



## **SUPPLY AND INSTALLATION OF A GREY WATER TRIAL SYSTEM FOR A UJ STUDENT RESIDENCE ON THE UNIVERSITY OF JOHANNESBURG APB CAMPUS**

### **TECHNICAL SPECIFICATION**

The following standards are particularly relevant to the scope of works. This is not a fully comprehensive listing of all relative standards and normative references but rather a list of the more notable standards.

- Occupational Health and Safety Act (Act 85 of 1993)
- SANS 10400: National Building Regulations
- SANS 1732: Greywater Reuse Systems
- SANS 10252-1: Water supply and drainage for buildings
- SANS 52056: Gravity drainage systems inside buildings
- SANS 52566: Small wastewater treatment systems

# **1 Grey Water Trial System For A UJ Student Residence ON APB Campus**

UJ APB campus is currently facing the challenging situation where it is one of the UJ campuses is badly affected by the interruption of water supply by City Water. Access to water is a minimum requirement for the APB campus to house its residence students and cater for persons on the premises. Presently the APB campus relies on a single water supply and has a process in place to install a 48-hour backup water storage system to try and stabilize usable water during short term water interruptions. This is however not a truly sustainable solution and actual water consumption reduction is very important – and grey water recycling is one of the only ways to reduce the absolute amount of potable water required for the campus.

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### **Scope of Works**

1. The solution should provide for
  - Equipment implementing a grey water harvesting of all bath / basin / shower wastewater according to required national water standards.
  - Adaptation of the present basin and shower effluent piping in the residence as required.
  - Adaptation of the toilet cistern supply piping as required.
  - Allow for a bypass supply from the municipal potable water to the toilet cistern flushing for use in the case of maintenance of the installed plant.
  - All necessary metering to allow for estimates of water savings and recycling performance.
  - Preferably allow for storage of the equivalent of 2 full days of grey water production by the residence
  - Allowing for overflow / excess grey water in excess of the amount defined in point (f.) above to be transferred to the campus for use in either other residence toilet flushing or campus car washing and irrigation use.
2. The solution should provide a complete grey water recycling and storage solution for the specified APB Campus residence.
  - The residence accommodates +/- 250 students in a 11-storey building on the campus using dormitory style bathrooms using only showers and hand basins.

- The residence is a ladies residence and all toilets are pan types of toilets and there are minimal urinals in visitors spaces on the ground floor of the building that are not expected to be part of the grey water harvesting.
  - There is substantial open space closely located to the residence where the installation can be accommodated.
3. The proposed solution should further comply with the following additional requirements.
- Be implemented in accordance with a best practice and a professionally signed designed solution is expected prior to installation by UJ technical and campus staff and consultants if required – this must include at RFP submission the necessary basic design drawings and P&ID drawings to enable proposal evaluation possible.
  - The provision of a minimum 12-month warranty and support guarantee period by the main supplier for all supplied equipment – this includes items such as consumables e.g. filters and / or chemicals should they be included in the solution.
  - The assurance of continued maintenance support, in the absence of other suppliers willing to support the installed solution, especially with regards to the chemical and / or process elements and / or motive power and control equipment required for the solution.
  - A guarantee to maintain minimum spares holding levels in local storage to ensure 12 months uninterrupted maintenance and support for at least 5 years after installation.
  - An explanation of how it is possible to swop out / remove units while operating so that unscheduled maintenance needs can be met while not interrupting the use of the residence due to interruptions to the toilet flushing.
  - All documentation and training required for operational and maintenance staff for UJ operational facilities management staff to be able to operate the installed plant must be supplied by the successful proposer.

The RFP respondents will have to take into consideration, but they are not limited to, provision of the following and acting in accordance with the responsibilities indicated below if their proposal is accepted:

- a) Proposals are to include, but are not to be limited to, the assessment, design, supply, installation, commissioning of the necessary equipment, structures and control systems to

enable the primary requirement of providing the full grey water solution to the residence specified on the APB Campus.

- b) The RFP respondents must provide indications of costs of certification and the necessary applications to local and national departments as well as the cost of testing for the first year of operation. The selected supplier must provide full drawings to the necessary standards for updating of APB Campus facilities documentation.
- c) The necessary applications documents to be submitted to the City of Johannesburg for Site Development Plan and Building Plan approvals related to the project are the responsibility of the selected supplier.
- d) The RFP respondents must provide an operational cost estimate based on the chemicals, filters and other consumables based on a peak usage day.
- e) The RFP respondents should provide an indication of service and maintenance requirements for the proposed equipment as well as indications of annual costs to maintain based on an assumed monthly and annual usage pattern.
- f) The RFP respondents must provide for the achieving of all certificates of compliance related to the total installation – including but not limited to electrical compliance certificates, plumbing compliance certificates, etc.
- g) RFP respondents must give an indication of the ability of their solution to allow for extensions that may be required to accommodate changes in usage.
- h) The RFP respondents must acknowledge that if they are successful that all work on UJ campuses must comply *fully* with the Occupational Health and Safety Act (Act 85 of 1993) and all sub-regulations in place at the time. All work is also to be carried out in accordance with the requirements set out in the SANS 10400 - National Building Regulations, and relevant SANS regulations, applicable to a project of this nature.

## **APPROVAL**

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As applicable and in accordance with the signature mandate:

<b>Role</b>	<b>Name</b>	<b>Signature</b>	<b>Date</b>
Project Manager: Central Technical Services	Mbambeleli Masala		
Director: Central Technical Services	Greg James		
Maintenance Manager: APB Campuses	N Nyawo		
Senior Director: Campuses	Dr J Manyaka		
Acting Executive Director: Facilities Management	Abraham Snyders		
Chief Operating Officer	Dr MA Ralephata		