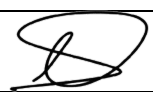




## Specification Template

SPECIFICATION FOR THE DESIGN , INSTALLATION AND COMMISSIONING OF AN EFFLUENT TREATMENT PLANT FOR THE SWARTKOPS LOCOMOTIVE DEPOT				
	Name	Designation	Signature	Date
<b>Compiled By</b>	Qaasim Soeker	Plant Engineer		25.03.2025
<b>Reviewed By</b>	<del>Amanda Tondo</del> Tongo	Risk and Safety Manager		25.03.25
<b>Reviewed By</b>	Sibonelo Msizazwe	Project Manager		09 April 2025
<b>Approved By</b>	Vishal Mohunlal	Local Business Manager	<i>V. Mohunlal</i>	07/04/2025
<b>Location:</b>	Swartkops Locomotive Depot, John Tallant Road, Deal Part, Gqeberha, 6020			

## **1. Overview**

This document outlines the scope of work for the upgrade of the existing effluent treatment plant at the Swartkops Locomotive Depot. The objective is to modernize and expand the facility to efficiently manage and treat effluent generated during the maintenance of locomotives. The treated effluent, along with raw sewage, will be pumped to the nearest municipal wastewater treatment works.

## **2. Scope of Work**

### **2.1. Civil and Structural Works**

- Site clearance and preparation.
- Construction of new concrete plinths and bund walls where required.
- Installation of a 2.4-meter-high perimeter ClearVu fence or similar approved, complete with two (2) lockable access gates.
- Provision of adequate stormwater drainage.

### **2.2. Mechanical and Process Works**

- Upgrade of existing 3 effluent pumps and 2 sewage pumps with energy-efficient and corrosion-resistant models.
- Installation of pump isolation valves, backflow preventers, and non-return valves.
- Installation of flow meters, chemical dosing pumps, and surge protection.
- Supply and installation of additional sludge and grease traps, if required.

### **2.3. Electrical and Instrumentation**

- Replacement/upgrade of electrical motor control centres (MCCs).
- Installation of programmable logic controllers (PLCs) for automated process control.
- Integration of system status indicators and alarms.
- Supply and installation of an uninterruptible power supply (UPS) for essential controls.

### **2.4. Automation and Monitoring**

- Integration of a SCADA (Supervisory Control and Data Acquisition) system with remote monitoring capability via PC and mobile devices.
- Alarms to notify responsible personnel in the event of system faults, failures, or irregular parameters.
- Data logging and reporting features.

### **2.5. Lighting and Security**

- Supply and installation of energy-efficient LED floodlights around the perimeter and operational zones.

- Lighting poles and underground cabling as required.

### **3. Applicable Standards**

- SANS 10252-2: Water Supply and Drainage for Buildings - Part 2: Drainage Installations
- SANS 10400: Building Regulations
- SANS 10103: The Measurement and Rating of Environmental Noise
- SANS 241: Drinking Water Specification (as applicable for treated effluent quality monitoring)
- Occupational Health and Safety Act 85 of 1993
- Electrical Installation Regulations (as per Department of Labor)
- ISO 14001: Environmental Management Systems
- NEMA Act 107 of 1998.
- National Water Act 36 of 1998.
- Water Services Act 108 of 1997.
- Municipal By-laws and local environmental standards.

<b>Item No.</b>	<b>Description</b>	<b>Unit</b>	<b>QTY</b>	<b>Rate per unit - ZAR , Excl VAT</b>	<b>Total - ZAR , Excl VAT</b>	<b>Comments</b>
1	Site clearing and preparation	Sum	1			Includes debris removal and leveling
2	Concrete plinths and bund walls	m <sup>3</sup>	25			For pump and control panel bases
3	ClearVu or similar fencing (2.4m high)	m	70			Including posts and fittings
4	Access gates (lockable, double-leaf)	No.	2			3m wide each
5	LED Floodlights	No.	6			200W, weatherproof
6	Lighting Poles	No.	3			6m galvanized steel
7	Effluent Pumps	No.	3			High-efficiency submersible/Immersible type
8	Sewage Pumps	No.	2			With cutter impellers
9	MCC Panels with VSDs and UPS	Sum	1			Fully integrated for pump control
10	PLC and SCADA System	Sum	1			Includes remote access and alert system
11	Flow meters and valves	Sum	1			For all pumps and inlets
12	Chemical dosing pumps and tanks	No.	2			For pH and coagulation control (if required)
13	Sludge and grease traps	No.	2			Inlet side of the plant
14	Electrical cabling and trenching	m	250			Including conduit and protection
15	System commissioning and training	Sum	1			On-site support and manuals
16	Provision of Electrical COCs	Sum	1			
17	Provision of All Line	Sum	1			

	Diagrams and System Drawings					
18	Replacement of Electrical Side depot skimming system.	Sum	1			
19	Provision of Health and Safety File	Sum	1			
				Total (Excl VAT)		
				VAT @ 15%		
				Total (incl VAT)		