitation Services By-Laws set forth hereinafter, which have been made by the Water Services Authority in terms of section 21 of the Water Services Act 108 of 1997.

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CHAPTER I

1. DEFINITIONS

For the purpose of these by-laws and unless the context otherwise indicates -

“adequate” or “effective” means adequate or effective in the opinion of the Service Provider and “approved” means approved by the Service Provider, regard being had in all cases to all the circumstances of the particular case and accepted principles of drainage installation and, in the case of any appliance, fitting or object, to the purpose for which it is intended to be used

“anti-siphonage pipe” means any pipe or portion of pipe provided for the protection of a water seal or trap against unsealing by siphonage or back pressure;

“Apparatus” means any equipment, tool, device, meter, connection, system or network, service connection, service protection device, articulation network, communication pipe, supply mains, or part thereof, supplied or used in the supply, distribution or conveyance of services or the measurement or consumption of services.

“Authorized personnel” means any employee, agent, sub-contractor, or representative of the **Service Provider** or any person duly authorized by the **Service Provider** to perform any function under **these By-Laws**.

“block plan” means a plan drawn to scale showing the size, shape and measurements of any piece of land and the position thereon of existing and proposed buildings and drainage installation or portion thereon;

“branch drain” means a drain which discharges in another drain;

“branch anti-siphonage pipe” means an anti-siphonage pipe connecting two or more individual anti-siphonage pipes to a main anti-siphonage pipe or to a ventilation pipe;

“branch pipe” means any pipe conveying soil-water or waste-water either separately or together to a stack or other vertical pipe;

“conservancy tank” means a tank used for the reception and temporary retention of the discharge from a drainage installation;

“connecting sewer” means that part of a sewerage system which connects a drain to the sewer;

“council” means the Council of the municipality;

“developed length” of any pipe means the length between two specified points on such pipe measured along the centre line of the pipe including any bend, junction or similar fitting;

“drain” means that portion of a drainage installation, other than soil-water pipes, waste-water pipes, ventilation pipes and anti-siphonage pipes which does not form part of the sanitation services works and which is laid in the ground and used or intended to be used for conveying sewage to a conservancy tank or a septic tank and includes a conservancy tank or a septic tank;

“drainage installation” means and includes any drain, soil-water pipe, stack, waste-water pipe, ventilation pipe, anti-siphonage pipe, soil-water fitting, waste-water fitting, mechanical appliance or any other work or fitting or combination thereof for the conveyance of sewage and which does not form part of the sanitation services works ;

“drainage work” means any construction or reconstruction of or any alteration or addition to, or any work done in connection with a drainage installation but shall not include any work undertaken solely for purposes of repair or maintenance;

“group” means a combination of sanitary fittings comprising not more than one each of a water-closet, wash hand basin, sink, shower, bidet and bath;

“horizontal pipe” means any soil-water pipe or waste-water pipe other than a branch pipe, which is inclined at an angle of less than 45 degrees to the horizontal;

“industrial effluent” means any liquid, whether or not containing matter in solution or suspension, which is given off in the course of or as a result of any trade or industrial operation, including, mining

operations, and includes any liquid other than soil-water or waste-water or storm water;

“individual anti-siphonage pipe” means an anti-siphonage pipe installed to protect a single sanitary fitting;

“main anti-siphonage pipe” means the pipe to which branch anti-siphonage pipes are connected and which is either extended independently to discharge into the open air or is connected to a ventilation pipe;

“Municipality” means the **Mbombela Local Municipality** established in terms of **Section 12 of the Local Government: Municipal Structures Act, 1998: Disestablishment of existing municipalities and establishment of new municipalities**

“one-pipe system” means a drainage installation in which the discharges from soil-water fittings and waste-water fittings are carried to a drain by a common pipe and in which the water seal of the traps of all waste-water fittings connected to such installation are individually protected by anti-siphonage pipes;

“piece of land” means any piece of land registered in a deeds registry as an erf, stand, lot, plot or other area, or as a portion or a subdivision of such erf, stand, lot, plot to other area, or any defined portion not intended as a public place, of a piece of land proclaimed as a township, or of a piece of land which is held under surface right permit or under mining title or which, being proclaimed land not held under mining title, is used for residential purposes or for purposes not incidental to mining operations;

'premises' means any land and any building, erection or structure above or below the surface of any land;

"sanitary fitting" means any soil-water fitting and any waste-water fittings;

"sanitation services" mean collectively the collection, removal, disposal, purification or treatment of human excreta, domestic waste-water, waste and sewage effluent resulting from the use of water for domestic purposes, and industrial effluent;

"sanitation services works" means all movable and immovable assets owned, built, installed or used by the Service Provider for the purpose of providing sanitation services, consisting of inter alia any treatment works, conveyance pipe, pump house, access road, pumping installation, electricity transmission line, pipeline meter, fitting or apparatus, or, if the context is appropriate any one of them built, installed or used to provide sanitation services;

"septic tank" means any tank designed to receive sewage and to effect the decomposition of organic matter in sewage by bacterial action;

Services area means the respective area or areas within the municipal boundaries of the **Municipality to which sanitary and drainage services are provided by a Service Provider**

Services Provider means the Services Authority and any Services Provider who provides sanitary and drainage services to consumers in a

services area pursuant to a written contract with the Services Authority, and "Service Provider" shall have a corresponding meaning.

"services authority" means the Municipality, a services authority as defined in the Water Services Act 108 of 1997 and "service authority" shall have a corresponding meaning.

"sewage" means soil-water, waste-water or industrial effluent whether separately or together;

"sewer" means any pipe or device which forms part of the sanitation services works and is used or designed or intended for use for or in connection with the conveyance of sewage;

"single stack system" means a modification of the one pipe system in which the water seals of the traps of the waste-water fittings or soil-water fittings are not individually protected by anti-siphonage pipes and in which the system is specifically designed in terms of these by-laws to protect the water seals of the traps of all such fittings by means of the said stack with or without the aid of a supplementary ventilation pipe;

"soil-water" means any liquid containing human or animal excreta;

"soil-water fittings" means any fittings used for the reception and discharge of soil-water;

“soil-water pipe” means any pipe, other than a drain, used for the conveyance of soil-water with or without waste-water;

“stack” means the main vertical component of a drainage installation or any part thereof other than a ventilation pipe;

“storm water” means any liquid from natural precipitation or accumulation and includes rain-water, spring-water and ground-water;

“supplementary ventilation pipe” means a pipe installation to supplement the ventilation of a single stack drainage system;

“Tariff” means the tariff of charges **determined by the Service Authority from time to time in accordance with these By-Laws.**

"The Service Provider" means a Service Provider having jurisdiction in a particular services area.

“treated effluent” means the liquid effluent discharged from a sewage treatment works;

“two-pipe system” means a drainage installation in which the discharges from soil-water fittings and waste-water fittings are conveyed to a drain by separate pipes and in which the waste-water pipes are separately ventilated and are separated by traps from the drain;

“ventilation pipe” means any pipe or portion of a pipe, not conveying any liquid, used to ventilate a drainage installation;

“vertical pipe” means any soil-water pipe or waste-water pipe, other than a branch pipe, which is inclined at an angle of more than 45 degrees above the horizontal;

“waste-water” means any liquid other than soil-water, industrial effluent or storm water;

“waste-water fittings” means any fitting used for the reception and discharge of waste-water;

“waste-water pipe” means any pipe, other than a drain, used for the conveyance of waste-water.

CHAPTER II

2. SCOPE OF BY-LAWS

- 2.1 These by-laws shall apply to every drainage installation, and in particular to the design and construction of any such installation in any new building or existing building to any installation required by the Service Provider to be constructed in terms of **section 6** or to any alteration or addition to an existing drainage installation whether or not required by the Service Provider to be made in terms of these by-laws.
- 2.2 Every drainage installation shall both during its construction and on its completion be subject to such inspection, approval, tests and control as the Service Provider shall deem fit or require.

CHAPTER III

3. COMPLAINTS

- 3.1 Each Service Provider shall, within practical and financial constraints establish:
- (i) a central complaints/feedback office;
 - (ii) a centralized database in order to enhance co-ordination of complaints and the resolution thereof as well as effective communication with consumers;

- 3.2 Any person aggrieved by any decision given or acts done by authorized personnel or any officer in terms of these by-laws in connection with a drainage installation or any work connected therewith, shall have the right to complain to the Service Provider having jurisdiction.
- 3.3 Such a complaint must contain full personal and/or business particulars of the consumer, the relevant account number, direct contact number, address and any other particulars required by the Service Provider.
- 3.4 Pending the outcome of the complaint, and if applicable, the consumer must pay an amount equal to the average of the monthly total of the preceding three month' s accounts where history of such an account is available. Where no such history is available the consumer shall pay an estimate provided, not later than the date due for payment thereof;
- 3.5 Failure to make interim payments as contemplated herein will render the customer liable for disconnection of the services.
- 3.6 Upon receipt of the complaint, the relevant department shall give a written acknowledgment thereof, investigate the matter and inform the customer in writing of the outcome of such investigation. The Service Provider shall give reasons for its decision.
- 3.7 Any adjustment to the consumer's account as a result of the investigation shall be made within one month.

- 3.8 The decision of the authorized official shall be final.
- 3.9 No dispute, enquiry or complaint will be reconsidered after the outcome thereof has been communicated to the consumer.
- 3.10 If the consumer is not satisfied with the outcome of the investigation, and where applicable, the consumer must pay the amount in dispute under protest before approaching a court of law for the necessary relief.

CHAPTER IV

4. DOMICILIUM CITANDI AND NOTICES

- 4.1 Every notice, order or other document issued or served by the Service Provider in terms of these by-laws shall be valid if signed by an officer of the Service Provider duly authorized thereto.
- 4.2 Any notice, order or other document served in terms of these by-laws on any person shall be so served by delivering it, or a true copy thereof, to the person to whom it is addressed personally or at his/her last known residence or place of business or by posting it in which case it shall be deemed to have been served five days after it was posted.
- 4.3 Every notice, order or other document issued or served in terms of these by-laws shall specify the premises to which it relates, but may refer to the person for whom it is intended as “the owner” or “the occupier” if his/her name is not known.
- 4.4 For the purpose of the service of any process, notice, order or other document in terms of these by-laws, the address of the consumer

registered in the records of the Service Provider shall be deemed to be the domicilium citandi et executandi of the consumer.

CHAPTER V

5. PAYMENT FOR USE OF SEWERS

- 5.1 All amounts to be paid for the use of the sewers or for discharges into the sewers or otherwise in connection with the provision of sanitation services shall be as prescribed in terms of the tariff fixed in terms of these By-Laws and shall be payable by the owner or occupier of the premises in respect of which the amounts to be paid are raised.
- 5.2 The owner and occupier shall be jointly and severally liable for payment of all sanitation services and charges.**
- 5.3 It is the duty of the consumer to ensure that accounts are received and payment effected notwithstanding the fact that it may not have been received. It shall be presumed unless proven otherwise that any such account has been timeously received by the consumer.**
- 5.4 It is the duty of the owner to ensure that at all times that the consumer is not in arrears with payments.**

CHAPTER VI
GENERAL PROVISIONS

6. COMPULSORY CONSTRUCTION OF A DRAINAGE INSTALLATION

- 6.1 Where a sewer is available for the drainage of any premises in or on which sewage is produced, such premises shall be provided with a drainage installation connected to the sewer.
- 6.2 The owner of any premises not having a drainage installation terminating at a point of discharge into the sewer prescribed by these by-laws shall, within twenty weeks of receiving notice from the Service Provider requiring him/her to do so, construct or cause to be constructed a drainage installation on the premises and shall do all work necessary for and all things required in terms of these by-laws in connection with the construction of such drainage installation, and shall pay the tariff due in respect of the connection thereof to the sewer.
- 6.3 The owner as aforesaid shall give written notice to the Service Provider when any pail or conservancy tank service rendered to the property is no longer required, and shall remain liable for payment for that service until he/she has done so.
- 6.4 If the owner fails within the said period of twenty weeks to comply with a notice served on him/her in terms of this section he/she shall thereafter without detracting from his/her liability for payment in respect of the use of the sewer as prescribed by these by-laws, pay amounts at three times the prescribed tariff for the said pail or conservancy tank service until a drainage installation as required by the said notice and complying with these by-laws is connected to the sewer and the Service Provider has been notified thereof.

- 6.5 Where any part of a building or premises is at such a level in relation to the sewer that a drainage installation serving that part cannot discharge into the sewer by gravitation the Service Provider may, subject to the provisions of section 66 and to any conditions it may deem necessary, permit the sewage from such part to be raised by a mechanical appliance to discharge at such point and such level as it shall determine.
- 6.6 Every contractor or other person employing workmen for the construction of any building or for the carrying out of any other work on any piece of land to which a sewer is available for the drainage of building constructed or to be constructed thereon, shall provide water closet accommodation connected to the sewer for such workmen.

7. CONNECTION TO SEWER

- 7.1 No part of any drainage installation shall extend beyond the boundary of the piece of land on which the building or part thereof served by the drainage installation is erected: Provided that, where it considers it necessary or expedient to do so, the Service Provider may permit the owner to lay a drain at his/her own expense through an adjoining piece of land on proof of the registration of an appropriate servitude or of a notarial deed of joint drainage, as the Service Provider may require.
- 7.2 The Service Provider shall have the right to prescribe to what point in the sewer and at what depth below the ground any drainage installation is to be connected and the route to be followed by the drain to the connection so to be made and may, at its discretion, having regard to the necessity of maintaining correct levels, require the owner not to commence the construction or the connection of the drainage installation as the case may be, until the connecting sewer has been laid.

- 7.3 Without prejudice to the provisions of section 24 concerning the testing of drainage installations, the Service Provider shall, as soon as practicable after being notified by the owner that the drainage installation on his/her premises is ready for connection to the sewer, at the owner's own expense, effect the connection or cause it to be effected.
- 7.4 Any connection required by the owner subsequent to that made by the Service Provider shall be subject to the approval of the Service Provider and shall be effected at the owner's expense.
- 7.5 No person shall permit the discharge of any substance whatsoever other than clean water for testing purposes to enter any drainage installation until the drainage installation has been connected to the sewer.
- 7.6 Save as may be otherwise authorized by the Service Provider, in writing, no person other than authorized personnel, shall connect any drainage installation to the sewer.

8. COMMON DRAINS

The Service Provider may permit a drainage installation on any two or more pieces of land, whether or not in the same ownership, to discharge into the sewer through a common drain.

9. DISCONNECTION

- 9.1 Except for the purposes of and for carrying out of any work of maintenance or repair, no soil-water fitting to soil-water pipe shall be disconnected from any soil-water pipe or drain, and no drain shall be disconnected from any other drain or from a sewer without the prior lodging of an application in the manner, so far as applicable, prescribed in terms of section 20: Provided that no payment shall be required by the Service Provider in respect of an application made in terms of this section.
- 9.2 Where any part of a drainage installation is disconnected from the remainder thereof because it will no longer be used, the said part so disconnected shall be destroyed or entirely removed from the premises on which it was being used unless the Service Provider shall otherwise permit, having regard to the impracticability of such destruction or removal, and all openings in the installation or in the said part if left in position, created by the disconnection, shall be effectively sealed to the satisfaction of the Service Provider.
- 9.3 Due notice in writing in advance of any disconnection shall be furnished to the Service Provider who shall, after the requirements of this section have been complied with and on request of the owner, issue a certificate to the effect that the disconnection has been completed in terms of these by-laws and that any amounts raised in respect of the disconnected portion of the drainage installation shall cease to be raised with effect from the first day of the month following the issue such certificate: Provided that until such certificate shall have been issued by the Service Provider any such amounts to be paid shall continue to be raised.
- 9.4 When a drainage installation is disconnected from a sewer, the Service Provider shall seal the opening to the sewer so made and

the Service Provider shall recover from the owner the tariff prescribed for such work.

- 9.5 Any person who, without the permission of the Service Provider breaks or removes or caused or permits the breakage or removal of such seal referred to in this section, shall be guilty of an offence.

10. UNLAWFUL DRAINAGE WORK

- 10.1 Where any drainage work has been performed without complying with the provisions of these by-laws concerning the submission and approval of plans the owner shall, on receiving written notice by the Service Provider to do so, comply with the said provisions within the period prescribed in that notice.
- 10.2 Where any drainage installation has been constructed or any drainage work has been carried out which fails in itself in any respect to comply with any of these by-laws , the owner shall on receiving written notice by the Service Provider to do so, and notwithstanding that he/she may have received approval of plans in respect of the said installation or work in terms of these by-laws, carry out such alterations to the installations, remove such parts thereof and carry out such work as, and within the time which the notice may specify.
- 10.3 The Service Provider may, instead of serving notice as aforesaid or where such a notice has not been complied with within the time prescribed therein, proceed itself to carry out any such alteration, removal or other work as it may deem necessary for compliance with these by-laws and may recover the cost thereof from the owner by the ordinary process of law .
- 10.4 Should the Service Provider at any time become aware of any installation which does not comply with the provisions of these by-

laws or that any provision thereof has or is being contravened it may, forthwith and without notice carry out such alterations to the installation as it may deem necessary to effect compliance with the provisions of the said section and the Service Provider may recover from the owner the appropriate amounts prescribed in terms of these by-laws.

