

D 1422
The Executive Director
eThekweni Water and Sanitation Unit
2 Prior Road
DURBAN
4001

Att. Mr M Hebbleman

Dear Sir,

PROPOSED FAIRWAYS OFFICE AND INDUSTRIAL PARK : WATERFALL : REM OF 146 (OF 4) OF THE FARM UPPER END OF LANGEFONTEIN NO 980 53 OF ROAD D 819 BARCKENHILL.: SEWAGE TREATMENT WORKS : FORMAL SUBMISSION FOR APPROVAL IN TERMS OF THE NEW GUIDELINE FOR THE INSTALLATION OF PRIVATELY OWNED LOW VOLUME DOMESTIC SEWAGE TREATMENT SYSTEMS.

Duly instructed by our client, we submit for your approval, the following report on the proposed wastewater treatment plant for this development.

A. Relating to the Developer and Professional Engineer / Technologist

1.0 Name and Address of the Developer

Meadowood Trading 8 (Pty) Ltd
29 Ridge Road,
Hillcrest
3610

2.0 Name, Address and Professional Registration Number of Professional Engineer / Technologist

Civil, mechanical and electrical engineers responsible for the construction and maintenance of the plant during operation for the first five years

G T Westgate Pr Tech (Eng) ECSA 8570026

In his capacity as a director of WSP CONSULTING ENGINEERS SA (PTY) LTD Ltd, Consulting Engineers having been duly appointed as the consultants for this aspect of the project.

Chemical engineer responsible for the process design of the plant and the operation of the plant for the first five years.

D J Nozaic Pr Eng

3.0 Confirmation that his / her appointment covers the design / selection and supervision of the installation, construction and commissioning of the plant.

We confirm receipt of, and acceptance of the brief from the developer to fulfil these tasks.

4.0 Confirmation that the developer agrees to issue the financial guarantee

This confirmation is noted in the attached letter.

5.0 Confirmation that the professional engineer / technologist has been contracted to provide an operation and maintenance service for the first five years of operation of the plant.

We confirm receipt of, and acceptance of the brief from the developer to fulfil these tasks.

6.0 Confirmation that the Management Rules of the Body Corporate will incorporate a clause, as per Annexure 6 binding the Body Corporate for a service contract commitment.

The developer makes this commitment in his letter. (Attached)

B. RELATING TO THE PROPOSED DEVELOPMENT

7.0 Physical address of property / subdivision

PETER PLEASE PROVIDE THIS INFORMATION

8.0 Property description and size

PETER PLEASE PROVIDE THIS INFORMATION

Number of dwelling units proposed on the site

Not applicable

9.0 Description of dwelling unit type (s)

Nil

10.0 Details of any industrial or commercial undertakings

Warehousing, offices and factories.

11.0 Anticipated daily quantity of waste water that will be generated on the development site

232 kl/d

12.0 Anticipated quantity of non domestic waste water that will be generated on the development site

All sewage entering this plant will be of domestic origin as a two pipe system will be installed. The second sewer will convey all industrial wastes to conservancy tanks via sand, oil and grease traps. This effluent will be tinkered to a Metro treatment works for further processing.

It therefore our opinion that the sewage generated will comply with that envisaged as being treatable within the current guidelines.

13.0 Estimated maximum instantaneous peak rate of inflow to the treatment plant

9,44l/s (gravity flow)

14.0 Layout Plan

Please refer to attached plans .

C. RELATING TO THE PROPOSED TREATMENT PLANT

15.0 Brief description of the sewage treatment plant / process to be installed including capacity

The plant will consist of the following unit processes:

Septic Tank

A two compartment septic tank will be constructed.

Proposed Aerobic Second Stage

This will take the form of an activated sludge module with surface aerators.

Proposed Secondary Sedimentation Tank

A secondary sedimentation tank will be constructed to allow for phase separation of the mixed liquor.

Return Activated Sludge Pumps

Two submersible pumps are installed in the sludge sump for this duty. They will be installed on a duty / standby basis.

Effluent Recycle Pumps

Two effluent recycle pumps will be installed on a duty / standby basis to recycle effluent to the septic tank.

Sterilisation

Two stage sterilisation will be carried out by means of ultraviolet light radiation followed by the addition of sodium hypochlorite, dosed in liquid form into the chlorine contact tank.

The plant has been designed for the following loads

Average daily flow	232 kl
Peak instantaneous flow	9,44 l/s
BOD load	92,8 kg BOD / d
Nitrogenous load	18,56 kg/d
Max disinfection rate	10mg/l

16.0 Names and Addresses of the manufacturers / suppliers of the main components of the treatment plant

This is a purpose designed mini works and all equipment used is of a generic nature.

The structures are constructed from reinforced concrete and will be constructed by a reputable civil engineering contractor after normal tender procedures.

The mechanical and electrical equipment will similarly be the subject of a tender, in accordance with our specifications.

Typical tenderers for this could be:

Biwater
Lektratek
Klomac
FP
Total Water Solutions

These contractors are well known in the industry and have supplied equipment for major waste water treatment plants.

We will be pleased to discuss these tenders with you, prior to acceptance.

17.0 Estimated cost of the design, supervision, installation, construction and commissioning of the plant

We estimate that the cost of this plant will be of the order of R 2 000000

18.0 Measures to be taken to provide for mechanical, electrical operational or process failure.

All mechanical equipment is provided with 100% standby plant.

Diesel driven standby generation equipment will be installed to power the plant in the event of power failures.

All electrical controls for mechanical equipment is provided with 100% standby.

The capacity of the anaerobic section of the plant (septic tank) is 250kl This equates to approximately 1,08 days of flow. In the event of total power failure for an extended period, the septic tank may be used as a conservancy tank. The sewage will thus be able to accumulate for removal by tanker.

In the event of short term power outages, the aeration tank has a volume equating to 23 hours of design flow – this partially treated effluent will be displaced for an extended period before the effluent quality to the secondary sedimentation tank is affected.

In addition, there is at least 12 hours of design flow volume stored in the form of final effluent in the secondary sedimentation tank. This will be the first liquid displaced in times of power failure.

Due to the size of the plant, it will be possible to sterilise the final effluent by manual means using chlorine pills and HTH if power failure should prevent normal dosing. In addition, a dual sterilisation regime is to be installed.

19.0 Measures to be taken to avoid / mitigate nuisance or complaint arising from the sewage treatment plant.

The choice of process viz activated sludge and the design loadings will ensure that no unpleasant odours will be released from the open sections of the plant.

The anaerobic section of the plant has been designed to prevent open turbulence in the incoming flow, thus inhibiting the release of hydrogen sulphide and other odour forming gases.

The outlet from the anaerobic section of the plant is submerged under the water level of the mixed liquor in the aeration tank. This will inhibit the release of odours from this quarter.

No sludge drying beds are provided, waste activated sludge is returned to the anaerobic section for further degradation and mineralization. This negates the risk of fly breeding and odour formation from drying sludges.

The site will be fenced to prevent unauthorised access by members of the public and to ensure their safety. Extensive landscaping and planting will assist in screening the plant and ensuring that the plant does not become an eyesore.

The anaerobic section of the plant (septic tank) will accumulate all detritus and screenings from the development and will require periodic desludging. (Typically once in two years) The sludge so removed will be transported by tanker to an approved disposal point.

We trust that the information provided is to your approval, please do not hesitate to contact us should further information be required.

We look forward to your approval of this application, which is made in conjunction with an application under Guideline Document No 8, accompanying this application.

Yours faithfully