
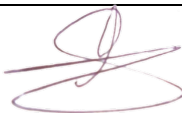


ADDITIONAL SPECIFICATION FOR AIR AGITATION SYSTEMS IN EFFLUENT TREATMENT PLANTS				
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Local Business:	Locomotive			
Location:	Swartkops, Cambridge, Bellville (Excl Saldanha)			

The following specification is to cover the agitation of Effluent within the dams to prevent settling at the bottom of the dams at an assumed depth of approximately 5 meters.

1. INTRODUCTION

This specification outlines the design, supply, and installation of an air agitation system using bubble and air diffusers for effluent treatment plants at three Transnet maintenance depots. The air agitation system will enhance the aeration and mixing of the effluent in the holding dams to promote biological treatment and prevent the formation of anaerobic zones.

Overall Dam Areas:

Swartkops: 57m², Cambridge: 90m², Bellville: 53m²

2. SYSTEM REQUIREMENTS

- The air agitation system shall include air blowers, air distribution piping, and fine bubble diffusers.
- The system shall ensure uniform agitation across the dam area and up to a depth of 5 meters.
- All components must be corrosion-resistant and suitable for effluent treatment environments.
- The system must be low-maintenance and energy efficient.

3. DESIGN CONSIDERATIONS

- Minimum air flow rate to ensure agitation: 0.6 m³/h per m² surface area.
- Diffusers shall be EPDM or equivalent, with a bubble diameter of <3mm.
- Blowers to be rotary-lobe or centrifugal type, capable of continuous duty.
- Distribution piping to be HDPE PN10
- Each dam to have a separate control valve.
- System must allow for future maintenance and part replacement.

4. CONTROL AND MONITORING

- Manual isolation valves for each diffuser line.
- Pressure gauges and flow meters on each blower line.

5. INSTALLATION

- All diffuser manifolds must be weighted and suspended at appropriate depths.
- Anchoring and pipe support shall be resistant to corrosion and effluent contact.

- System to be installed by qualified personnel in accordance with SANS 10252-1 and SANS 241.

6. STANDARDS

- **SANS 10252-1:** Water supply installations
- **SANS 241:** Drinking water quality (as reference for water standards)
- **OHS Act 85 of 1993:** Safety during installation