11. MAINTENANCE

- 11.1 The owner or occupier of premises shall at all times keep and maintain in a proper state of repair and in working order any drainage installation thereon.
- 11.2 Where any part of a drainage installation is used by two or more owners or occupiers, they shall be jointly and severally liable in terms of this section for the maintenance and repair of such drainage installation.

12. PREVENTION OF BLOCKAGES

No person shall cause or permit such an accumulation of grease, oil, fat, solid matter or any other substance in any trap, tank, pipe, drain or fitting as will block it or prevent its effective operation.

13. CLEARING OF BLOCKAGES

- 13.1 When the owner or occupier of premises has reason to believe that a blockage has occurred in any drainage installation thereon, which would have an effect on the sanitation services works, he/she shall forthwith report the fact to the Service Provider.

- 13.2 Where such a blockage occurs in a drainage installation, any work necessary for its removal shall, be done by or under the supervision of a plumber or drain layer licensed in terms of these by-laws.
- 13.3 Any plumber or drain layer licensed as aforesaid shall, before proceeding to remove any such blockage from a drainage installation, notify the Service Provider by telephone or otherwise of his/her intention to do so, and shall when he/she has done so, notify the Service Provider of that fact and of the nature, location and cause of the said blockage.
- 13.4 The Service Provider itself shall, whether or not it has been requested by the owner to do so, be entitled in its own discretion to remove such a blockage from a drainage installation and the Service Provider may recover the costs thereof from the owner in accordance with the tariff prescribed in terms of these by-laws.
- 13.5 Should the clearing by the Service Provider of any such blockage in a drainage installation necessitate the removal or disturbance of any paving, lawn or other artificial surfacing on any premises, the Service Provider shall not be liable for the reinstatement or rehabilitation thereof.
- 13.6 Should any drainage installation on any premises overflow as a result of such an obstruction in the connecting sewer, and the Service Provider is reasonably satisfied that such obstruction was caused by objects emanating from the drainage installation, the owner and occupier of the premises served by the drainage installation shall be jointly and severally liable for the cost of clearing the blockage in accordance with the tariff prescribed in terms of these by-laws.
- 13.7 Where such a blockage has been removed from a drain or portion of a drain which serves two or more pieces of land, the amounts to be paid for the clearing of such blockage shall be recoverable in the

first place in equal portions from each of the owners thereof, who shall, however, be jointly and severally liable for the whole amount.

14. EMISSION OF GAS OR ENTRY OF SEWAGE

- 14.1 When in the opinion of the Service Provider a nuisance exists owing to the emission of gas from any trap or sanitary fitting or any other part of a drainage installation, the Service Provider may require the owner, at his/her own expense, to take such action as may be necessary to prevent the recurrence of the said nuisance.
- 14.2 Where any sewage, after being discharged into a drainage installation, enters any soil-water fitting or waste-water fitting connected to the same drainage installation whether by reason of surcharge, back pressure or any other circumstances, the Service Provider may by notice in writing require the owner to carry out within the period specified by such notice any work necessary to abate such entry of sewage and to prevent any recurrence thereof.

15. WORK BY THE SERVICE PROVIDER

- 15.1 Where any person has been required by the Service Provider by notice in terms of these by-laws to carry out any work whether by way of construction, repair, replacement or maintenance and has failed to do so within the time stipulated in such notice, the Service Provider, without prejudice to its right also to proceed against him/her for a contravention of these by-laws, proceed itself to carry out the work and may recover by the ordinary process of law applicable to the recovery of a civil debt the entire cost of so doing from the person to whom the notice was directed.

- 15.2 Where any work other than that for which a fixed amount is prescribed in terms of these by-laws is done by the Service Provider, the costs of which it is entitled in terms of these by-laws to recover from any person, there may be included in such costs such sum as will reasonably cover all expenditure reasonably incurred by the Service Provider.
- 15.3 Any damage caused to the sewers or any part of the sewerage or sewage treatment system by or in consequence of the non-compliance with or contravention of any provision of these by-laws shall be rectified or repaired by the Service Provider at the expense, to be assessed by it, of the person responsible for the said non-compliance or contravention or of causing or permitting same.

16. INTERFERENCE WITH SEWERS AND DRAINS

- 16.1 Only authorized personnel shall break into, enter or in any other manner whatsoever interfere with any part of the sanitation services works, whether or not situated on premises owned or controlled by the Service Provider.
- 16.2 No person shall break into, enter or in any other manner whatsoever interfere with any drain, trap, screen, inspection chamber or other work or any part of any drainage installation: Provided that this prohibition shall not apply to alterations to any drainage installation undertaken by a licensed drain layer carrying out work in accordance with plans approved by the Service Provider nor to any maintenance work carried out by a licensed drain layer or other person authorized by the Service Provider to undertake such work.

17. DISUSED CONSERVANCY AND SEPTIC TANK

If an existing conservancy tank or septic tank is no longer required for the storage or treatment of sewage, or if permission for such use is withdrawn the owner shall either cause it to be completely removed or to be completely filled with earth or other suitable material: Provided that the Service Provider may require such tank to be otherwise dealt with, or it may permit it to be used for some other purpose subject to such conditions as it may consider necessary, regard being had to all the circumstances of the case.

18. OBSTRUCTION AND FALSE INFORMATION

- 18.1 Authorized personnel shall have the right to enter upon any premises at any reasonable time in order to take samples of or test sewage or industrial effluent or to carry out any inspection or work in connection with a drainage installation which may be deemed necessary by the Service Provider.
- 18.2 An owner or occupier of premises who denies or causes or suffers any other person to deny entry to premises to authorized personnel demanding lawful entry, or who obstructs or causes or suffers any other person to obstruct authorized personnel in the performance of their duties, or who withholds or causes or suffers any person to withhold information required by authorized personnel for the purposes of carrying out their said duties, or who gives or causes or suffers any other person to give to authorized personnel any information which is to his/her knowledge false, shall be guilty of an offense.

CHAPTER VII
APPROVAL OF PLANS AND APPROVAL AND TESTING OF DRAINAGE
INSTALLATIONS AND FITTINGS

19. APPROVAL REQUIRED FOR DRAINAGE WORK

- 19.1 No person shall construct, reconstruct, alter, add to or make any permanent disconnection in or of any drainage installation without first having obtained the approval of the Service Provider in writing.
- 19.2 No drainage work mentioned in section 20 for which approval has been given as provided for in terms of these by-laws shall be commenced until after the expiration of two clear days after notice in writing has been served on the Service Provider stating the day on and time at which it is intended to commence the work.
- 19.3 Any person who commences any drainage work without applying to the Service Provider for approval thereof or before his/her application has been granted, or without giving notice as prescribed in terms of this section , or before the expiry of such notice, or who carries out any work otherwise than in accordance with the approval thereof given by the Service Provider by notice in writing to cease the work forthwith and for every day on which work is continued in contravention of such notice, shall without prejudice to any other penalty he/she may have incurred with regard to the same drainage work, be guilty of an offense.
- 19.4 Before any part of a drainage installation is permanently covered or otherwise rendered permanently inaccessible to visual inspection it shall be inspected and approved by the Service Provider and any person who shall have so covered or rendered inaccessible any part of any installation before such inspection has been made and such approval has been given shall, on being required by the Service

Provider to do so, at his/her own expense remove the covering and do whatever else that may be necessary to enable the Service Provider to carry out the said inspection and shall in addition be guilty of an offense.

- 19.5 Approval by the Service Provider of an application made in terms of this section shall be conveyed to the applicant in writing within two days from the date of application.

20. APPLICATION FOR APPROVAL

- 20.1 Every person shall, before commencing to construct, reconstruct, alter, add to, open or disconnect from a drain or from a sewer or connecting sewer any drainage installation, lodge with the Service Provider an application on a form provided by the Service Provider and signed by the owner of the premises concerned or his/her architect or other authorized agent, for approval of the work proposed together with the fees prescribed in terms of section 23.
- 20.2 An application as required shall be accompanied by one or more sets of drawings as the Service Provider may require, each set comprising a block plan of the premises and plans, elevations and sections indicating clearly the nature and extent of the proposed work: Provided that where the particulars required sufficiently appear on the other drawings herein referred to, no block plan need be furnished with the application.
- 20.3 One set of the required drawings shall be made in legible prints with a white background and shall be signed, the minimum size of all drawings to be not less than A4 (197mm by 240mm).
- 20.4 The plans, elevations and sections of the required drawings shall be drawn to a natural scale of not smaller than 1:200 except in the

case of block plans which shall be to a natural scale of not smaller than 1:500.

20.5 The plans, elevations and sections shall show -

20.5.1 the position and arrangement in any building of every waste-water and soil-water fitting to be installed therein;

20.5.2 the size, gradient and position of every drain, the size and position of every manhole, gulley trap, bend, soil-water pipe, waste-water pipe, anti-siphonage pipe and ventilation pipe, and the means of access to and inspection of drains;

20.5.3 the position and height of all chimneys, buildings, windows and other openings within a distance of 6m from the open end of any ventilation pipe;

20.5.4 the levels of the floors of the building, of any meters and in the case of sections, the levels of the ground in relation to the levels of drain throughout its length; and

20.5.5 as much as is necessary of any existing drainage installation which will be affected by the proposed work.

20.6 The block plan shall show -

20.6.1 the full extent of the piece of land on which the drainage work is to be carried out and the position of the buildings and the existing and proposed drains thereon;

20.6.2 the title deed description of the piece of land on which the drainage work is to be carried out and of all pieces of land contiguous thereto, the name of the township, agricultural holding or farm, and the name of any street on which any part of the said piece of land abuts; and

20.6.3 the north point.

20.6.4 On the drawings of drainage installations submitted in terms of these by-laws the terms specified in the left-hand column of the following table shall be depicted in the colour shown opposite to them in the right-hand column.

Drains and soil-water pipes	Brown
Ventilation pipe to drains and soil-water pipes	Red
Waste-water pipes	Green
Pipes for the conveyance of industrial effluent	Orange
Ventilation pipes to waste-water pipes	Blue
Existing approved drainage installations	Black

20.6.5 On the drawings the items specified in the left-hand column of the following table shall, if abbreviations are used, be identified by the abbreviations shown opposite to them in the right-hand column -

Access eye	AE
Anti-siphonage pipe	ASP
Bath	B
Bidet	By
Cast-iron pipe	CIP
Cleaning eye	CE
Earthenware pipe/Vitrified clay pipe	EWP
Fresh-air inlet	FAI
Gulley	G
Gulley-dished	DG
Grease trap	GT
Inspection chamber	IC

Inspection eye	IE
Manhole	MH
Outlet ventilation pipe	OVP
Rainwater pipe	RWP
Rodding eye	RE
Sink	S
Shower	Sh
Slop hopper	SH
Soil-water pipe	SP
Soil-water ventilation pipe	SVP
Urinal	U
Ventilation pipe	VP
Water closet	WC
Wash trough	WT
Waste-water ventilation pipe	WVP
Waste-water pipe	WP

20.7 Approval by the Service Provider of an application made in terms of this section shall be conveyed to the applicant in writing.

21. CHANGES IN APPLICATION AFTER APPROVAL

21.1 After approval by the Service Provider of an application has been conveyed to the applicant in writing, a departure or deviation from the work as so approved may thereafter be made with the prior written consent of the Service Provider, only after the owner has submitted an application for such departure or deviation, accompanied by the drawings and particulars specified and containing a clear indication of the nature of the proposed departure or deviation and of any part of the original proposed work which is to be superseded, altered or revised.

- 21.2 An application made in terms hereof shall be deemed to be a new application for which the fee prescribed shall be payable and in respect of which the provisions relating to approval by the Service Provider shall apply.

22 PERIOD OF VALIDITY OF APPROVAL

- 22.1 An approval given by the Service Provider shall become invalid in respect of any work covered by such approval which has not commenced within twelve calendar months of the date on which it was given unless the said work is associated with building operations which have commenced during the said twelve months.
- 22.2 Where work, not being work associated with building operations, has not been commenced within the said twelve months the owner shall, before proceeding with it, submit a new application form as prescribed, which application shall be deemed for all purposes to be a new application, and the owner shall not be entitled to a refund of any fees paid in respect of the original application but shall, on making the new application, pay to the Service Provider the fees prescribed.

23. APPLICATION FEES

- 23.1 The fees prescribed in terms of these by-laws shall be payable to the Service Provider in advance for the consideration of an application or for any such testing of any fitting as may be deemed necessary by the Service Provider prior to giving its approval thereto and no consideration shall be given to the application until the said fees have been assessed and paid.

- 23.2 Where an application is refused or withdrawn, the Service Provider may in its absolute discretion retain or refund the whole or any part of the fee paid in respect thereof.

24. TESTING AND APPROVAL OF DRAINAGE INSTALLATIONS

- 24.1 After the completion of a drainage installation or any part thereof, but before it is connected to a conservancy tank, a septic tank, the sewer or an existing approved installation, any one or more or all of the following tests shall in the presence of authorized personnel be conducted and completed to the satisfaction of the Service Provider -
- 24.2 the interior of every pipe or series of pipes between two points of access shall be inspected throughout its length by means of a mirror and a source of light, during the inspection a full circle of light shall appear to the observer, and the pipe or series of pipes shall be seen to be unobstructed;
- 24.3 a smooth ball having a diameter 12mm less than the nominal diameter of the pipe shall, when inserted at the higher end of the pipe, roll down without assistance or interruption to the lower end;
- 24.4 After all openings of the pipe or series of pipes to be tested having been plugged or sealed and all traps associated therewith filled with water, air shall be pumped into the said pipe or pipes until a manometric pressure of 38mm of water is indicated, after which without further pumping the said pressure shall remain greater than 25mm of water for a period of at least three minutes.
- 24.5 The aforesaid tests shall be carried out and the apparatus therefore shall be supplied at no expense to the Service Provider.

24.6 Where the Service Provider has reason to believe that any drainage installation or any part thereof has become defective it may require the owner thereof to conduct, at no expense to the Service Provider, any or all of the tests prescribed and if the installation fails to withstand any such tests to the satisfaction of the Service Provider, it may call upon the owner to carry out at his/her own expense, and within such period as it may stipulate, such repairs as may be necessary to enable the installation to withstand any or all of the said tests.

CHAPTER VIII

25. HYDRAULIC LOADS CARRIED BY DRAINAGE INSTALLATIONS

- 25.1 The hydraulic load discharge into or carried by a drain, a soil-water pipe or a waste-water pipe shall be calculated in units, hereinafter referred to as discharge units.
- 25.2 The hydraulic load at any point in a drain, soil-water pipe or waste-water pipe shall be the sum of the discharge units of all sanitary fittings the discharges from which enter such drain or pipe upstream of that particular point.
- 25.3 The hydraulic load expressed in discharge units discharged from any sanitary fitting specified in column 3 of the following table (table 1) shall be as specified in column 2 and in the case of any sanitary or other fitting not specified in the table, the hydraulic load shall be as specified in column 2 for the relevant diameter of the outlet of the trap of such fitting as specified in column 1.

TABLE 1

1 Nominal Diameter of Trap (mm)	2 Hydraulic Load in Discharge Units	3 Sanitary Fitting
32	$\frac{1}{2}$	Wash-hand basin, bidet
38	1	Bath, sink, shower, wash trough, wall hung urinal
50	$1\frac{1}{2}$	
75	$2\frac{1}{2}$	Channel type urinal
100	4	Water closet

25.4 The hydraulic load of all sanitary fittings the discharges from which are conveyed by a drain or part of a drain having a nominal diameter set out in column 1 of the following table (table 2) and a gradient set out in either column 5, 6, 7 or 8 shall not exceed the number of discharge units set out in the said table for such diameter and gradient of drain.

1	2	3	4	5	6	7	8
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MAXIMUM PERMISSIBLE HYDRAULIC LOAD IN DISCHARGE UNITS

Carried by a Drain having a Gradient

Nominal pipe or drain (mm)	Carried by a Vertical Pipe or Stack	Carried by a Branch Pipe	Carried by a Horizontal Pipe	Flatter than 1:100	Between 1:50 and 1:100	Between 1:25 and 1:50	Steeper than 1:25
32	1	½	½	not permitted	not permitted	not permitted	not permitted
38	8	2	2	not permitted	not permitted	not permitted	not permitted
40 OD	3	1	1	not permitted	not permitted	not permitted	not permitted
50 OD	16	3	3	not permitted	not permitted	not permitted	not permitted
50	24	4	4	not permitted	not permitted	not permitted	not permitted
65	42	10	10	not permitted	not permitted	not permitted	not permitted
75 OD	64	12	18	not permitted	not permitted	not permitted	not permitted
75	95	20	30	not permitted	not permitted	not permitted	not permitted
100 (110 OD)	500	90	175	1400	2000	2850	4000

125	1100	200	400	2600	3500	5100	7000
150 (160 OD)	1900	350	700	4100	6000	8500	12000
200	3600	600	1400	8700	13000	18000	25000
225	-	-	1900	12000	17500	24500	30000
250	-	-	2500	16000	23000	32000	45000
300	-	-	3900	26000	37500	52000	73500
375	-	-	7000	46500	67500	74000	132500

OD denotes nominal outside diameter.

- 25.5 The nominal diameter of any drain shall be not less than 100mm and no drain shall be laid to a gradient flatter than 1 in 60 without the consent of the Service Provider.

CHAPTER IX

DRAINS AND MANHOLES

26. DRAIN PIPES AND FITTINGS

- 26.1 All pipes, junctions, bends and associated fittings forming part of a drain shall be SABS approved and shall be made of vitrified clay or any other material approved by the Service Provider.
- 26.2 All pipes, junctions, bends and associated fittings forming part of a drainage installation shall be installed in a manner approved by the Service Provider.

27. JOINTS IN AND WITH DRAINS

- 27.1 All joints between pipes and appliances and fittings in a drainage installation shall be such that adjacent pipe barrels are concentric, inverts are true to line and grade and there are no internal obstructions.
- 27.2 All joints as aforesaid shall be so made that they are air and water-tight and that a badger of 6mm less in diameter than the nominal internal diameter of the pipe can pass freely through them.
- 27.3 Cement mortar for jointing vitrified clay pipes shall have a composition of not more than three parts of clean and sharp sand to one part of Portland cement and shall be properly caulked between the spigots and sockets of the pipes.

- 27.4 The joints between cast-iron spigot and socket pipes shall be formed with a gasket of hemp or yarn the depth of the socket when the gasket is properly caulked, and the remainder of the socket shall be filled with molten lead run at one pouring, or with lead fibre, and thereafter solidly caulked.

- 27.5 Alternative approved methods of jointing pipes and associated fittings made of vitrified clay or cast iron may be approved by the Service Provider.
- 27.6 Methods of jointing pipes and fittings made of such other materials as may be approved in terms of section 26(1) shall be as approved by the Service Provider.
- 27.7 Where in the opinion of the Service Provider the nature of the soil in which any pipes and associated fittings are to be laid is such that ground movement, which may result in fracture of the pipes or fittings, is likely to occur, flexible joints shall be formed either by the use of approved special pipes and fittings or by the use of approved jointing material which will permit joint movement to take place throughout the life of the drainage installation and withstand root penetration and not swell or deteriorate when in contact with sewerage or water.

28. LAYING ALIGNMENT AND GRADIENTS OF DRAINS

- 28.1 No person other than a plumber registered with the Service Provider shall lay cast-iron drains, nor shall any person other than a drain layer registered as aforesaid lay vitrified clay drains -

Provided that -

- 28.1.1 the jointing of vitrified clay pipes may be carried out by any person working under the supervision of a registered drain layer;
- 28.1.2 where in terms of section 26(1) the Service Provider has permitted a drain to be made of some material other than cast-iron or vitrified clay, the drain so made may at the discretion of the Service Provider be laid by

the holder of either a plumber's or drain layer's license.

- 28.2 Drains shall be laid in a straight line and at a uniform gradient between the points of access referred to in section 33 and in such manner that the barrel of every pipe is firmly supported throughout its length, and when so required by the Service Provider shall be laid on a bed of concrete.
- 28.3 Drains shall be laid at a gradient not steeper than 1 in 6 or flatter than 1 in 60: Provided that the Service Provider may at its discretion and on such conditions as it may prescribe, permit -
- 28.3.1 a gradient steeper than 1 in 6 or a gradient flatter than 1 in 60;
- 28.3.2 the construction of portions of drains in the form of inclined ramps at a slope not exceeding 45° below the horizontal.
- 28.4 Where ramps are constructed with pipes made of materials other than cast-iron, they shall be encased in concrete.

29. DRAINS ON UNSTABLE GROUND

Drains passing through ground which in the opinion of the Service Provider is liable to movement, shall be laid on a continuous bed of river sand or similar granular material not less than 100mm thick under the barrel of the pipe with a surround of similar material and thickness, and the joints of such drains shall be approved flexible joints complying with the requirements of section 27(7).

30. DRAINS WITHIN OR UNDER BUILDINGS

- 30.1 A drain or part thereof may be laid or may pass, as the case may be, within or under or through a building unless the Service

Provider shall decide otherwise, having regard to considerations of health and maintenance or other matters relevant to the particular case.

- 30.2 A drain or part thereof shall, where it is laid in an inaccessible position under a building, be without means of access to the part under the building, and except where the Service Provider permits a change of direction or gradient to or from the vertical, shall be without change of direction or gradient.
- 30.3 A drain or part thereof constructed of pipes made of cast-iron or vitrified clay shall, where it is laid in an inaccessible position under a building and except where otherwise permitted by the Service Provider, be laid on a bed of concrete at least 100mm thick having a composition of not less than 1 part of cement to 3 parts of fine aggregate and 6 parts of coarse aggregate, and where the pipes are made of vitrified clay or light duty cast-iron, they shall be encased in similar concrete having at all points a minimum thickness of 100mm measured from the external surface of the pipe.
- 30.3 Where a drain or part thereof is laid in an exposed position within a building, it shall be constructed of pipes made of cast-iron or other approved material and shall be adequately supported at intervals not exceeding 2m along its course.
- 30.4 If a drain passes through or under a wall, foundation or other structure, adequate precautions shall be taken to prevent the transmission of any load to such drain.

31. PROTECTION OF SHALLOW DRAINS

Any portion of a vitrified clay drain which is 450mm or less below the surface of the ground shall be encased in concrete composed of not less than 1 part of cement to 3 parts of fine aggregate and 6 parts of coarse aggregate and having a minimum thickness at all points of 100mm measured from the external surface of the pipe.

32. BRANCH DRAINS

- 32.1 Every branch drain shall be connected to another drain by means of a junction, not being a saddle junction, made especially for the purpose of such connection.
- 32.2 Every branch drain shall enter the other drain obliquely in the direction of the flow so that the included angle between the axes of the two drains does not exceed 45° .

33. ACCESS TO DRAINS

- 33.1 Every drain shall be provided as a means of access thereto with a manhole as prescribed in terms of these by-laws or with an access eye with or without a rodding eye, as the Service Provider may require, at the following points -
 - 33.1.1 within 1,5m of the point of connection with the connecting sewer;
 - 33.1.2 within 1,5m of the upper extremity of every drain or branch drain;
 - 33.1.3 at every change of direction of the drain, whether horizontal or vertical;
 - 33.1.4 at every point of junction with another drain.
 - 33.1.5 There shall in any case be a point of access to every drain at intervals of not more than 25m.
 - 33.1.6 Access to the interior of a drain shall be provided by means of either manholes or access pipes.

- 33.1.7 The lids of openings in access pipes shall be sealed with such approved material as will remain effective as a seal at all temperatures up to 70° C.
- 33.2 Where for any reason the provision of adequate means of access within 1,5m of the point of connection with the connecting sewer is impracticable on any private premises the Service Provider may, at the owners expense cause or permit a manhole to be constructed over the connecting sewer in such public place and in such position and of such materials and dimensions as the Service Provider may decide and in addition the owner shall bear the cost, as assessed by the Service Provider, of any alteration to an existing service in such public place which may by reason of the construction of the manhole be necessary.
- 33.3 The owner of the private premises referred to in herein shall, if required by the Service Provider, pay to the Service Provider the amounts set out in the relevant tariffs prescribed in terms of these by-laws as rental for the area of the public place occupied by the manhole.
- 33.4 The points of access to drains laid beneath paved areas shall be covered by adequate and appropriately marked removable slabs on the surface.
- 33.5 Where any part of a drainage installation passes under a building, it shall be provided with adequate means of access outside and as near as possible to the building at each point of its entry to and exit from the building.
- 33.6 In any circumstances not provided for in these by-laws, the Service Provider may require that access eyes or other approved means of access to a drain or to any part thereof be provided in such positions as it may deem necessary to render the interior of any part of such drain readily accessible for cleaning or inspection.

34. RODDING EYES

- 34.1 Rodding eyes required by the Service Provider in terms of section 33(1) shall be provided in the positions specified and shall comply with the prescribed requirements.
- 34.2 A rodding eye shall be provided -
- 34.2.1 within 1,5m of the point of connection between the drain and the connecting sewer;
 - 34.2.2 at the upper extremity of every drain;
 - 34.2.3 at every change of direction, whether such change of direction is horizontal or vertical;
 - 34.2.4 at the upper extremity of every branch drain the developed length of which is in excess of 3m; and
 - 34.2.5 at points not exceeding 25m apart along the drain.
- 34.3 Every rodding eye shall -
- 34.3.1 be constructed with pipes made of vitrified clay or of other material approved by the Service Provider and shall join the drain in the direction of the flow at an angle of not more than 45° and be continued upwards to ground level;
 - 34.3.2 be completely encased in concrete not less than 100mm thick composed of 6 parts of stone, 3 parts of sand and 1 part cement;
 - 34.3.3 in the case of a rodding eye which is inclined from the vertical have the concrete casing adequately supported by a pier constructed of concrete of similar composition;

34.3.4 be fitted with an approved cast-iron cover plate secured by bolts or screws made of brass or other corrosion-resistant material and surmounted by an approved concrete box with a cast-iron cover and frame measuring 300mm x 300mm and finished off with a 100mm wide granolithic surround level with the surrounding ground level: Provided that if a rodding eye is exposed to vehicular traffic, the cast-iron cover and frame shall be of a heavy duty type approved by the Service Provider.

35. MANHOLES

- 35.1 Every manhole in a drainage installation shall unless otherwise permitted by the Service Provider, be located in an open air space.
- 35.2 Every manhole shall be so constructed as to prevent the infiltration of water.
- 35.3 The walls of every manhole shall be constructed of concrete or brickwork supported on a concrete base not less than 150mm thick composed of not less than 1 part by volume of cement to 2 parts of final aggregate and 4 parts of coarse aggregate.
- 35.4 Except when otherwise permitted by the Service Provider the walls of any manhole shall, if constructed of brick work, be not less than 215mm thick and if constructed of concrete be not less than 150mm thick.
- 35.5 All bricks used in the construction of a manhole shall be hard and well burnt and shall be laid in a mortar consisting of not more than 3 parts of sand to 1 part of cement, and if the walls are constructed of concrete such concrete shall be composed of not less than 1 part of cement to 2 parts of fine aggregate and 4 parts of coarse aggregate.

- 35.6 Where the base of a manhole is traversed by an open channel -
- 35.6.1 the sides of the channel shall be brought up vertically to the soffit of the outgoing pipe and from that level the floor of the base of the manhole shall rise continuously to its walls at a slope of not less than 1 in 5;
 - 35.6.2 the walls shall be plastered internally with cement plaster not less than 12mm thick composed of not more than 4 parts of sand to 1 part cement; and
 - 35.6.3 the walls and floor shall be steel trowel led to a smooth finish.
 - 35.6.4 The walls of the manhole or the walls of any shaft giving access thereto shall be carried up to the level of the surrounding ground or floor.
 - 35.6.5 Access to the interior of the manhole shall be provided by means of cast-iron cover and frame complying with South African Bureau of Standards Specification no 558 supported by reinforced concrete slab; or the walls may be corbelled to support such frame and cover.
 - 35.6.6 The top of the manhole shall be finished off with granolithic surround not less than 150mm wide trowel led to a smooth finish.
- 35.7 Where a manhole is constructed in a place traversed by -
- 35.7.1 heavy vehicles, it shall be provided with a heavy duty cover;
 - 35.7.2 motor cars or similar light vehicles, it shall be provided with either a medium or heavy duty cover.

- 35.8 Every manhole exceeding 2m in depth shall have an unobstructed internal working height of at least 1,8m measured from the highest point of the floor thereof, and where the floor of a manhole is more than 1m below the cover, such cast-iron step-irons shall be provided in its walls as will ensure safe and convenient access to its base.
- 35.9 The internal length and width of a manhole shall be determined according to the depth between the cover and the lowest invert level of the manhole and shall in no case be less than the dimensions set out in the following table -

Depth	Length	Width
Not exceeding 750mm	600mm	450mm
Exceeding 750mm but not exceeding 2m	900mm	600mm
Exceeding 2m	1m	750mm

- 35.10 The dimensions of the access opening to a manhole provided with -
- 35.10.1 a rectangular cover shall not be less than 450mm by 600mm;
- 35.10.2 a square cover shall not be less than 600mm by 600mm;
- 35.10.3 a circular cover shall not be less than 550mm in diameter.
- 35.11 Where a pipe leading to a manhole is at a higher level than the outlet pipe of the manhole, it shall be brought down to the invert level of the manhole by means of an inclined pipe encased in concrete and located outside the manhole, which pipe shall also be continued upwards to the surface of the ground and shall there terminate in a removable watertight cover or other similar approved device: Provided that where permitted or required by

the Service Provider the pipe at the higher level may be extended horizontally to terminate with or without a watertight cover in the manhole and in this case the inclined pipe needs to be continued upwards to the surface of the ground.

- 35.12 The recess in the frame of every manhole cover having a single seal shall be filled with grease having a high melting point and the cover shall be set therein to form an airtight seal.

CHAPTER X

GULLIES AND TRAPS

36. GULLEY TRAPS

- 36.1 Every drainage installation shall have one gulley trap provided with a dished gulley and a tap above supplied with running water and, except where a mechanical appliance for the raising of sewage is installed, the top of such gulley shall be not less than 150mm below the crown of the lowest situated trap of any sanitary fitting connected to the drainage installation.
- 36.2 No drainage installation shall have more than one gulley trap connected to it, unless otherwise authorized by the Service Provider.
- 36.3 Where it is impracticable for any waste-water pipe to be made to discharge into the gulley trap required or into a gulley trap authorized by the Service Provider such waste-water pipe shall be connected directly to a drain or to a soil-water pipe and the water seal of every trap connected to such waste-water pipe shall be protected in accordance with the requirements of these by-laws for the protection of water seals of traps installed on the one-pipe system.

37. REQUIREMENTS FOR GULLEY TRAPS

- 37.1 Every gulley trap shall have a minimum internal diameter of 100mm and a water seal at least 65mm in depth.
- 37.2 Every gulley trap shall be kept covered with a grating made of cast-iron or other approved material. The spaces between the bars of the grating shall be not less than 10mm or more than 12mm wide, and shall have an effective open area at least equal to the minimum cross-sectional area of the trap.

- 37.3 Every gulley trap laid in the ground shall be bedded on concrete not less than 100mm thick.
- 37.4 Every dished gulley shall rise at least 75mm above the level of the grating covering the gulley trap and in no case less than 150mm above the level of the surrounding ground; and the levels of the tops of all other gullies shall be at least 150mm above the surrounding ground.
- 37.5 the surface level of water in any gulley trap shall not be more than 500mm below the top of the dished gulley.
- 37.6 Where it is impracticable to comply with the dimension requirements as prescribed, the gulley trap shall be located in a manhole the walls of which shall be brought up to a height of at least 150mm above the surrounding ground and covered with an approved metal grating.
- 37.7 Every waste-water pipe which discharges into a gulley shall discharge at a point below the grating but above the surface of the water seal of the gulley trap.

38. GREASE TRAPS

- 38.1 A grease trap of approved type, size and capacity shall be provided instead of, or in addition to, a gulley as the Service Provider may decide, to take the discharge of waste-water from every sink or other fitting in -
- 38.1.1 every building the waste-water from which is disposed of in French drains or other similar works, and
- 38.1.2 any place where in the opinion of the Service Provider the discharge of grease, oil or fat is likely to cause an obstruction to the flow in sewer or drains, or

interfaces with the proper operation of any sewage treatment system.

39. INDUSTRIAL GREASE TRAPS

- 39.1 Industrial effluent which contains or, in the opinion of the Service Provider, is likely to contain grease, oil, fat or inorganic solid matter in suspension shall, before it is allowed to enter any sewer, be passed through one or more tanks or chambers of approved type, size and capacity designed to intercept and retain such grease, oil, fat or solid matter.
- 39.2 Oil, grease or any other substance which is contained in any industrial effluent or other liquid which gives off a flammable or noxious vapour at a temperature of or exceeding 20° C, shall be intercepted and retained in a tank or chamber is as to prevent the entry thereof into the sewer.
- 39.3 A tank or chamber shall comply with the following requirements -
- 39.3.1 it shall be of adequate capacity, constructed of hard durable materials and watertight when completed;
 - 39.3.2 the water-seal formed by its discharge pipe shall be not less than 300mm in depth; and
 - 39.3.3 it shall be provided with such number of manhole covers as may be adequate for the effective removal of grease, oil, fat and solid matter.

40. CLOGGING OF TRAPS, TANKS AND SIMILAR FITTINGS

No person shall cause or permit such accumulation of grease, oil fat or solid matter in any trap, tank or other fitting as will prevent its effective operation.

41. LOCATION OF GULLIES

- 41.1 The inlet of every gulley trap, grease trap or stable gulley shall be situated outside of any building or in place permanently open to the external air to an approved extent, and shall at all times be readily accessible for the purposes of cleaning or maintenance to the satisfaction of the Service Provider.
- 41.2 Every floor in a factory, stable or other premises from which liquid is discharged continuously or intermittently to a gulley shall have an impervious, smooth and durable surface and such gulley may be situated within a building, provided that the pipe receiving the discharges from such gulley discharges into another gulley trap the inlet of which is situated as required in terms of section 36(1).
- 41.3 A gulley trap or traps may be situated within any building in which an automatic water sprinkler system is installed to receive the water from such system, provided that the pipe or pipes receiving the discharges from such trap or traps are made to discharge into another gulley trap the inlet of which is situated as required in terms of section 36(1).

CHAPTER XI
VENTILATION PIPES AND ANTI-SIPHONAGE PIPES

42. VENTILATION PIPES - WHERE REQUIRED

- 42.1 A ventilation pipe complying with the relevant requirements of section 44 shall be provided for -
- 42.1.1 every drain;
 - 42.1.2 every branch drain the developed length of which exceeds 6m measured from the outlet of any sanitary fittings or traps served by it to its point of connection with a ventilation drain;
 - 42.1.3 every soil-water pipe the developed length of which, inclusive of the developed length of any unventilated drain into which is discharges, exceeds 6m measured from the outlet of any sanitary fitting served by it to the point of connection to a ventilated drain;
 - 42.1.4 every branch soil-water pipe which receives the discharges from only one sanitary fitting and which has a developed length greater than 6m measured from the outlet of such fitting to the point of connection to a ventilated soil-water pipe;
 - 42.1.5 every waste-water pipe the developed length of which exceeds 6m measured from the outlet of the trap of any waste-water fitting served by it to the point of discharge into a gulley or similar trap; or in the case of the one pipe system to its point of connection to a ventilated soil-water pipe or a ventilated drain; and
 - 42.1.6 every branch waste-water pipe the developed length of which exceeds 6m measured from the outlet of the

trap of any waste-water fitting served by it to a point of connection to a ventilated waste-water pipe.

- 42.1.7 Every soil-water stack which carries a hydraulic load greater than 50% of the load specified in column 2 of the table in section 25(4) shall, in addition to any ventilation pipe required in terms of the provisions of this section, be provided with a 100mm diameter ventilation pipe connected to such stack below the lowest point of entry to the stack of any branch waste-water pipe or soil-water pipe.

43. CHIMNEYS OR FLUES

No chimney or other flue shall be used for ventilating any drain, soil-water pipe or waste-water pipe.

44. VENTILATION PIPES AND ANTI-SIPHONAGE PIPES - GENERAL

- 44.1 Every ventilation pipe shall throughout its length have a nominal diameter not less than the diameter of the drain or soil-water pipe or waste-water pipe which it ventilates: Provided that if any branch drain or branch soil-water pipe carries the discharge from not more than one gulley or other trap or from not more than one soil-water fitting, the diameter of the ventilation pipe may be less than the diameter of the said drain or soil-water pipe but not less than 50mm.
- 44.2 The connection between a ventilation pipe and any drain or pipe mentioned in section 42(1) shall be made immediately downstream of the point of discharge into such drain or pipe of the uppermost connected sanitary fitting, gulley or similar trap.
- 44.3 Every individual anti-siphonage pipe shall be connected to the crown or soffit of the soil-water pipe or waste-water pipe on the outlet side of the protected trap obliquely in the direction of flow

at a point not less than 75mm or more than 750mm from the crown of such trap.

- 44.4 The nominal diameter of any anti-siphonage pipe shall be in accordance with the provisions of section 46.
- 44.5 Every ventilation pipe and every anti-siphonage pipe shall be carried upwards without any reduction in diameter and shall, throughout its length, be so graded as to provide a continuous fall from its open end back to the waste-water pipe or soil-water pipe or drain to which it is connected.
- 44.6 The open end of any ventilation pipe or any anti-siphonage pipe which passes through or is attached to a building, shall be not less than 600mm higher than that part of the roof which is closest to it and not less than 2m above the head of any window, door or other opening in the same building or any other building, whether forming part of the same premises or not, which is within a horizontal distance of 6m of the said open end: Provided that -
- 44.6.1 where a roof slab or any part thereof is used or is intended to be used for any purpose the pipe shall, unless the Service Provider shall otherwise permit, extend at least 2,5m above such roof or part thereof; and
- 44.6.2 the open end of any ventilation pipe or anti-siphonage pipe shall in no case be less than 3,6m above ground level.
- 44.7 Every individual anti-siphonage pipe shall, unless carried up independently, be connected to another anti-siphonage pipe or to a ventilation pipe at a point at least 150mm above the flood level of the sanitary fitting which it serves.
- 44.8 Where the two pipe system is used, a pipe which ventilates a soil-water pipe or protects the water-seal of the trap of a soil-water fitting shall not be connected to a pipe which ventilates a

waste-water pipe or a pipe which protects the water seal of the trap of a waste-water fitting.

- 44.9 Whenever, in the opinion of the Service Provider a nuisance exists owing to the emission of gas from a ventilation pipe or an anti-siphonage pipe, the Service Provider may require the owner at his/her own expense to extend the pipe upwards for so far as the Service Provider may prescribe as being necessary to eliminate such nuisance.
- 44.10 Where any new building or any addition to an existing building has any window, door or other opening so placed that the provisions of section 44.6 in respect of any existing ventilation pipe or anti-siphonage pipe, whether on the same or any other premises, are being contravened, the owner of such new building or addition shall, at his/her own expense take such action as may be necessary for compliance with the provisions of the said section.
- 44.11 Where the top of a ventilation pipe or an anti-siphonage pipe is more than 1m above the topmost point of its attachment to a building or other means of support, which part of the pipe which is above the said point shall be adequately stayed or shall otherwise be made secure.

45. ANTI-SIPHONAGE PIPES

- 45.1 Subject to the provisions of sections 50, 51, 52 and 53, the water seal of the trap of a soil-water fitting shall be protected by an individual anti-siphonage pipe complying with the relevant requirements of sections 44 and 46, in all cases where the discharges from such soil-water fitting are conveyed -
- 45.1.1 by an unventilated branch drain or an unventilated soil-water pipe or a combination thereof in which there is a fall of more than 1,2m within a horizontal distance of 300m of the crown of the trap of such fittings;

45.1.2 by an unventilated branch drain or an unventilated soil-water pipe which receives the discharges from any other soil-water fitting; or

45.1.3 by a vertical pipe or stack, including any inclined part thereof, which receives at a higher level the discharges from one or more other soil-water fittings; or

45.1.4 by a branch soil-water pipe which receives the discharges from any other soil-water fitting -

45.1.4.1 Provided that individual anti-siphonage pipes may be omitted in the case of those soil-water fittings the discharges from which are carried by a branch soil-water pipe if -

45.1.4.1.1 the hydraulic load carried by such branch soil-water pipe does not exceed 25 discharge units;

45.1.4.1.2 such branch pipe is connected to a 100mm diameter ventilation pipe in accordance with the requirements of section 44(2); and

45.1.4.1.3 not more than 16 such branch pipes discharge into the same soil-water stack or vertical pipe.

45.2 The water seal of the traps of waste-water fittings installed in accordance with the requirements of these by-laws for the two pipe system shall be protected by individual anti-siphonage pipes, unless approved resealing traps are installed: Provided

that this requirement shall not apply to a single bath, shower or sink having an independent discharge to a gulley trap and situated not more than 2m above or 3m from such gulley trap.

- 45.3 Subject to the provisions of sections 50, 51, 52 and 53, the water seals of the traps of waste-water fittings installed in accordance with the requirements of these by-laws for the one pipe system shall be protected by individual anti-siphonage pipes.

46. SIZES OF ANTI-SIPHONAGE PIPES

- 46.1 The nominal diameter of an individual anti-siphonage pipe for the protection of the water seal of the trap of a water closet pan shall be not less than 50mm.
- 46.2 The nominal diameter of an individual anti-siphonage pipe for the protection of the water seal of the trap of a urinal or a waste-water fitting shall be not less than 32mm or one half the diameter of the soil-water pipe or waste-water pipe to which the said individual pipe is connected, whichever is the greater diameter.
- 46.3 For the purposes of this section -
- 46.3.1 the developed length of a branch anti-siphonage pipe shall be the length of the pipe measured from its point of connection to a main anti-siphonage pipe or from its point of connection to a ventilation pipe, as the case may be, to the farthest individual anti-siphonage pipe connected to it;
- 46.3.2 the developed length of a main anti-siphonage pipe shall be the length of the pipe measured from the open end of such main anti-siphonage pipe, or from the open end of a ventilation pipe if the said main anti-siphonage pipe is connected to it, to its farthest point

of connection to a soil-water pipe or waste-water pipe.

- 46.3 Where at any point on a branch anti-siphonage pipe or on a main anti-siphonage pipe, as the case may be, the sum of the discharge units of all sanitary fittings, the individual anti-siphonage pipes of which are connected either directly or indirectly to the aforesaid branch or main anti-siphonage pipe downward of such point, falls within the sum of discharge units specified in column 1 of the following table the nominal diameter of the branch of main pipe at that point shall, be not less than the diameter specified in column 3 for the applicable developed length of such pipe as set out in column 2 of the table.

1	2	3	
Sum of discharge units of sanitary fittings connected to the branch or main anti-siphonage pipe	Developed length of branch or main anti-siphonage pipe (meters)	Nominal diameter of branch or main anti-siphonage pipe	
		Internal diameter (metallic pipes) (mm)	Outside diameter (non-metallic pipes) (mm)
1	unlimited		
1½ to 3	unlimited		
3½ to 8	not exceeding 30	38	50
	exceeding 30 but not exceeding 51	50	50
	exceeding 51	50	75
8½ to 16	not exceeding 9	38	40
	exceeding 9 but not exceeding 30	38	50
	exceeding 30 but not exceeding 51	50	50
	exceeding 51	50	75

16½ to 24	not exceeding 9	38	50
	exceeding 9 but not exceeding 30	50	50
	exceeding 30 but not exceeding 51	50	75
	exceeding 51	65	75
24½ to 42	not exceeding 5	38	50
	exceeding 30 but not exceeding 51	50	50
	exceeding 9 but not exceeding 21	50	75
	exceeding 21 but not exceeding 51	65	75
	exceeding 51 but not exceeding 75	75	75
	exceeding 75	75	110
42½ to 64	not exceeding 7	50	50
	exceeding 7 but not exceeding 15	50	75
	exceeding 15 but not exceeding 36	65	75
	exceeding 36 but not exceeding 60	75	75
	exceeding 60 but not exceeding 90	75	110
	exceeding 90	100	110
64½ to 95	not exceeding 5	50	50
	exceeding 5 but not exceeding 7	50	75
	exceeding 7 but not exceeding 27	65	75
	exceeding 27 but not exceeding 51	75	75
	exceeding 51 but not exceeding 75	75	110
	exceeding 75	100	110
	not exceeding 7	65	75
	exceeding 7 but not	75	75

95½ to 500	exceeding 18		
	exceeding 18 but not exceeding 24	75	110
	exceeding 24 but not exceeding 96	100	110
	exceeding 96	125	160
500½ to 1 100	not exceeding 5	65	75
	exceeding 5 but not exceeding 9	75	75
	exceeding 9 but not exceeding 15	75	110
	exceeding 15 but not exceeding 57	100	110
	exceeding 57 but not exceeding 177	125	160
	exceeding 177	125	160
1 100½ to 1 900	not exceeding 5	75	75
	exceeding 5 but not exceeding 7	75	110
	exceeding 7 but not exceeding 27	100	110
	exceeding 27 but not exceeding 75	125	160
	exceeding 75 but not exceeding 195	150	160
	exceeding 195	200	-
1 900½ to 3 600½	not exceeding 7	100	110
	exceeding 7 but not exceeding 21	125	160
	exceeding 21 but not exceeding 57	150	160
	exceeding 57 but not exceeding 222	200	-
	exceeding 222	225	-

CHAPTER XII**SOIL WATER AND WASTE WATER PIPE SYSTEMS****47. SOIL WATER PIPE AND WASTE WATER PIPE SYSTEMS**

47.1 Soil-water pipe and waste-water pipe installations shall comply with the requirements, as hereinafter set out for either of the following systems -

47.1.1 the one pipe system, or

47.1.2 the two pipe system, or

47.1.3 the single stack system:

Provided that the Service Provider may permit any combination of the requirements for each system if, in its opinion such combination will result in an adequately ventilated drainage installation and the effective protection of the water seals of all traps connected thereto.

48. REQUIREMENTS FOR THE ONE-PIPE SYSTEM

48.1 The following requirements shall apply to the one-pipe system -

48.1.1 all soil-water pipes shall be connected directly to a drain or to another so pipe similarly connected;

48.1.2 all waste-water pipes shall be connected directly to a drain or to a soil-water pipe; and

48.1.3 the depth of the water seal of the trap of every waste-water fitting shall be not less than 65mm not more than 100mm, and each such water seal shall be protected by means of an anti-siphonage pipe in

accordance with the relevant provisions of sections 44 and 46.

49. REQUIREMENTS FOR THE TWO-PIPE SYSTEM

- 49.1 The following requirements shall apply to the two-pipe system -
- 49.1.1 every waste-water pipe or system of waste-water pipes shall discharge into a gullet trap connected to a drain or to a soil-water pipe;
 - 49.1.2 every soil-water pipe shall be connected directly to a drain or to another soil-water pipe similarly connected; and
 - 49.1.3 the depth of the water seal of the trap of every waste-water fitting shall be not less than 38mm not more than 100mm, and the protection of the water seal of each such trap shall be effected in accordance with the provisions of section 45(2).

50. GENERAL REQUIREMENTS FOR THE SINGLE STACK SYSTEM

- 50.1. The following provisions and requirements shall apply in the case of the single stack system -
- 50.1.1 the single stack system shall be installed only in a building of the offices class or a residential building;
 - 50.1.2 the single stack system shall not be installed in any building the height of which exceeds 25 storeys above the lowest ground level abutting on such building;

Notwithstanding anything to the contrary in these by-laws contained individual anti-siphonage pipes for the protection of the water seals of the traps of sanitary fittings may be omitted

in any drainage installation carried out in accordance with the requirements of sections 51, 52 and 53.

51. SINGLE STACK SYSTEM: REQUIREMENTS FOR RESIDENTIAL AND OFFICE BUILDING

51.1 The following requirements shall apply in the case of the single stack system in both residential and office buildings -

51.1.1 the soil-water stack shall, at its topmost end, be continued upwards as a ventilation pipe to comply with the relevant provisions of section 44 and may, in addition, be provided with a supplementary ventilation pipe;

51.1.2 a supplementary ventilation pipe, shall have a nominal diameter of not less than 50mm and shall be connected to the soil-water stack at a point below the lowest branch pipe connected to such stack, and shall be continued upwards and be interconnected to such stack to the intervals prescribed for the buildings as required in sections 52 and 53.

51.1.3 the interconnection between a supplementary ventilation pipe and any other pipe shall be so located and made that no soil-water or waste-water can, under any circumstances, be discharged through any ventilation pipe;

51.1.4 the radius of the centre line of any bend installed at the lowest extremity of the soil-water stack shall not be less than 300mm;

51.1.5 no offset shall be made in any soil-water stack or waste-water stack unless a supplementary ventilation pipe is provided to relieve any pressure caused by the offset, and the nominal diameter of such ventilation pipe shall not be less than one half the diameter of the stack;

51.1.6 every waste-water trap shall be either a "P" trap of the resealing trap or other approved "P" trap with a water seal of not less than 75mm in depth;

51.1.7 the vertical distance between the invert of the lowest branch pipe connected to the stack and the invert of the drain at the point of connection between the stack and the drain shall be not less than 500mm in the case of a stack serving a building of not more than three storeys in height, and 3m in the other case;

51.1.8 where soil-water fittings and waste-water fittings are installed in ranges or batteries, the branch pipe conveying the discharges from the soil-water fittings shall be separate from the branch pipe conveying the discharges from the waste-water fittings, and each branch pipe shall individually be connected to the stack;

51.1.9 the gradient of any branch pipe conveying waste-water shall in no part be steeper than 1 in 25 and not flatter than 1 in 50;

51.1.10 the point of connection between a branch waste-water pipe and a stack shall be so located that the centre line of the branch pipe meets the centre line of the stack at or above the level at which the centre line of any water closet branch pipe meets the centre line of the stack or at least 200mm below such level.

52. SINGLE STACK SYSTEM: ADDITIONAL REQUIREMENTS FOR RESIDENTIAL BUILDINGS

52.1 The following additional requirements shall apply to a single stack system installed in a residential building -

52.1.1 the branch pipe of each fitting in a group of sanitary fittings shall be separately connected to the stack;

- 52.1.2 where the trap fitting to a wash-hand basin has a nominal diameter of 32mm the diameter of the branch pipe which connects such trap to the stack shall not be less than 38mm;
- 52.1.3 the gradient of the branch pipe referred to in section 51 shall in no part be steeper than 1 in 25, and the length of such pipe measured between its point of connection with the soil-water stack and the crown of the trap shall not exceed 3m;
- 52.1.4 not more than 2 groups of sanitary fittings installed in any one storey shall be connected to the same stack;
- 52.1.5 the nominal diameter of a stack serving a residential building, the height of which exceeds 20 storeys above the lowest ground level abutting on such building, shall not be less than 150mm;
- 52.1.6 where a stack with a nominal diameter of 100mm serves a residential building which -
- 52.1.7 does not exceed a height of 10 storeys, a supplementary ventilation pipe shall not be required;
- 52.1.8 exceeds 10 storeys but does not exceed 15 storeys in height and such stack receives the discharges from one group of sanitary fittings installed at each storey a supplementary ventilation pipe with a nominal diameter of not less than 50mm shall be provided and interconnected with the stack above the level of the highest branch pipe connection of each alternate storey;
- 52.1.9 exceeds 10 storeys but does not exceed 15 storeys in height and such stack receives the discharges from 2 groups of sanitary fittings installed in each storey, a supplementary ventilation pipe with a nominal diameter of not less than 50mm shall be provided and

interconnected with the stack above level of the highest branch pipe connection at each storey;

52.1.10 exceeds 15 storeys but does not exceed 20 storeys in height and such stack receives the discharges from one group of sanitary fittings installed in each storey, a supplementary ventilation pipe with a nominal diameter of not less than 75mm shall be provided and interconnected with the stack above the level of the highest branch pipe connection at each alternate storey;

52.1.11 exceeds 15 storeys but does not exceed 20 storeys in height and such stack receives the discharges from 2 groups of sanitary fittings installed in each storey, a supplementary ventilation pipe with a nominal diameter of not less than 75mm shall be provided and interconnected with the stack above the level of the highest branch pipe connection at each storey.

52.2 Where a stack with a nominal diameter of 150mm serves a residential building not exceeding 25 storeys in height, a supplementary ventilation pipe shall not be required.

53. SINGLE STACK SYSTEM: ADDITIONAL REQUIREMENTS FOR OFFICE BUILDINGS

53.1 The following additional requirements shall apply in the case of a single stack system installed in a building of the office class -

53.1.1 Individual anti-siphonage pipes may be omitted in the case of sanitary fittings installed in ranges or batteries as envisaged in the table below, if the branch pipes to which such fittings are connected are themselves separately connected to the stack, and a supplementary ventilation pipe as specified in the said table is provided;

53.1.2 the supplementary ventilation pipe shall be interconnected with the stack above the level of the highest branch pipe connection at each storey;

53.1.3 the nominal diameter of the supplementary ventilation pipe shall not be less than the diameter specified in the table below, regard being had to the diameter of the stack, the number of storeys served by such stack and the number of sanitary fittings by such stack and the number of sanitary fittings installed in range or battery in each storey;

53.1.4 for the purposes of the table below, more than one urinal but not more than four urinals may be regarded as equivalent to one water closet pan;

53.1.5 the single stack system shall not be used in any building of the office class if the number of sanitary fittings installed in an range or battery in any storey exceeds the number specified in the table below for the relevant diameter of stack, or if the number of storeys served by such stack exceeds the number specified in the said table.

Nominal diameter of stack	Number of storeys services by the stack	Number of sanitary fittings installed in a range or battery in each storey	Nominal diameter supplementary ventilation pipe
100mm	8 storeys	not exceeding 2 WC pans and 2 hand basins	not required
		exceeding 2 WC plans and 2 hand basins but not exceeding 5 WC pans and 5 hand basins	50mm
	12 storeys	not exceeding 4 WC pans and 4	50mm

		hand basins	
150mm	8 storeys	not exceeding 4WC pans and 4 hand basins	not required
	24 storeys	not exceeding 3 WC pans and 3 hand basins	not required

CHAPTER XIII
WASTE WATER, SOIL-WATER, VENTILATION AND ANTI-SIPHONAGE PIPES
AND JOINTS

54. DESIGN AND INSTALLATION OF SOIL WATER PIPES AND WASTE WATER PIPES

- 54.1 No soil-water pipe or waste-water pipe shall have an internal diameter less than the diameter of any other pipe or of the trap of any sanitary fitting discharging into it.
- 54.2 No pipe having an internal diameter of less than 100mm shall receive the discharge from any water closet plan.
- 54.3 Save as otherwise provided in sections 50, 51, 52 and 53 in respect of the single stack system -
- 54.3.1 the hydraulic load carried by a vertical pipe or stack having a nominal diameter set out in column 1 of table 2 under section 25 shall not exceed the number of discharge units specified in column 2 of that table for such pipe or stack : Provided that where the angle of any inclined part of a stack is less than 45° above the horizontal, such part shall be deemed to be a horizontal pipe and the diameter of such part shall be determined in accordance with the provisions of paragraph 54.2 and the diameter of the stack below such inclined part shall be not less than the diameter of the inclined part;
- 54.3.2 the hydraulic load carried by a horizontal pipe, other than a branch pipe, having a nominal diameter set out in column 1 of the said table 2, shall not exceed the number of discharge units specified in column 4 for such pipe;
- 54.3.3 the hydraulic load carried by a branch pipe having a diameter set out in column 1 of the said table 2 shall not exceed the number of discharge units specified in column 3 for such pipe;.

54.3.4 and notwithstanding anything to the contrary in these by-laws contained, any waste-water pipe having a diameter of 100mm or greater and 100mm any soil-water pipe shall be deemed to be a drain from that point downstream of which the inclination of such pipe and of any drain to which it is connected does not in any part exceed 45° below the horizontal, and the permissible hydraulic load for that part of the waste-water pipe and soil-water pipe deemed to be a drain shall not exceed the number of discharge units prescribed in columns 5, 6, 7, or 8 of the said table 2 for a drain of equivalent and gradient;

54.3.5 and where the diameter of any soil-water stack or any waste-water stack is greater than the diameter of any drain into which it discharges, the pipe at the base of such stack shall be extended horizontally for a length of not less than 2m without any reduction in diameter before it is connected to the drain, and when required by the Service Provider, a manhole shall be provided at such point of connection.

55. LOCATION OF SOIL-WATER, WASTE-WATER, VENTILATION AND ANTI-SIPHONAGE PIPES

55.1 Every soil-water pipe, waste-water pipe, ventilation pipe and anti-siphonage pipe shall be effectively protected against damage by vehicular impact or shall be so located as to be effectively protected against such damage.

55.2 No pipe shall be so installed that the removal of any part of a building for the purposes of gaining access to renew, maintain or repair such pipe will endanger the structural stability of the building or any part thereof.

55.3 The shape and dimensions of a recess or chase containing any part of a drainage installation and the arrangement of all pipes and any other services therein shall be such as the Service Provider considers adequate to permit the renewal, replacement, maintenance or repair of

such installation or service, and if such recess or chase is provided with a cover or covers, it shall be adequately ventilated.

- 55.4 If an enclosed shaft or duct contains any part of a drainage installation it shall be adequately ventilated, shall have a minimum cross-sectional area of 1,5m and a minimum width of 1m and shall be provided with means of access to its interior adequate for inspection and repair of the drainage installation and of any other services therein: Provided that the Service Provider may, subject to such conditions as it may consider necessary permit any part of a drainage installation to be located in an unventilated enclosed shaft or duct having a smaller cross-sectional area and width in any case when the whole of the interior of every soil-water pipe and waste-water pipe contained therein is otherwise rendered readily accessible for cleaning.
- 55.5 Unless otherwise permitted by the Service Provider, regard being had to the aesthetics of external appearance and the amenities of the neighbourhood, no pipe, bend or junction forming part of a drainage installation serving a building shall be exposed to view from the outside of such building.

56. ACCESS TO INTERIOR OF SOIL-WATER PIPES AND WASTE-WATER PIPES

- 56.1 Adequate means of access to the interior of the pipe shall be provided within 2m above the point of entry into the ground of every soil-water pipe and in such other positions as are necessary to render the whole of the interior of every soil-water pipe, waste-water pipe and every bend and junction associated therewith readily accessible for cleaning.
- 56.2 Where a soil-water pipe or waste-water pipe, not being a waste-water pipe connected to a fitting in the room, passes through a kitchen, pantry or other room used or intended for use for the preparation, handling, storage or sale of food, the means of access necessary for the cleaning of that part of the said pipe which passes through the room, shall be located outside the room.

- 56.3 An inlet to a waste-water pipe may be provided in the floor of such a room as is referred to in section 56.2 so long as the said inlet is equipped with a trap connected to a pipe discharging over a gully or other trap situated in the open air.
- 56.4 No bend or junction shall be permitted in any such pipe as is referred to in section 56.2, unless its position in relation to any access eye is such as readily to permit the ready cleaning from outside the room of every part passing through such room.
- 56.5 If access to a soil-water pipe is permitted and provided within a building, access to a soil-water pipe located within a building shall be provided only through an adequate screwed or bolted airtight cover.

57. WASTE-WATER, SOIL-WATER, VENTILATION AND ANTI-SIPHONAGE PIPES AND FITTINGS

- 57.1 Waste-water pipes, soil-water pipes, ventilation pipes and anti-siphonage pipes and their associated steel, copper, brass, drawn lead, asbestos cement or unplasticised polyvinyl chloride, shall in each case be of approved quality in accordance with the relevant South-African Bureau of Standards Specification, if applicable, or of such materials as the Service Provider may in its discretion approve. The Service Provider's discretion in terms of this section shall be exercised by reference to established codes of practice and to the appropriate standard specification issued by the South African Bureau of Standards from time to time, or in the absence of any such specification, to the appropriate British Standard Specification.
- 57.2 An approval given by the Service Provider in terms of section 57.1 may include such conditions as it may deem necessary to prevent the spread of fire or the spread of noxious fumes in dangerous quantities given off by pipes, traps or other fittings made of such other materials in the event of an outbreak of fire.
- 57.3 Cast iron pipes and their associated traps and fittings shall have both their inside and outside surfaces adequately coated with a bituminous or other corrosion-resisting material, and mild steel pipes and fittings

shall be adequately galvanized or otherwise rendered resistant to corrosion.

- 57.4 Where the axes of two or more branch waste-water pipes or branch soil-water pipes intersect at a common point on the axis of a waste-water pipe or a soil-water pipe, the included angle between the axes of the said branch pipes shall not exceed 90° .

58. JOINTS BETWEEN PIPES AND PIPES AND FITTINGS

Every connection between a pipe, trap or fitting and another pipe, trap or fitting shall be made in such a manner as to be gas- and water-tight and to cause no internal obstruction and shall be carried out to the approval of the Service Provider in accordance with established plumbing and drainage practice.

CHAPTER XIV
WASTE-WATER AND SOIL-WATER FITTINGS AND FIXTURES

59. TRAPS TO WASTE-WATER FITTINGS

- 59.1 There shall be provided immediately beneath every waste-water fitting an approved self-cleansed trap.
- 59.2 Except in the case of a trap made of rubber or other approved flexible material, every trap shall be provided with an adequate cleaning eye protected by a water seal and having a removable cover.
- 59.3 The nominal diameter of any trap shall be no less than 32mm in the case of a trap serving a wash-hand basin and 38mm in the case of traps serving other waste-water fittings.
- 59.4 The depth of the water seal in a trap shall in no case exceed 100mm and shall be not less than 38mm in the two-pipe system and not less than 65mm in the one-pipe system.
- 59.5 Notwithstanding the provisions of section 51.1 it shall be permissible-
- 59.5.1 for a bath, wash-basin or shower to discharge without the interposition of a trap as aforesaid into an open channel semi-circular in cross section having a diameter of at least 100mm, made of glazed earthenware, porcelain or other approved material, accessible for cleaning throughout its length and fixed immediately beneath the point or points of discharge into a trapped gulley constructed and fixed as prescribed in terms of these by-laws;
- 59.5.2 for a bath, wash-basin or shower installed in a compartment containing a urinal to discharge without the

interposition of a trap as aforesaid in to the urinal channel: Provided that such channel is constructed in accordance with the provision of section 62(7).

60. SOIL-WATER FITTINGS

- 60.1 Every room or compartment containing any soil-water fittings shall have a rigid floor of non-absorbent material.
- 60.2 Without prejudice to the particular provisions of sections 61 and 62, every soil-water fitting shall be made of earthenware, fireclay, porcelain, vitreous china or other approved finish, shall be of a type approved by the Service Provider and shall be provided with a trap having a water seal not less than 50mm in depth.

61. WATER CLOSET SOIL-WATER FITTINGS

- 61.1 Every water closet pan of the ash-down or siphonic type and its associated trap shall be made in one piece, shall be provided with an integral flushing rim so constructed that the entire surface of the bowl is effectively flushed, and shall have a minimum standing water-level area of 130m²: Provided that the trap used with a squatting pan may be an independent unit.
- 61.2 Any such trap shall have an exposed outlet of sufficient length to be conveniently accessible for jointing: Provided that the provisions of this section may be relaxed in the case of water closet pans connected to a soil-water pipe by bolts or flanges or other approved devices.
- 61.3 If a ventilating horn is provided on the trap such horn shall have an internal diameter of not less than 50mm and shall be placed at the side of and not less than 75mm from the crown of the trap on its outlet side.

- 61.4 The following requirements shall be applicable to “P” traps fitted to water closet pans -
- 61.4.1 it shall not be fitted with ventilating horns;
 - 61.4.2 its outlet pipes shall slope downwards at an angle of not less than five degrees to the horizontal.
 - 61.4.3 The minimum internal diameter of the outlet of every trap shall be 90mm in the case of a wash-down or squatting pan and 80mm in the case of a siphonic water closet pan.
 - 61.4.4 The distance between the invert and the lip of the trap of a wash-down water closet pan shall be not less than 70mm or more than 75mm.
 - 61.4.5 Except in the case of squatting pans, pans shall be provided with hinged or other seats of a type and material approved by the Service Provider.
 - 61.4.6 Any pad or packing inserted between the base of the pan and the floor shall be of non-absorbent material.
 - 61.4.7 The Service Provider may in its absolute discretion and subject to such conditions as it may impose, permit the use of trough closets of approved design in separate buildings provided for the purpose.

62. URINALS

- 62.1 Urinals shall be of the stall, slab, wall hung or other approved type made to discharge, without the interposition of a trap, into a channel uniformly graded to a trap connected to a drain or soil-water pipe: Provided that a wall hung urinal may have a trap attached to or formed integrally with the urinal directly connected to a soil-water pipe or drain.

- 62.2 Wall hung urinals shall have -
- 62.2.1 a minimum overall height, excluding any trap, of 600mm; and
 - 62.2.2 a minimum overall width of 380mm; and
 - 62.2.3 a minimum horizontal projection from the back of the fixture to the front of the lip of 380mm.
- 62.3 Where urinals of any type are installed for public use or are installed in a factory, hostel or educational Provider, or where more than three wall hung urinals are installed in the same room or compartment in any building, such urinals shall discharge into a channel complying with the relevant requirements of this section.
- 62.4 Where urinals are directly connected to a soil-water pipe or drain, the floor of the room or compartment containing the urinals shall be upgraded and drained to an approved floor trap similarly connected.
- 62.5 The floor of a room or compartment containing a urinal channel shall be protected with an approved impervious material having a glazed or other smooth finish.
- 62.6 The floor of a room or compartment containing a urinal channel shall slope towards and drain into the channel : Provided that where the channel is raised above the level of the floor, a platform at least 400mm wide shall be provided and only the said platform shall be required to slope and drain as aforesaid.
- 62.7 Every channel and trap forming part of a urinal or receiving the discharges from a urinal shall be made of impervious material approved by the Service Provider having a glazed or smooth finish and shall be located in the same room or compartment as the urinal itself.

- 62.8 The nominal diameter of a trap receiving the discharges from a channel in a compartment or room containing a urinal shall be not less than 75mm and the diameter of a trap attached to or formed integrally with a wall hung urinal shall be not less than 38mm.
- 62.9 At least one trap having a diameter of 75mm shall be provided for every 5 urinal stalls or for every 3,5m length slab urinal; or at least one trap having a diameter of 100mm for every 10 stalls or 7m length of slab urinal.
- 62.10 Except in the case of a siphonic urinal, every urinal trap shall be provided with a hinged and domed grating designed to retain solid matter without obstructing the flow of liquids.

63. FLUSHING OF SOIL-WATER FITTINGS

Every soil-water fitting shall be capable of being effectively flushed by means of a flushing cistern, flushing valve or other approved device the flushing action of which shall effectively flush the entire fouling surface of the fitting and clear the trap completely at each flush.

64. FLUSHING CISTERNS

- 64.1 The mechanism of a flushing cistern shall so operate that the cistern is automatically refilled after every flushing, that the inflow of water is automatically stopped when the cistern is full and that no water can escape from the cistern, otherwise than by the operation of the flushing mechanism or through an overflow pipe.
- 64.2 A flushing cistern shall have an overflow pipe of adequate diameter the discharge from which shall be reasonably detectable and so directed that it cannot cause damage to the building.

- 64.3 The ball valve in a cistern shall be so located and constructed that no back siphonage from the cistern can take place.
- 64.4 The flow of water into a flushing cistern shall be separately controlled by a stop tap or other device approved by the Service Provider situated within 2m thereof in the same room or compartment as the cistern.
- 64.5 Flushing cisterns for water closets slop hoppers and bed-pan sinks and washers shall discharge at each flush not less than 11 litres of water.
- 64.6 Automatic flushing cisterns for urinals shall discharge at each flush not less than 2 litres of water for each urinal stall or for every 600mm of the width of the urinals.
- 64.7 Automatic flushing cisterns for trough closets shall at each flush discharge not less than 22 litres of water for each seat.

65. FLUSHING VALVES

- 65.1 Flushing valves shall at each operation discharge a volume discharge not less than 22 litres of water for each seat.
- 65.2 Where flushing valves are installed, adequate measures shall be taken to prevent back siphonage from the soil-water fitting into the water supply.

CHAPTER XV

66. MECHANICAL APPLIANCES FOR LIFTING SEWAGE

- 66.1 Every person shall before installing any mechanical appliance for the raising or transfer of sewage make application in writing to the Service Provider for permission to do so in the form, to be completed in duplicate, set out in the relevant appendix to these by-laws and shall thereafter give such additional information as the Service Provider may require.
- 66.2 The form shall be completed by a professional engineer who is fully conversant with the technical details of the appliance, and the undertaking annexed to such form shall be signed by the owner of the premises.
- 66.3 The application mentioned shall be accompanied by drawings prepared in accordance with the relevant provisions of section 20 and shall show details of the compartment containing the appliance, the sewage storage tank, the stilling chamber and the position thereof, and the positions of the drains, ventilation pipes, rising main and the connecting sewer.
- 66.4 Notwithstanding any permission given, the Service Provider shall not be liable for any injury or damage to life or property caused by the use, malfunctioning or any other condition arising from the installation or operation of such appliance.
- 66.5 Every mechanical appliance installed for the raising or transfer of sewage shall be specifically designed for the purpose and shall be fitted with a discharge pipe, sluice valves and on-return valves located in approved positions.
- 66.6 Unless otherwise permitted by the Service Provider, such mechanical appliances shall be installed in duplicate and each such appliance shall be so controlled that either will begin to function automatically immediately in the event of failure of the other.

- 66.7 Every mechanical appliance forming part of a drainage installation shall be so located and operated as not to cause any nuisance through noise or smell or otherwise and every compartment containing any such appliance shall be effectively ventilated.
- 66.8 The maximum discharge rate from any mechanical appliance and the times between which the discharge may take place shall be as prescribed by the Service Provider who may, at any time, require the owner to install such fittings and regulating devices as may be necessary to ensure that the said prescribed maximum discharge rate shall not be exceeded -
- 66.8.1 Except where sewage storage space is incorporated as an integral part of a mechanical appliance, a sewage storage tank shall be provided in conjunction with such appliance.
- 66.8.2 Every sewage storage tank shall -
- 66.8.2.1 be constructed of hard, durable material and shall be watertight and the internal discharge of the walls and floor shall be rendered smooth and impermeable;
- 66.8.2.2 have storage capacity below the level of the inlet equal to the quantity of sewage discharged there into in 24 hours or 900 litres, whichever is the greater quantity; and
- 66.8.2.3 be so designed that the maximum proportion of its sewage content shall be emptied at each discharge cycle of the mechanical appliance.
- 66.9 If the mechanical appliance consists of a pump, the starting mechanism shall be set for pumping to commence when the

volume of sewage contained in the storage tank is equal to not more than one-fifth of its storage capacity.

- 66.10 When required by the Service Provider, a stilling chamber shall be installed between the outlet of the mechanical appliance and the connecting drain or connecting sewer, as the case may be, and such chamber shall have a depth of not less than 850 mm.
- 66.11 Every storage tank and stilling chamber shall be provided with a ventilation pipe having a diameter of not less than 100mm carried upwards in accordance with the relevant provisions of section 44.

CHAPTER XVI
**SEPTIC AND STORAGE TANKS AND PRIVATE SEWAGE TREATMENT
PLANTS, FRENCH DRAINS AND CONSERVANCY TANKS**

67. SEPTIC TANKS AND TREATMENT PLANTS

- 67.1 No person shall construct, install, maintain or operate any septic tank or other plant for the treatment, disposal or storage of sewage without the prior written consent of the Service Provider, the giving of which shall be without prejudice to any of the provisions of these by-laws and in any event subject to the Council's Public Health By-laws so far as relevant or any other relevant by-laws.
- 67.2 No part of any septic tank or other sewage treatment plant shall be situated nearer than 3m to any building used for human habitation or to any boundary of the piece of land on which it is situated or in any such other position as may be prohibited or limited by the Council's Public Health By-laws or any other relevant by-laws.
- 67.3 The effluent from a septic tank or other sewage treatment plant shall be disposed of to the satisfaction of the Service Provider.
- 67.4 Every septic tank shall be watertight, securely covered and provided with gas-tight means of access to its interior adequate to permit the inspection of the inlet and outlet pipes and adequate for the purpose of removing sludge.
- 67.5 A septic tank serving a dwelling house shall -
- 67.5.1 have a capacity below the level of the invert of the outlet pipe of not less than 500 litres per bedroom, subject to a minimum capacity below such invert level of 2500 litres;

- 67.5.2 have an internal width of not less than 1m measured at right angles to the direction of the flow;
 - 67.5.3 have an internal depth between the cover and the bottom of the tank of not less than 1,7m;
 - 67.5.4 retain liquid to a depth of not less than 1,4m.
- 67.6 Septic tanks serving premises other than a dwelling house shall be of approved design, construction and capacity.

68. FRENCH DRAINS

- 68.1 The Service Provider may, in its discretion and on such conditions as it may prescribe having regard to the quantity and the nature of the effluent and the nature of the soil as determined by the permeability test prescribed by the South African Bureau of Standards, permit the disposal of waste-water or other effluent by means of French drains, soakage pits or other approved works.
- 68.2 No part of a French drain, soakage pit or other similar work shall be situated nearer than 5m to any building used for human habitation or to any boundary of the piece of land on which it is situated, or within such other distance or in such position as may be prescribed by the Council's Public Health By-laws or any other relevant by-laws, nor in any such position as will, in the opinion of the Service Provider, cause contamination of any borehole or other source of water which is or may be used for drinking purposes, or cause dampness in any building.
- 68.3 The dimensions of any French drain, soakage, pit or other similar work shall be determined in relation to the absorbent qualities of the soil and the nature and quantity of the effluent.

69. CONSERVANCY TANK

- 69.1 The Service Provider may in its discretion permit the owner of any premises to construct a conservancy tank and ancillary appliances for the retention of soil-water or such other sewage or effluent as it may decide and such tank and appliances shall be of such capacity and located in such position and at such level as it may prescribe.
- 69.2 No rainwater or storm water and no effluent other than that which the Service Provider shall have permitted, shall be discharged into a conservancy tank.
- 69.3 No conservancy tank shall be used as such unless -
- 69.3.1 it is constructed of hard and durable material;
 - 69.3.2 the walls, if made of brick, are at least 215mm thick and made of approved bricks laid in cement mortar, or if made of reinforced concrete, are at least 150mm thick;
 - 69.3.3 the floor is made of concrete not less than 150mm thick;
 - 69.3.4 the roof is made of concrete of adequate strength to withstand the loads to which it may be subjected;
 - 69.3.5 the exposed surfaces of the walls and roof are rendered smooth and impermeable;
 - 69.3.6 the invert of the tank slopes towards the outlet at a gradient of not less than 1 in 10;
 - 69.3.7 the tank is gas and water-tight;
 - 69.3.8 the tank has an outlet pipe of at least 100mm internal diameter, made of wrought iron, cast-iron or other material approved by the Service Provider and except

if otherwise permitted by the Service Provider, terminating at an approved valve and fittings for connection to removal vehicles;

69.3.9 the valve and fittings or the outlet end of the pipe, as the case may be, are located in a chamber, having a hinged cover approved by the Service Provider and situated in such position as the Service Provider may require;

69.3.10 access to the conservancy tank is provided by means of a manhole approved by the Service Provider and fitted with a removable cast-iron cover placed immediately above the visible spigot of the inlet pipe.

69.4 The Service Provider may in its discretion, having regard to the position of a conservancy tank or of the point of connection for a removal vehicle, make it a condition of its emptying the tank that the owner or user thereof shall indemnify the Service Provider, in writing, against any sum which it may become liable to pay to any person as a result direct or indirect, of the rendering of that service.

69.5 Where the removal vehicle has to traverse private premises for the emptying of a conservancy tank, the owner thereof shall provide for the purpose a roadway at least 3,5m wide, so hardened as to be capable of withstanding a wheel load of 4 metric tons in all weather, and shall ensure that no gateway through which the vehicle is required to pass to reach the tank, shall be less than 3,5m wide.

69.6 The Service Provider shall be entitled to empty or to draw off part of the contents of any conservancy tank at any reasonable time on any day of the week and in such manner as it may decide having regard to the general requirements of the service and in particular to the necessity for avoiding separate or unnecessary journeys by the removal vehicles.

- 69.7 The owner or occupier of premises on which a conservancy tank is installed shall at all times maintain such tank in good order and condition to the satisfaction of the Service Provider.

CHAPTER XVII**MISCELLANEOUS PROVISIONS****70. STABLES AND SIMILAR PREMISES**

- 70.1 The Service Provider may permit stables, cowsheds, dairies, kennels and similar premises or other premises for the accommodation of animals to be connected to a drainage installation.
- 70.2 The floor of any premises connected to a drainage installation shall be paved with impervious materials approved by the Service Provider and graded to a silt trap, grease trap or gully of adequate capacity.
- 70.3 Every part of the floor of premises shall be covered by a roof and otherwise effectively protected to prevent the entry of rain or storm water into the drainage installation.

71. WASTE FOOD OR OTHER DISPOSAL UNITS

- 71.1 No person shall incorporate into a drainage installation a mechanical waste food or other disposal unit or garbage grinder unless -
- 71.1.1 the owner of the premises has registered such unit or garbage grinder with the Service Provider and the Service Provider is satisfied that the working of the sanitation services works shall not thereby be impaired; and
- 71.1.2 such unit or garbage grinder is of an approved type and has been installed in conformity with the Council's Electricity supply By-laws.

- 71.2 The Service Provider may require the owner or occupier of any premises on which a waste food or other disposal unit or a garbage grinder has been installed, or the owner of such unit or grinder either to remove, repair or replace any unit which, in the opinion of the Service Provider, is functioning inefficiently or which may impair the working of the sanitation services works.
- 71.3 The owner shall, upon the removal of any such unit or grinder, notify the Service Provider within 14 days of its removal.

72. DISPOSAL OF SLUDGE, COMPOST AND MANURE

- 72.1 Except when prohibited by any competent authority, the Service Provider may sell or dispose of sewage sludge, compost or animal manure resulting from the operation of any sewage treatment works operated by the Service Provider or farm associated therewith on such conditions regarding the loading and conveyance thereof, the place to which it is conveyed and the manner in which it is to be used, applied or processed as the Service Provider may impose.
- 72.2 Save in the case of long term contracts entered into for the purpose of removal thereof, such sludge, compost or manure shall be sold or disposed of at the amounts set out in the tariff.

73. TARIFFS AND CHARGES

- 73.1 Council shall levy the fees, tariffs and charges for the provision of sanitary services by way of Council Resolution.
- 73.2 The tariffs and charges payable and the date of its implementation shall be published as prescribed in the Local

Government: Municipal Systems Act No 32 of 2000, as amended.

- 73.3 Such tariffs and charges may differentiate between different categories of consumers, services and service standards as well as geographical areas.

74. OFFENCES AND PENALTIES

- 74.1 Notwithstanding any provision of these by-laws wherein an offence is expressly specified, any person who contravenes or fails to comply with any provision of these by-laws or who shall be in default in complying therewith, shall be guilty of an offence and shall be liable, on first conviction, to a fine not exceeding R150 or, in default of payment, or imprisonment for a period of not exceeding three months, and on any subsequent conviction to a fine not exceeding R300 or, in default of payment, to imprisonment as aforesaid.
- 74.2 Any person who fails to comply in any respect with any notice served on him/her by the Service Provider in terms of these by-laws directing him/her to do or not to do anything, shall be guilty of an offence and liable on first conviction to a fine of R150.00 and shall in addition be guilty of a further offence for every day or part of a day during which non-compliance continues and he/she shall be liable in respect of each offence as aforesaid to a fine not exceeding R50 or, in default of payment, to imprisonment for a period not exceeding seven days.

CHAPTER XVIII
STORMWATER, SEWAGE, INDUSTRIAL EFFLUENTS AND OTHER
DISCHARGES

75. SEWAGE OR OTHER PROHIBITED DISCHARGES NOT TO ENTER STORM WATER DRAINS

- 75.1 No person shall discharge or cause or permit to be discharged any sewage directly or indirectly into a storm water drain, river, stream or other watercourse, whether natural or artificial.
- 75.2 The owner or occupier of any piece of land on which steam or any liquid, other than potable water, is stored, processed or generated shall provide all facilities necessary to prevent any discharge, leakage or escape of such liquid to any street, storm water drain or watercourse except where, in the case of steam, the Service Provider has specifically permitted such discharge.
- 75.3 Where the hosing down or flushing by rainwater of an open area on any private premises is in the opinion of the Service Provider likely to cause the discharge of objectionable matter into any street gutter, storm water drain, river, stream or other watercourse, the Service Provider may instruct the owner of the premises to execute at his/her own cost whatever measures by way of alterations to the drainage installation or roofing of the area it may consider necessary to prevent or minimize such discharge or pollution.
- 75.4 Should a sewer overflow occur the Service Provider may take such immediate steps as it deems necessary to remove the cause of the overflow except in circumstances where such overflow is directly attributable to insufficient capacity in the sanitation services works.
- 75.5 The Service Provider may take all reasonable action to eliminate any re-occurrence of a sewer overflow.

76. STORM WATER NOT TO ENTER SEWERS

- 76.1 No part of a drainage installation shall at any time be such or capable of being rendered such that water from any source, not being soil-water or waste-water, can enter the installation without the intervention of human agency.
- 76.2 No person shall discharge or cause to permit to be discharged any substance other than sewage into a drainage installation.
- 76.3 No pipe, channel or other device used for or capable of being used to conduct rainwater from any roof or other surface shall be permitted to discharge into any gully forming part of a drainage installation.

77. DISCHARGES FROM SWIMMING POOLS

- 77.1 No person shall discharge or permit the discharge of water from any swimming pool directly or indirectly over any road or into a gutter, storm water drain, watercourse, open ground or private premises other than the premises of the owner of such swimming pool.
- 77.2 Water from fountains, reservoirs or swimming pools situated on private premises shall be discharged to a drainage installation only with the prior written consent of the Service Provider and subject to such conditions as to place, time, rate of discharge and total discharge as the Service Provider may impose.
- 77.3 The discharge of water referred to in section 77.2 shall be subject to the payment of the amounts specified in terms of the tariff.

78. PERMISSION TO DISCHARGE INDUSTRIAL EFFLUENTS

- 78.1 No person shall discharge or cause or permit to be discharged into any sewer any industrial effluent or other liquid or substance other than soil-water or waste-water without the written permission of the Service Provider first had and obtained or, if such permission has been obtained, otherwise than in strict compliance with any and all of the conditions of such permission.
- 78.2 Every person shall, before discharging any industrial effluent into a sewer, make application in writing to the Service Provider for permission to do so in the form, to be completed in duplicate, set out in the relevant appendix to these by-laws and shall thereafter furnish such additional information and submit such samples as the Service Provider may require.
- 78.3 The Service Provider may in its discretion, having regard to the capacity of any sewer or any mechanical appliance used for sewage or any sewage treatment plant, whether or not it forms part of the sanitation services works and subject to such conditions as it may deem fit to impose, including the amount assessed in terms of the tariff, grant permission for the discharge of industrial effluent from any premises into any sewer.
- 78.4 A person to whom permission has been granted in terms of this section to discharge industrial effluent into a sewer shall, before doing or causing or permitting to be done anything to result in any change in the quantity or discharge or nature of that effluent, notify the Service Provider in writing of the date on which it is proposed that the change shall take place and of the nature of the proposed change.
- 78.5 Any person who discharges or causes or permits to be discharged any industrial effluent into the sewer without having first obtained permission to do so in terms of section 78.1 shall

be guilty of an offence and liable to a minimum fine of R10 000,00 and to such amount as the Service Provider may assess for the conveyance and treatment of the effluent so discharged and for any damage caused as a result of such unauthorized discharge.

78.6 Without prejudice to its rights the Service Provider shall be entitled to recover from any person who discharges to a drain or sewer any industrial effluent or any substance which is prohibited or restricted or which has been the subject of an order issued all costs, expenses or amounts incurred or to be incurred by the Service Provider as a result of any or all of the following -

78.6.1 injury to persons, damage to the sewer or any sewage treatment works or mechanical appliance or to any property whatsoever, as the result of the breakdown, either partial or complete, of any sewage treatment plant or mechanical appliance, whether part of the sanitation services works or not; and

78.6.2 any costs including fines and damages which may be imposed or awarded against the Service Provider and any expense incurred by the Service Provider as a result of a prosecution in terms of the National Water Act 36 of 1998 or the Water Services Act 108 of 1997, or any action against it consequent on any partial or complete breakdown of any sewage treatment plant or mechanical appliance caused directly or indirectly by the said discharge.

78.7 Due to any change in circumstances arising from a change in the method of sewage treatment or the introduction of new or revised or stricter or other standards by the Service Provider or in terms of the National Water Act 36 of 1998 or the Water Services Act 108 of 1997, or as a result of any amendment to these by-laws or due to any other reason, the Service Provider may from time to time or any time review, amend, modify or revoke any permission given or any condition attached to such permission and/or impose new conditions for the acceptance of

any industrial effluent into the sewer or prohibit the discharge of any or all of such effluent to the sewer on giving adequate written notice in advance of its intention to do so, and on the expiration of such period of notice the previous permission or condition, as the case may be, shall be regarded as having fallen away and the new or amended conditions, if any, as the case may be, shall forthwith apply.

79. CONTROL OF INDUSTRIAL EFFLUENT

- 79.1 The owner or occupier of any premises from which industrial effluent is discharged to a sewer shall provide adequate facilities such as overflow level detection devices, standby equipment, overflow catch-pits or other appropriate means effectively to prevent the accidental discharge into any sewer, whether through the negligence of operators, power failure, failure of equipment or control gear, overloading of facilities, spillage during loading or unloading or for any other like reason, of any substance prohibited or restricted or having properties outside the limits imposed in terms of these by-laws.
- 79.2 The Service Provider, by notice served on the owner or occupier of any premises from which industrial effluent is discharged, may require him/her without prejudice to any other provision of these by-laws to do all or any of the following -
- 79.2.1 to subject the effluent before it is discharged to the sewer, to such pre-treatment as will ensure that it at no time will fail to conform in all respects with these By-laws or to modify the effluent cycle of the industrial process to an extent and in such a manner as in the opinion of the Service Provider is necessary to enable any sewage treatment works receiving the said effluent, whether part of the sanitation services works or not, to produce treated effluent complying with any standards which may be laid down in respect of such works in terms of the National Water Act 36 of 1998;

- 79.2.2 to restrict the discharge of effluents to certain specified hours and the rate of discharge to a specified maximum and to install at his/her own expense such tanks, appliances and other equipment as in the opinion of the Service Provider may be necessary or adequate for compliance with the said restrictions;
- 79.2.3 to install a separate drainage installation for the conveyance of industrial effluent and to discharge same into the sewer through a separate connection as directed by the Service Provider, and to refrain from discharging the said effluent through any drainage installation intended or used for the conveyance of domestic sewage or from discharging any domestic sewage through the said separate installation for industrial effluent;
- 79.2.4 to construct at his/her own expense in any drainage installation conveying industrial effluent to the sewer one or more inspection sampling or metering chambers of such dimension and materials and in such positions as the Service Provider may prescribe;
- 79.2.5 to pay in respect of the industrial effluent discharged from the premises such amounts as may be assessed in terms of the tariff: Provided that where, owing to the particular circumstances of any case the method of assessment prescribed in terms of these by-laws does not reflect the true permanganate value (PV) of the industrial effluent, the Service Provider may adopt such alternative method of assessment as does reflect the said value and shall assess the amount accordingly;
- 79.2.6 to provide all such information as may be required by the Service Provider to enable it to assess the amounts payable in terms of the tariff; and

- 79.2.7. To provide and maintain at his/her own expense a meter measuring the total quantity of water drawn from any borehole, spring or other natural source of water and used on the property.
- 79.2.8 If any person in contravention of any provision of these by-laws discharges industrial effluent into a sewer, or causes or permits it to be so discharged or is about to do so, the Service Provider may, if it is of the opinion that such effluent is likely to cause damage to any sewer, mechanical appliance, sewage treatment works or sewage farm or process, forthwith after notifying the owner or occupier of the premises concerned of its intention to do so, close and seal off the drain conveying such effluent to the sewer for such period as it may deem expedient so as to prevent such effluent from entering the sewer.
- 79.2.9 The Service Provider shall not be liable for any damage occasioned by any action taken in terms of this section.
- 79.2.10 No person shall without the written permission of the Service Provider open or break the seal of a drain closed and sealed off in terms of this section or cause or permit this to be done.

80. METERING AND ASSESSMENT OF INDUSTRIAL EFFLUENT

- 80.1 The Service Provider may incorporate, in such position as it shall determine in any drainage installation conveying industrial effluent to a sewer, any meter or gauge or other device for the purpose of ascertaining the volume or composition of the said effluent, and it shall be an offence for any person to by-pass, open, break into or otherwise interfere with or to damage any such meter, gauge or other device: Provided that the Service

Provider may at its discretion enter into an agreement with any person discharging industrial effluent into the sewer, establishing an alternative method of assessing the quantity of effluent so discharged.

80.2 The Service Provider shall be entitled to install and maintain any such meter, gauge or device as aforesaid at the expense of the owner of the premises on which it is installed.

80.3 The owner of any premises on which there is situated any borehole used for a water supply for trade or industrial purposes shall -

80.3.1 register such borehole with the Service Provider;

80.3.2 provide the Service Provider with full particulars of the discharge capacity of the borehole; and

80.3.3 if the Service Provider has reason to doubt the reliability of the particulars given, carry out at the expense of the owner such tests on the discharge capacity of the borehole as may, in the opinion of the Service Provider, be necessary for the purpose of these by-laws.

81. PROHIBITED DISCHARGES

81.1 No person shall discharge or cause or permit the discharge or entry into any sewer of any sewage, industrial effluent or other liquid or substance -

81.1.1 which in the opinion of the Service Provider may be offensive to or may cause a nuisance to the public;

81.1.2 which is in the form of steam or vapour or has a temperature exceeding 44°C at the point where it enters the sewer;

- 81.1.3 which has a pH value less than 6,0 or greater than 10,0;
- 81.1.4 which contains any substance of whatsoever nature likely to produce or give off explosive, flammable, poisonous or offensive gases or vapours in any sewer;
- 81.1.5 which contains any substance having an open flashpoint of less than 93°C or which gives off a poisonous vapour at a temperature below 93°C;
- 81.1.6 which contains any material of whatsoever nature, including oil, grease fat or detergents capable of causing an obstruction to the flow in sewers or drains or interference with the proper operation of a sewage treatment works;
- 81.1.7 which shows any visible signs of tar or associated products or distillates, bitumen or asphalts;
- 81.1.8. which contains any substance in such concentration as is likely in the final treated effluent from any sewage treatment works to produce an undesirable taste after chlorination or an undesirable odour or colour, or excessive foam;
- 81.1.9 which either has a greater PV value, a lower or higher pH value or a higher electrical conductivity than specified in the relevant Appendix to these by-laws or which contains any substance specified in the said relevant Appendix in concentration greater than those there listed: Provided that Service Provider may approve such greater limits or concentrations in respect of any such substance for such period or on such conditions as it may specify taking into consideration the effect of dilution in the sewer and of the effect of such substance on the sewer or any sewage treatment process if the Service Provider is

satisfied that in the circumstance the discharge of such substance would not -

81.1.9.1 harm or damage any sewer, mechanical appliance, sewage treatment works or equipment; or

81.1.9.2 prejudice the use of sewage effluent for re-use; or

81.1.9.3 adversely affect any waters into which treated sewage effluent is discharged, or any land or crops irrigated with the sewage effluent;

81.1.9.4 which contains any substance of whatsoever nature which in the opinion of the Service Provider -

81.1.9.4.1 is not amenable to treatment at the sewage treatment works, or which causes or may cause a breakdown or inhibition of the normal sewage treatment process; or

81.1.9.4.2 is of such nature as is or may be amenable to treatment only to such degree as to prevent the final treated effluent from the sewage treatment works from satisfactorily complying in all respects with any requirements imposed in terms of the of the National Water Act 36 of

81.1.9.5 whether listed in the relevant Appendix to these by-laws or not, either alone or in combination with other matter may -

81.1.9.5.1 generate or constitute a toxic substance dangerous to the health of persons employed at the sewage treatment works or entering the sewers or manholes in the course of their duties; or

81.1.9.5.2 be harmful to sewers, treatment plant or land used for the disposal of treated sewage effluent; or

81.1.9.5.3 adversely affect any of the processes whereby sewage is treated or any re-use of sewage effluent.

81.2 Any person receiving from the Service Provider a written order instructing him to stop the discharge to the sewer of any substance referred to in section 78.1, shall forthwith stop such discharge.

81.3 Any person who contravenes the provisions of section 78.1 or who fails to comply with an order issued in terms of section 81.2, shall be guilty of an offence. Should any person have failed to comply with the terms of an order served in terms of section 81.2 and such discharge is likely in the opinion of the

Service Provider seriously to prejudice the efficient operation of any sewage treatment works, the Service Provider may, after further written notice, refuse to permit the discharge of any industrial effluent into the sewer until such time as the industrial effluent complies in all respects with the Service Provider's requirements as prescribed in terms of these by-laws, in which event the discharge shall forthwith be stopped by the person responsible for the discharge or by the Service Provider in the event of his/her failure to do so.

82 LEAKAGES

82.1 No person shall cause or permit any pipe, sewerage installation, tap or fitting to leak, and no tap, fitting or sewerage installation shall be installed in such position that any leakage cannot readily be detected.

82.2 No consumer shall as of right be entitled to any rebate in respect of the wastage of water due to faulty fittings or undetected leakage in any part of the consumer installation ,but may apply, after detection and proof of repair of such faulty fittings or leakage by a qualified plumber, apply to a Service Provider for a rebate which may be granted in the discretion of the Service Provider, in which case the following shall apply:

82.2.1 the average monthly consumption of water upon the premises served by the meter during the 3 (three) months prior to the last correct registration, or, if this is not possible;

82.2.2 the corresponding month's consumption of water upon the premises in the previous year, or, if this is not possible;

82.2.3 the average monthly consumption of water upon the premises served by the meter over a period of 3 (three) months after repair or replacement of the meter has been effected or it again correctly reflects consumption, as the case may be.

82.3 Notwithstanding the above, the consumer shall only be entitled to a reduction in the account for the period during which the fitting was faulty or the leakage occurred, but subject to a maximum period of four months.

83 REPEAL OF LAWS

The Drainage and Sanitation Services By-Laws, Local Authority Notice , and any amendments thereto, are hereby repealed in its entirety.

84. COMMENCEMENT

These by-laws take effect on a date fixed by the Service Authority by proclamation in the Provincial Gazette.

APPENDIX I
LIMITS OF PERMANGANATE VALUE (PV), pH AND ELECTRICAL
CONDUCTIVITY AND MAXIMUM CONCENTRATION OF CERTAIN
SUBSTANCES

1. The following are -

- 1.1 the limits of the PV, pH and electrical conductivity; and
- 1.2 the substances and the maximum permissible concentrations thereof, expressed in milligrams per litre (mg/l) -

GENERAL

PV - not to exceed 1 400 mg/l
 pH - within the range 6,0 - 10,0
 Electrical conductivity - not greater than 500 mS/m at 20°C
 Caustic alkalinity (expressed as CaCO₃) 2 000 mg/l
 Substances not in solution (including fat, oil
 grease, waxes and like substances) 2 000 mg/l
 Substances soluble in petroleum ether 500 mg/l
 Sulphides, hydro-sulphides and polysulphides
 (Expressed as S) 50 mg/l
 Substances from which hydrogen cyanide can
 be liberated in the drainage installation,
 sewer or sewage treatment works
 (Expressed as HCN) 20 mg/l
 Formaldehyde (expressed as HCHO) 50 mg/l
 Non-organic solids in suspension 100 mg/l
 Chemical oxygen demand (COD) 5 000 mg/l
 All sugars and/or starch (expressed as glucose) 1 500 mg/l
 Available chlorine (expressed as Cl) 100 mg/l
 Sulphates (expressed as SO₄) 1 800 mg/l
 Fluorine-containing compounds
 (Expressed as F) 5 mg/l
 Anionic surface active agents 500 mg/l

METALS

Group 1

Iron (expressed as Fe)
Chromium (expressed as CrO₃)
Copper (expressed as Cu)
Nickel (expressed as Ni)
Zinc (expressed as Zn)
Silver (expressed as Ag)
Cobalt (expressed as Co)
Tungsten (expressed as W)
Titanium (expressed as To)
Cadmium (expressed as Cd)

The total collective concentration of all metals in Group 2 (expressed as indicated above) in any sample of the effluent, shall not exceed 50 mg/l, nor shall the concentration of any individual met exceed 20 mg/l.

Group 2

Lead (expressed as Pb)
Selenium (expressed as Se)
Mercury (expressed as Hg)

The total collective concentration of all metals in Group 2 (expressed as indicated above) in any sample of the affluent shall not exceed 20 mg/l, nor shall the concentration of any individual metal in any sample exceed 5 mg/l.

OTHER ELEMENTS

Arsenic (expressed as As)
Boron (expressed as B)

The total collective concentration of all elements (expressed as indicated above) in any sample of the effluent shall not exceed 20 mg/l.

RADIO-ACTIVE WASTES

Radio-active wastes or isotopes: Such concentration as may be laid down by the Atomic Energy Board or any Department in the provincial or national sphere of government. Provided that, notwithstanding the requirements set out in this Appendix, the Service Provider reserves the right to limit the total mass of any substance or impurity discharged per 24 hours into the sewers from any premises.

NOTE: The method of testing in order to ascertain the concentration of any substance here mentioned shall be the test normally used by the Service Provider for the purpose. Any person discharging any substance referred to in this Appendix shall ascertain the details of the appropriate test from the Service Provider.

APPENDIX II
RULES FOR DETERMINING THE FOUR-HOUR PERMANGANATE VALUE (PV)
OF INDUSTRIAL EFFLUENTS

NOTE: These rules are to all intents and purposes a re-statement in the form of by-laws of the "Methods of Chemical Analysis as applied to Sewage and Sewage Effluents" as published by the British Ministry of Housing and Local Government, H.M. Stationery Office, 1956.

PART I

PROCEDURE FOR THE PREPARATION OF RE-AGENTS

For the preparation of potassium permanganate solution, being approximately, $\frac{N}{80}$, the procedure described in this rule shall be followed.

4 grams KMnO_4 shall be dissolved in one litre of hot distilled water contained in a large beaker covered with a clock glass, the solution being maintained at 90°C to 95°C for not less than two hours if possible.

The said solution shall be diluted to 10 litres with distilled water and set aside in darkness until complete oxidation of any organic matter has taken place and any precipitated manganese dioxide has settled.

The supernatant liquid shall be carefully decanted or siphoned off so that the disturbance of any sediment is avoided.

Notwithstanding anything contained in this rule, it shall be permissible alternatively to filter the solution through a funnel having a sintered-glass element, through glass wool or through asbestos fibre which has been previously digested with nitric and hydrochloric acids and then thoroughly washed with water: Provided that the solution shall not be filtered through paper.

All necessary measures shall be taken to prevent the solution from being contaminated by dust or organic matter.

Daily blank determinations shall be made to check the strength of the potassium permanganate solution.

NOTE : When the method described above is carefully followed and the solution stored in amber bottles or in the dark it is stable for several months.

For the preparation of a stock solution, $N/4$, sodium thiosulphate the procedure described in this rule shall be adopted.

63 grams of sodium thiosulphate, $Na_2S_2O_3 \cdot 5H_2O$, shall be dissolved in one litre of copper-free, freshly boiled and cooled distilled water, and one milliliter of chloroform or 10 milligrams iodide shall be added to stabilize the solution.

The solution shall be allowed to stand for several days before it is used.

For the preparation of a working solution of $N/80$, sodium thiosulphate the procedure described in this rule shall be adopted.

50 milliliters of stock solution shall be diluted to one litre with copper-free, freshly-boiled and cooled distilled water, and one milliliter of chloroform or 10 milligrams of mercuric iodide shall be added.

The resulting solution shall be standardized against potassium iodide at frequent intervals.

The solution shall be stored in an amber glass bottle having a rubber stopper.

Any solution remaining in the burette at the end of the day shall be discarded.

Potassium iodide solution, $N/40$, for standardizing a thiosulphate solution in terms of rule of this Appendix, shall be prepared by dissolving in a little water 0,892 gram of pure potassium iodide which has been

previously dried at 120° C and diluting the resulting solution to exactly one litre.

NOTE: The solution will keep for a very long time if stored in a glass stopper bottle.

For the preparation of dilute sulphuric acid the procedure described in this rule shall be adopted.

One volume of concentrated sulphuric acid shall be added to three volumes of water, care being taken to add the acid in small quantities at a time.

Adequate and effective precautions shall be taken against the spitting of acid and the cracking of glass vessels owing to generation of heat.

After the mixing referred to in sub-rule has been completed, sufficient $N/_{80}$ permanganate solution shall be added to give a faint permanent pink tint to the mixture.

For the preparation of potassium iodide solution 10 grams of potassium iodide shall be dissolved in 100 milliliters of water and stored in an amber glass bottle.

For the preparation of a starch reagent the procedure described in this rule shall be adopted.

One gram of soluble starch shall be ground into a smooth paste with a little cold distilled water.

The resulting paste shall be poured into one litre of boiling distilled water and the pouring shall be accompanied by constant stirring.

The resulting solution shall be boiled for one minute and shall then be allowed to cool before it is used.

The solution shall only be used if it has been freshly prepared.

Notwithstanding anything in this rule contained, it shall be permissible alternatively to use a solution containing a preservative so long as it is known that the preservative does not interfere with the reaction.

If mercuric iodide is used, about 10 milligrams thereof shall be added to the starch when the latter is being ground with water.

It shall also be permissible as an alternative to add 0, 1 gram of thymol to the boiling water which is used for making the starch solution.

A solution of sodium starch glycolate may be used as an alternative to starch solution, one to two milliliters of a 0,5 per cent solution in cold distilled water being added at the start of the titration.

NOTE : The approach to the end-point is shown by the change from green to intense blue. At the end-point, which is sharp, the solution becomes colourless.

For the standardization of sodium thiosulphate solution the procedure described in this rule shall be adopted.

In a glass-stopper bottle having a capacity of about 350 ml there shall be placed 5 milliliters of potassium iodide solution as referred to in rule ,10 milliliters of $N/40$ iodide solution, in that order.

About 100 millilitres of water shall then be added.

Titration with thiosulphate solution shall be carried out immediately thereafter.

One millilitre of starch solution shall be added when the liquid has become pale yellow .

After the pale yellow liquid referred to in sub-rule has become blue the titration shall be continued until the solution has just become colourless.

NOTE : The normality of the sodium thiosulphate solution is then $N/_{80} \times 50$ /millilitres of sodium thiosulphate required.

The sodium thiosulphate can be used at this strength provided that the appropriate correction factor is used, but it is preferable to adjust the strength until exactly 50 millilitres are required for a repeat titration. The sodium thiosulphate is then exactly $N/_{80}$ and one millilitre is equivalent to 0,1 milligram of oxygen.

PART II

DETERMINATION OF FOUR-HOUR PERMANGANATE VALUE (PV)

The procedure described in this rule shall be followed for the determination of four-hour permanganate value (PV).

Into a clean 350 ml glass-stopper bottle there shall be placed 10 millilitres of dilute sulphuric acid and 50 millilitres of $N/_{80}$ potassium permanganate solution.

There shall be added to the potassium permanganate solution a volume of distilled water equal to the difference between 100 millilitres and the volume of the sample of industrial effluent to be tested.

The sample of industrial effluent shall immediately after being added to the solution referred to in sub-rule be mixed by gentle rotation of the bottle.

The mixture shall be maintained at a temperature of 27° C for four hours, and shall be remixed after one hour if the sample contains much suspended matter.

NOTE: For the most accurate results all the solutions should be heated to 27° C before mixing, but this is not necessary where a water bath is used. A water bath is preferable because, with most air incubators, any difference in

temperature between the bottle and the incubator is only very slowly rectified.

After four hours there shall be added to the mixture either 5 millilitres of the 10 per cent potassium iodide solution or about 0,5 gram of solid potassium iodide.

Immediately after the said addition titration shall be carried out with $N/_{80}$ sodium thiosulphate solution.

Towards the end of the process hereinbefore described there shall be added to the mixture two millilitres of starch solution.

As an alternative to the step prescribed by sub-rule , it shall be permissible to add two millilitres of sodium starch glycolate solution at the beginning of the titration.

Titration shall be carried out until the blue colour just disappears from any blueness which may return after standing shall be ignored.

A blank determination shall be made by the same procedure without the sample of industrial effluent but with the use of 100 millilitres of distilled water instead.

Not more than 50 per cent of potassium permanganate shall be used up during the test, and the quantity of the sample of industrial effluent added shall be proportioned accordingly.

PART III

CALCULATION OF PERMANGANATE VALUE

The permanganate value shall be calculated from the following formula :

Permanganate value (4 hours) mg/1 = $100^{(a-b)}/c$ where -

- (a) is the millilitres of $N/_{80}$ sodium thiosulphate required for the blank determination;

- (b) is the millilitres of $N/_{80}$ sodium thiosulphate required for the sample; and
- (c) is the millilitres of industrial effluent sample used.

APPENDIX III
FORM OF APPLICATION FOR PERMISSION TO DISCHARGE INDUSTRIAL
EFFLUENT INTO THE SEWER

I (Name) _____ the undersigned, duly authorized to act on behalf of _____ and hereinafter referred to as the applicant, hereby apply in terms of the permission to discharge industrial effluent into the sewer on the basis of the information set out herein.

PART I
INFORMATION REGARDING PERSONS EMPLOYED AND WATER
CONSUMED ON THE PREMISES

Nature of the business or industry concerned

Name or style under which the business or industry is carried on

Address of the business or

industry _____ P O Box

_____ Stand(s) Nos. (No.) _____ Township _____

If the business or industry is carried on by a company, state the name of the secretary and if it is a partnership state the names of the partners _____

Description of industrial or trade process by which the effluent will be produced

Information relating to employees:

Office _____ Factory _____

Total number of daily employees

Number of shifts worked per day _____

Number of days worked per week _____

Number of persons resident on the premises

Is a canteen provided?

Information relating to water consumption:

Kilolitres/Month

Approximate average monthly quantity of water
purchased from the Service Provider for the use on the
premises _____

Approximate average monthly quantity of water
obtained from any borehole or other source

Quantity of water in the end-product

Quantity of water lost by evaporation _____

Quantity of water used as boiler make-up

Is water used on the premises, and subsequently
discharged to sewer? _____

If the answer to the question above is “affirmative”, Part II of this form
must be completed.

Applicant’s Signature _____

PART II
INFORMATION REGARDING THE CONSUMPTION OF WATER

The following information is required for the purpose of estimating the quantity of industrial effluent discharged into the sewer, and all figures given shall relate to the quantity of water taken over a period of six months.

Name of consumer or his/her representative.

Stand No. : _____ Township: _____

TOTAL NUMBER OF KILOLITRES OF WATER CONSUMED IN SIX MONTHS

	Meter No.	Meter No.	Meter No.	Total
Water purchased from the Service Provider				
Water from borehole or other source				
Water entering with raw materials				
Section of plant served by meter				
Total quantity of water consumed				

For the purposes of this estimate the total number of kilolitres of water used in six months for any of the purposes below mentioned may be left out of account.

Water used by staff for domestic purposes:

Shifts

per

Days

per

Allowance

(Kilolitres/

Total

Daily employees (excluding residents)

Office

--

Resident Persons

Canteen					

Total water used

(in kilolitres)					
-----------------	--	--	--	--	--

Water used in the operation of boilers:

	Boiler 1	Boiler 2	Boiler 3	Total
Type of boiler				
Rating ^{kg steam/hr} / _{kilowatt}				
Hours steamed per month				
Total evaporation per month				
Condensate returned (in kilolitres)				
Percent of unreturned condensate discharged to sewer				
Coal burned - kg per month				
Water used for coal wetting (in kilolitres)				

Water used for ash quenching (in kilolitres)				
Quantity of blow down (in kilolitres)				
Does blow down enter sewer?				
Quantity of softener backwash water per month (in kilolitres)				
Total quantity of water used (in kilolitres)				

Water absorbed by the goods manufactured on the premises in six months:

Expressed as a percentage of the total consumption of water less the allowances for staff use;

Expressed as kilolitres per six months contained in the finished product*:

Kilolitres per six months

Kilolitres of water lost in six months by evaporation to the atmosphere:

By units of plant other than cooling tower
 _____ Kilolitres per six months;

By cooling towers:

--	--	--	--	--

	1	2	3	Total
Type of Tower				
Quantity of water circulated per six months (in kilolitres)				
Temperature drop (C)				
Estimated loss by evaporation (in kilolitres)				
Metered water fed to cooling towers (in kilolitres)				
Quantity of refrigerant in circulation in six months (in kilolitres)				
Total quantity of water lost by evaporation (in kilolitres)				

Quantities of water lost in six months from miscellaneous causes:

Total deduction (in kilolitres) _____

Grand total of deductions to be made in terms of subparagraphs to of this paragraph

* Example: Soap factory: Yellow soap, 4 000 metric tons manufactured at 50 per cent moisture content ____ water in product 2 000 kilolitres (in six months).

Estimated process water discharged to sewer (arrived at by deducting the total quantity of permissible deductions shown in subparagraphs to of paragraph from total water consumed as shown in paragraph .

SIGNED: _____

BY OR FOR THE APPLICANT

BY OR FOR SERVICE PROVIDER

DATE: _____

PART III
INFORMATION REGARDING NATURE OF INDUSTRIAL EFFLUENT

Information required concerning the chemical and physical characteristics of the effluent to be discharged:

Maximum temperature of effluent C _____

pH Value _____ pH _____

Nature and amount of settleable solids _____

Permanganate value (4 hours) strength _____

Maximum total daily discharge (kilolitres)

Maximum rate of discharge (kilolitres/hour)

Periods of maximum discharge (e.g. 07h00 to 08h00)

If any of the substances, or their salts, specified in the table are formed on premises a cross must be placed in the space in which the substance appears, and, if possible, the average concentration of this substance likely to be present in any effluent must also be stated.

TABLE

Iron		Chromium		Nickel	Cadmium
Zinc					
Silver	Cobalt	Tungsten	Titanium	Lead	Selenium
Mercury	Arsenic	Boron	Cyanide	Nitrates	
Ammonium	Sulphides	Sulphates	Others		
Starch or sugars	Tar or tar oil			Grease and oil	

Synthetic detergents		Volatile solvents		Others	
-------------------------	--	----------------------	--	--------	--

Any further information as to kind or character, chemical composition and concentrations peculiar to the industrial effluent are to be furnished on a separate sheet and attached hereto.

PART IV CONDITIONS OF ACCEPTANCE OF INDUSTRIAL EFFLUENT

This application shall only be granted on the applicant's undertaking as he/she is by virtue of his/her signature hereto appended deemed to do, to observe the following terms and conditions and any further special conditions which the Service Provider may think fit to impose in any particular case:

The applicant shall annex hereto descriptions and a statement of the dimensions of grease and oil traps, screens, dilution and neutralizing tanks and any other provision made by him for the treatment of the industrial effluent before it is discharged to the sewer.

The applicant shall submit to the Service Provider, if requested, plans showing the reticulation systems on his/her premises for water and industrial effluent.

The applicant shall, in addition to complying with the provisions of these By-laws concerned with the protection of its employees, sewers and treatment plant from injury or damage, also comply with any direction concerned with such protection given to him/her by the Service Provider verbally or in writing for the purpose of ensuring the applicant's compliance with the said by-laws.

The applicant shall notify the Service Provider, as soon as possible after he becomes aware of or at least 14 days before anything is done to cause any material alteration in the nature or quantity or discharge of the industrial effluent specified in this application or in any of the facts stated by him therein.

The applicant shall within 30 days from the date of signature of this application procure an approved accurately representative sample of not less than five litres of the industrial effluent to be discharged to the sewer, which sample shall be free of domestic sewage, and shall submit one half thereof to the Service Provider for analysis and also submit to the Service Provider a report on the sample made by an analyst appointed by him/her : Provided that in the case of a newly established industry the period specified in this rule may be extended by the Service Provider for a period not exceeding six months or such further extended periods as the Service Provider in its discretion may from time to time in writing permit.

The applicant hereby declares and warrants that the information given by him/her on this form or otherwise in connection with this application is to the best of his/her knowledge and belief in all respects correct.

The applicant agrees that the said information, being in all respects correct, shall form the basis on which this application is granted by the Service Provider.

Thus done at _____ by the applicant

this _____ day of _____ 20 _____

Signature and capacity of the applicant.

Permission is hereby granted by me on behalf of the Service Provider, I being duly there unto authorized, for the discharge into the sewer in accordance with the Drainage and Sanitation By-laws of industrial effluent as described in this form and in the circumstances therein set forth: Provided that his permission shall be revocable by the Service Provider at any time at its absolute discretion on the expiry of reasonable notice in writing given by it to the applicant.

The said permission is given subject also to the following special conditions:

SIGNED: _____
SERVICE PROVIDER

APPENDIX IV

FORM OF APPLICATION FOR PERMISSION TO INSTALL APPLIANCES FOR LIFTING SEWAGE

NOTE: On premises where it is not possible to drain all sanitary fittings by gravitation to a connecting sewer, the Service Provider will consider applications for lifting sewage only in respect of those parts of premises which cannot be drained by gravitation. In the case of a single basement, consideration will be given to the use of sanitary fittings on the ground floor.

In all cases where lifting of sewerage is permitted, the Service Provider will stipulate the rate of discharge, which will be normally limited to a maximum of 240 (two hundred and forty) litres per minute.

INFORMATION TO BE FURNISHED BY OWNER

The owner of the premises shall furnish the following information and the relevant literature and characteristic curves and sign the application and undertaking:

Make of appliance, name of supplier and purpose for which the appliance is designed: _____

kW rating and speed of motor: _____

Maximum rate of discharge in litres per minute: _____

Size of rising main and velocity of discharge: _____

Capacity and dimensions of storage tank - depth to be given as liquid depth
below inlet drain:

Descriptions of stand-by equipment, automatic controls, warning systems, and
other relevant information

Any matters relating to the electric power connection and switchboard will be referred to the Electricity Department and will be subject to the approval of that department.

The Service Provider may require the owner to supply a key to enable authorized personnel of the Service Provider to gain access to the mechanical appliance installation at all times.

APPLICATION AND UNDERTAKING BY OWNER

I, the undersigned, hereby make application to install mechanical appliances for the

lifting of sewage and accept without reservations, and undertake to abide by, the following conditions:

The maximum discharge rate shall not exceed _____ litres per minute;

The onus shall be on the owner of the premises to have the installation regularly serviced and maintain in a hygienic and efficient working condition at all times. Any necessary repairs or replacements are to be effected immediately, so that interruptions in operation are reduced to a minimum.

In the event of breakdowns from any cause whatsoever, the owner shall take immediate precautions to ensure that unhygienic conditions do not develop.

The Service Provider shall not be held responsible for any damages or claims which may arise through unhygienic conditions, installation stoppages, inefficient operation, explosion or other causes.

Authorized personnel of the Service Provider shall, at all times, be given unhindered access to the installation for the purpose of inspection.

SIGNED:

APPLICANT _____

OWNER

ERF NO.: _____ TOWNSHIP:

DATE: _____

FOR OFFICE USE ONLY

This application is approved and permission to install the proposed mechanical appliances for the lifting of sewage is hereby granted on the under mentioned conditions (if any):

CONDITIONS: _____

DATE: _____

SIGNED: _____

SERVICE PROVIDER

APPENDIX V

REGISTRATION OF PLUMBERS AND DRAINLAYERS

All plumbers and drain layers must apply to register with the Service Authority and must provide proof of qualification and experience.

The Service Authority shall compile an approved list of plumbers and drain layers, and update the list from time to time, following applications to register.